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DEPARTMENT OF PSYCHOLOGY

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STUDENTS' ATTITUDE TOWARDS TECHNICAL/VOCATIONAL EDUCATION & TRAINING PROGRAM IN OROMIA REGION

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By:

LELISSA CHALLA

June 2006

STUDENTS' ATTITUDE TOWARDS TECHNICAL/VOCATIONAL EDUCATION & TRAINING PROGRAM IN OROMIA REGION

By:

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Abbreviations/ Acronyms

ANOVA	Analysis Of Variance
GTZ	German Technical Cooperation
i.e	That is
ILO	International Labor Organization.
MOE	Ministry Of Education
TV	Television
TVET	Technical/Vocational Education and Training.
UNESCO	United Nations, Educational Scientific, and Cultural Organization

ABSTRACT

The purpose of the present study was to examine the attitude of students; particularly those enrolled in Construction and Industrial Technology fields of study, towards Technical/vocational Education & Training (TVET) program as a function of the students' gender, field of study, year level and academic attainment. The study was conducted in Oromia Regional TVET Colleges of Asela and Nekemte. Four hundred and twenty five (M=214 & F=211) students were randomly selected from the three-year levels (10+1, 10+2 & 10+3) and participated on the study. Five-point Likert type attitude scale plus questions on joining TVET were used to gather data. The final sample total scale reliability was .85 alpha while the sub-scales' were .82 and .71 alphas for "perceptions on the value of TVET program" and "general attitude" scales respectively. The analysis of variance, mean, chi-square, percentage and correlation were employed for data analyses at .05 significance levels.

The result suggested a more favorable attitude of students towards TVET program and its value. Significant gender (in favor of male) and year level (in favor of 10+3 year level) differences in attitudes towards TVET and in perceptions on the value of TVET program were found while that of field of study yield non significant attitude differences. Besides, the correlation of total attitude scores and course exam scores indicated positive relationships. On the other hand, students did not want to study TVET while they were in grade 10. Nevertheless, they exhibited more interest to TVET after they participated in the program. The three most important reasons for students to join TVET were 'scoring low' in 10th grade national exam, 'personal interest' and 'expectation for further training'. The main source of career information of TVET college students was the popular Media (Radio, TV and News paper) while the function of vocational counseling found to be low.

The findings of the study suggest working actively to minimize the male-female attitude gap and to extend further research on students' attitude towards TVET program.

CHAPTER ONE

1. INTRODUCTION

1.1 Background of the Problem

Technical/vocational education has historically been considered education for those students who fail to make through the straight path (Primary, secondary, preparatory to university). The public saw this type of education as a system of education prepared for intellectually inferior students and associated with non-prestigious blue-collar employment (Alloway et al., 2004; Teklehaimanot, 2002; Wanacott, 2000; Wanna, 1998). Moreover, it is considered with a second-class status (Rojewski & Sheng, 1993; King, 1977). Too often, technical/vocational program became dumping grounds for students who appeared slow or unmotivated or "low achievers"(Alloway et al., 2004; Tecklehaimanot, 2002; Wanacott, 2000). In addition, the program is assumed to be with limiting goals and lowering expectations by deliberately offering stunted education to students who are already behind (Morrow, 1995).

Therefore, these negative feelings ultimately contribute to a lack of vocational preparation and poor motivation for many youth who could otherwise benefit from involvement in technical/vocational program.

Regardless of its negativity, Technical and Vocational Education is an instrument for economic, social, and political development. It brings change in various aspects of life; enables people to wisely use modern technologies and helps to solve their problems. It is also important to train workers who could work in various modern establishments. UNESCO

(1999, p.65) confirms this basic idea by stating: "Technical and Vocational Education is one of the most powerful instruments for enabling all members of the community to face new challenges and to find their roles as productive members of the society. It is an effective tool for achieving social cohesion, integration and self-esteem." Modern industrialization and recent development activities through out the world also rely heavily on technical vocational education and the kind of institution which supply skilled personnel and competence of those who are trained in these institutions.

Economic development in any society and at any level of development highly demands skilled and competent personnel, capital and people with managerial ability. For that matter, advanced countries attribute their success to the availability and qualities of skilled manpower for their economic development and better living standards (Venn, 1964). It is in this light that Ethiopia is highly interested in education in general and Technical and Vocational Education in particular for the supply of trained and skilled personnel to boost up her economic development and thereby change the living standards of her people.

Unfortunately, according to (MOE, 1994), the Technical/Vocational Education and Training (TVET) institutions of the Dergue regime that was 16 in number were inadequate and ineffective to produce skilled labor forces. They had not served well to meet the needs of both the employees and employers. Despite the training, most were even left jobless (Wanna, 1998).

The new education and training policy, which is on practice, gives special attention to the education sector in general and TVET in particular. The previous limited program of the 10+3 level at secondary school has been divided into various complementary programs. Thus, the new organization of TVET has a broad and multilevel foundation (MOE, 1994). As

a result, many institutions of different programs were opened and considerable amount of resources have been allocated to the sector. The old curricula were revised. Measures have been taken to train teachers. The system is restructured (Gutmann, 2000; MOE, 1999). Consequently, large number of students is placed in TVET institutions. As a result, participation in TVET program has been increasing. For example, before 10 years while the enrolment was about 2051 (Wanna, 1996), in 2005 it reached 44,304 (MOE, 2005). Effort has been made to produce skilled technicians at different levels. TVET Colleges were also organized to provide training in more than 20 areas of fields of study including upgrading the previous 10+2 level to 10+3 level (MOE, 2002). Nevertheless, the efforts made to look at the attitudes and interests of these trainees seem negligible. There is no evidence that shows whether trainees were interested in the program or not.

Students' attitude and interests towards the training program will have impacts on acquiring the necessary skills and knowledge. For effective training to occur in TVET, the training needs to match to the students' characteristics, including their attitudes, interests and motivation (King, 1985). Besides, attitude towards fields of a study is influenced by many factors. Some of these factors could be attributed to employment opportunity, job prestige, achievement, education level, gender and the like which have a great impact on trainees' perception on field of study as future preference of profession (Tesfaye & Demewoz, 2004; Morrow, 1995).

On the Other hand, at different levels of education, boys and girls differ in preference of study. Research findings indicate that at junior schools, though girls most often like science and games (physical education), on transforming to secondary school interest in mathematics and science of boys is maintained while that of girls' declines. After completion of secondary schools, boys prefer to study fields like engineering, physics and mathematics

while girls tend to choose occupations like teaching, nursing and social work (Morrow, 1995). This shows differences of interest between male and female students that need investigation in order to device areas of training according to the interest of students there by to positively influence their attitudes.

The present study, therefore, aims to investigate the attitudes of TVET College students towards the training program. It is conducted to better understand students' perception and attitudes towards TVET program. The study mainly focused on TVET colleges situated in Oromia. The basis for this study is many students and parents observed complaining on the TVET program.

On the other hand, there are few researches on the subject in the region as well as in the country. Reports from other countries may not exhaustively address the case here, for attitude is also partly a function of the cultural context (Scholl, 2002). It, therefore, appears that this issue needs exploration.

1.2 Theoretical Background

This part of the report of the study deals with theories, assumptions, research findings, criticisms and other works of authorities pertinent to students' attitudes towards TVET program.

1.2.1 Concept and Theories Related to Attitude and Attitude Measurement

Scholl (2002) viewed attitudes as a mental predisposition to act that expressed by evaluating a particular entity with some degree of favor or disfavor. Rokeach (1970) stated attitude as the core of our likes and dislikes for certain people, groups, situations, objects

and intangible ideas. Aiken (1988) has seen attitude as a learned predisposition to respond positively (favorable) or negatively (unfavorable) to the object of attitude.

According to Rokeach (1970), the responses that express favorable or unfavorable, positive or negative, like or dislike and desirable or undesirable include three components. These three components of attitude are cognition, affect and behavior. The cognition is the mental components that comprise beliefs or knowledge that an individual holds about the attitude object, or connection that he/she makes between attitude object and practical attributes. The affect is the emotional component of attitude that refers to beliefs, theories, expectancies and perceptions relative to the focal object. Behavioral is the action intention that represents a set of behavioral values attached to attitude object, or a set of behavior associated with liking or disliking the other object (Scholl, 2002; Aiken, 1988; Rokeach, 1970)

In addition to the three mentioned attitude components, Scholl (2002), added evaluation as the fourth component. Scholl explained evaluation as central component of attitudes. Evaluation consists of the imputation of some degree of goodness or badness to an attitude object. When we speak of a positive or negative attitude toward an object, we are referring to the evaluative component. Evaluations are functions of cognitive, affective and behavioral intentions of the object. According to Scholl (2002), it is most often the evaluation that is stored in memory, often without the corresponding cognitions and affects that were responsible for its formation. Therefore, to change the attitude, it requires to change the over all components (Aiken, 1988).

In another way of understanding, the term attitude refers to such characteristics of individual opinions, interests, values and beliefs (Rokeach, 1970). However, there exist slight differences between the mentioned psychological constructs and attitude.

An opinion is specific reaction to certain occurrences or situation, but attitude is more general in its reaction toward the events or people. Opinion largely consists of elements of knowledge and lacks affective components. People could be aware of their opinion, but they may not be fully conscious of their attitudes (Aiken, 1988; Rokeach, 1970).

Attitude and value share much of similarities than differences. Values refer to the importance, utility or worth attached to particular activities and objects (Rokeach, 1970). Since, both attitude and value systems have the same structure; they can be measured in similar way. To change the attitude one can change a set of formal value (Rokeach, 1970).

Most of the time, attitude and interests are interchangeably used. Both indicate preferences for activities, which imply approval or disapproval, and/or positive or negative acceptance or rejection of ideas or objects (Aiken, 1988). So, understanding the distinction between opinion, interest, value and attitude may contribute to the study of students' attitudes towards TVET program.

Generally, an attitude, as evaluative judgment, is the labeling of an object and related aspects, as desirable-undesirable, good–bad, correct–incorrect, favorable–unfavorable, etc. It is an appraisal of the object positively or negatively, an assessment with regard to the absence or presence of some features, characteristics, values or qualities in the object of attitude.

Thus, the positive-negative, dimensions of attitudes toward certain object, therefore, can influence how an individual respond to that object. Furthermore, such dimensions can influence an individual commitment, interest and preference to a given stimuli. Therefore, they either facilitate or hinder learning or training. Besides, attitudes have influential power

to extent parents and students respond to the education system that the act may be positive or negative (UNESCO, 1973). For instance, UNESCO (1973) explained that the negative attitudes of community, parents and students in some developing countries become a fundamental barrier to the development of that kind of education.

Mehrens & Lehman (1991) suggested two major methods of measuring attitudes. These are observations and self–report. However both have their own weaknesses; observations require more persons that are qualified. In addition, it becomes more difficult to exactly observe incidents as they are (Barker, 1969). Thus, self–reports are preferred and used to assess students' attitudes (Mehrens & Lehman, 1991; Ebel, 1979; Anastasi, 1976; Barker, 1969).

Many writers suggest that attitude scale is an appropriate instrument for measuring attitudes. The two popular attitudes scales are Thurstone and Likert (Ebel, 1979). Thurstone scales involved defining and identifying the object, then making a pool of opinion statements; some positive some negative, and some neutral (Ebel, 1979; Anastasi, 1976; Barker, 1969).

The Likert method is appeared to be the most popular method of attitude scale construction. Likert scales are easier to construct and score than Thurstone scale. Likert scale is preferred because it is possible to produce more homogeneous scales, allows the participant to indicate the degree or intensity of his/her feeling and permits a greater spread of scores or variables (Mehrens, & Lehmnan, 1991). Thus, for the study of students' attitude toward TVET program, Likert scale is preferred.

In Likert scale, most survey use five point scales ranging from strongly agree, agree undecided, disagree and strongly disagree. On the other hand, while some involve seven-point scales, others incorporate four-point scales (Barker, 1969).

1.2.2 Related Research Evidence

This part of the study deals with research findings, and criticisms of other works of authorities pertinent to overview of Ethiopian TVET and students' attitude towards TVET program.

1.2.2.1 Overview of Ethiopian TVET

The development of vocational education is related to the development of general education in Ethiopia. Prior to 20th century, the education system was predominantly religious oriented that used to serve the manpower needs of the church and the state (Yekunoamlak, 2000; Wanna, 1998; Mekonnen, 2004). During that time, there was no significant sign of vocational training (Yekunoamlak, 2000). Nevertheless, Emperor Theodros (1855-1868) and Emperor Menlik II (1977), had contacted foreign countries and got some craftsmen and artisans (Yekunoamlak, 2000).

Modern type of education was introduced with establishment of Menlik II School in 1908. Though there was an intention to develop vocational education beginning that year, only academic subjects were provided. This was happened, because the primary objective to open a school was to prepare Ethiopians for various clerical administrative purposes (Teklehaimanot, 2002). During the time of Emperor Haileselassie I, schools were fairly expanded. There were about 30 schools in the country from 1925 to 1953 (Yekunoamlak, 2000). Addis Ababa Technical School was established in 1942. Addis Ababa Commercial

School, Addis Ababa Trade School, Ambo Agricultural School, Jimma Agricultural School and Bahir Dar Polytechnic Institute were established in year 1943 to 1964 (Wanna, 1998).

With the objective of making the curriculum job oriented and to produce middle level work force for the economy, the concept of comprehensive program was introduced in secondary school in the beginning of 1960's (Wanna, 1998). Home Economics, Agriculture, Productive Technology, Automotive and Business fields were offered in the comprehensive secondary schools parallel to academic subjects (Yekunoamlak, 2000 as Cited in Girma, 1996).

Around 1984, the decline of comprehensive secondary schools' curriculum was observed (Yekunoamlak, 2000). The schools lacked proper human and material resources. The quality of graduates was poor. The system was not able to absorb reasonable number of students. Thus, as Wanna (1998, p.58), stated, "...one can say that the program failed to achieve its mission- that is reducing unemployment among high school completers." Then, to alleviate the problem, attention was given to strengthen some selected comprehensive secondary schools and other technical/vocational schools. Efforts were also made to improve the quality and to provide effective skills (Wanna, 1998).

As a result, the 10+3 technical/vocational program was introduced. The technical schools rose to 17 in number. There were about 20 fields of specialization (Masresha, 2004). Nevertheless, the problems were not allayed as expected.

The 1994 Education and Training policy has brought fundamental change in education sector in general and TVET in particular. Number of schools and enrollment has been considerably increased. In 1997, twenty-five skill development centers were established in four regions. Of these, seven were opened in Oromia region (Gutmann, 2000). From the

seven-skill development centers, two of them (Asela and Nekemte) were upgraded to college level. One (from the old) vocational/technical school, (Waliso), was also upgraded to TVET College level. From all TVET institutions of Oromia, students who achieved better at 10+2 level often were selected and catered in the colleges to study at 10+3 level that qualify them with diploma level.

Moreover, from 2002 onward, many TVET institutions have been opened in the country to cater to those who completed grade 10. In consequence, the number of TVET institutions is considerably increased. There were 108 TVET institutions in Ethiopia and 34 in Oromia Region in 2005(MOE, 2005). Besides, attempts were made to provide training after grade eight and four that was supported by education and training policy (Masresha, 2004). As a whole, in recent years, in this country, efforts have been made to widen fields of study, to improve its quality and to increase enrolment rate. In addition, the program aimed to produce capable skilled technicians of different levels those not only seek employment but also can create jobs by them selves (MOE, 2002). Nevertheless, efforts made to investigate students' attitude towards TVET program is negligible (Teklehaimanot, 2002).

1.2.2.2 Students' Attitude towards TVET Program

A review of research literature reveals a number of factors that influence students' career choice. Among these factors are job status, employment opportunity and "interest in work". The other relative influencers are parents, peers, counselors, media and workers (Alloway et al., 2004; Esters & Bowen, 2004; Adams, Womble, & Jones, 2001; Hairston, 2000; Heywood, 1998; Abdelkarim, 1997; Rojewski & Sheng, 1993; McKenna & Ferrero, 1991). In addition to the mentioned variables, Maxwell, Cooper, & Biggs, (2000) expressed performance in school subjects has an influence for the choice of technical/vocational education program.

The most important reason for enrolling in marketing courses in advanced countries as it was reported in Adams, Womble, & Jones (2001) was to get out of school early (employment). Abdelkarim (1997) contend that among the students surveyed, the majority (94%) was able to enroll in TVET based on their personal interest to attend the program.

Maxwell, Cooper, & Biggs (2000) argued that employment opportunity was a substantial influencing factor for more students/people than any other things in their choice of TVET program. Furthermore, Maxwell, Cooper, & Biggs noted that parental influence, achievement in subjects, media, personal friends and role models (employers) found in that order were important influencing factors to choose TVET program as study fields.

According to Abdelkarim (1997), factors that can influence people's choice of training and their decisions to join a given field of study include personal factors, such as the social background of the person and the importance given to training versus direct employment in a family, or the choice of training for white-collar jobs versus to blue-collar jobs. Other factors include the educational qualifications needed for access to vocational training and physical access to training (distance matter) and the perceived quality of training (private and public) available in their vicinity.

In other words, there is no overwhelming single influence for every one, rather a combination of influences, each contributory but not conclusive in it self (Maxwell, Cooper, & Biggs, 2000). Therefore, it can be concluded that there are several social, educational and occupational factors for preferring TVET as a study field (Esters & Bowen, 2004; Maxwell, Cooper, & Biggs, 2000).

Mixed viewing (positive and negative) of vocational education by public was reported (Osborne & Dyer, 2000; Astesano, 1997; Claus, 1990). According to this argument, while some look TVET as useful that contributes to development, others perceive it as useless that discriminates and multiply unemployment. The positive viewers of TVET contend that participation in vocational education appears to contribute to the development of greater self-confidence, a more positive view of schools, and an improved ability to work and get along with others, a clear sense of career direction and greater feelings of success and belonging. Contrarily, the negative viewers argue that TVET program are inhibiting the opportunity of disadvantaged or academically alienated participants by fostering compliant work attitudes and an acceptance of low status of employment or no employment (Claus, 1990).

Chen (1991) conducted a research on attitudes of Taiwanese students and parents towards vocational education. Five hundred and forty eight respondents (vocational students, academic students and their respective parents) participated on the study. The study employed t-test and analysis of variance at 0.05 levels of significances. Based on the analysis of data gathered from the questionnaire for the respondents as a whole, had more positive attitudes than negative attitudes toward vocational education. There were no significant difference in the mean score of attitudes toward vocational education between vocational students and academic students. Like-wise, there was no significant difference in the mean score of the attitudes towards vocational education between the parents of the vocational students and the parents of the academic subjects. According to the research, female students were more favorable in their attitudes towards vocational education than were male students. Overall, one can understand that all respondents of the study had more positive attitudes than negative attitudes towards vocational education.

A study of attitudes of eighth graders towards vocational education and the relationship of these attitudes to high school educational program preference (vocational or college preparatory) were investigated in U.S., Florida on which 306 students participated. A 42 items questionnaire of Likert scale type and forced–choice questions was used. It was found that the attitude of male and female of different ethnicity did not differ significantly. The difference occurred was between advantaged and disadvantaged youth. Non-disadvantaged youth had a more favorable attitude towards vocational education. In general, all participants perceived vocational education with a positive attitude. However, male youth indicated a greater preference for the vocational program than did female youth (Vos, 1982).

Similarly, a study of students' attitudes towards vocational education done at Maryland by Black (1976) revealed that the participant students had favorable attitude towards vocational education. On the other hand, Lewis (1980) reported mixed attitude towards vocational education. On Lewis study, 4830 students participated. Of this, 85 percent of students reported that the vocational education they participated in was "very useful" or "some what useful" later in their life. The other quarter of respondents complained that the program prepares them for jobs "not too well" or "not at all". Thus, this is a good indication of the existence of favorable and unfavorable attitudes of students towards TVET program.

Alloway et al., (2004) conducted an interview with students, parents and career advisors to investigate attitude towards vocational education program. According to the study report, majority of the students found to have positive attitude towards the program. The positive viewers perceived TVET as enjoyable, fun and exciting, as not boring as normal (academic) school subjects. Furthermore, Alloway et al., (2004, p.59-60), expressed that "The lower and middle level socio-economic status students and the rural students, in particular, saw TVET

program as providing valuable qualification, key links to vocational pathways, employment opportunities and access to life skills."

In contrast, these researchers also indicated that some students in relation to their geographical, gender, choice of field of study and socio-economic status and demographic conditions voiced negative perceptions, experiences and suspicions of TVET program.

Moreover, Alloway et al., (2004) reported that parents and career advisors shared the perception that TVET was for the non–academically oriented students. Those enrolling in this program were some times considered to as "drop kicks" or "drop outs", or "failures", or "less intellectual persons" (Alloway et al., 2004; Wonacott, 2000).

In relating the attitudes and students' demographic factors and educational achievements, (Adams, Womble, & Jones, 2001; Womble & Jones, 1996) revealed that grade level (year level), and grades usually earned (achievements) on certain training program have direct relation to students' perceptions of vocational program. According to these researchers, grade 11 students of the participants of vocational and technical education program, were found to have positive attitudes than grade nine students. In contrast, King (1977) argued that students' educational or occupational level found to have nothing to do with how students feel about technical/vocational education program.

Regarding the achievement-attitude relation (Adams, Womble, & Jones, 2001; Womble & Jones, 1996) indicated that students who achieved As and Bs in their vocational courses were observed having positive attitude towards the course and viewed their vocations as useful, enjoyable and fun.

Jones & Womble (1997), additionally, remarked that grade level was found having significant mean differences in school to work perceptions. For example, attitude mean scores for students in grade 12 were higher than students in grade 9 that indicates greater awareness and favorable attitude to school and to related work issues. In addition, Jones & Womble (1997) noted that grades usually earned were associated with significant differences in school to work awareness. That is, students earning As and Bs observe positive perceptions towards school and to work awareness issues than students earning mostly Cs and Ds, which informs us that better achievers in study course are most likely to have positive attitudes towards their study program.

On the other hand, at lower grade levels, it was observed that students were less relating education and jobs. For instance, grade levels lower than 5 want to attend school to join college, that is, to "get smart." In opposite, after grade 5, children showed interest in education not to get smart; but to prepare for a job, which is the advent of career choice (Blackhust, Auger, & Wahl, 2003). In other words, while at lower grades, there was no significant difference in aspiration for jobs; most often beyond grade 5, students often exhibit differentiated aspirations for jobs/careers. Hence, at higher-grade level, students expected to hold different attitudes towards their field of study.

Students participating in technical/vocational education program of different levels (like 10+1, 10+2, 10+3) showed varied attitude to their study fields (Boser, Palmer, & Daugherty, 1998). There may be different reasons for having different perceptions on field of study. Some reasons attributed to employment opportunity, job status, easiness of the subject matter, easy accessibility, and availability of facilities and competencies of teachers.

It is obvious that students who are participating and not participating in technical/vocational program are expected to vary in their attitude towards the program. To this effect, King (1977) showed that non-vocational participant students exhibited more interest in white-collar jobs as opposed to blue-collar jobs. On the other hand, vocational program participating students became indifferent for the white and blue-collars jobs. It appears, then, non-vocational students seem to support the traditional believe that white-collar jobs are better than blue-collar jobs.

Moreover, King (1977) found that the participant students (both vocational and no-vocation) felt that the program was devised to keep blacks down. Thus, it is a good indication of misunderstanding and miss-conceptualizing TVET as for second-class, low socio-economic status; and as for failures (Teklehaimanot, 2002; King, 1977).

On the other hand, however, we understand that some students may perceive TVET as positive and some others as negative. Perceptions of technical/vocational education have become positive at present time than in the past (Alloway et al., 2004). It has become a viable alternative for students who want to get skilled employment and further education after high school (Rojewski & Sheng, 1993). "The stigma has gone away some what. School counselors have come around... A lot of these technical jobs have begun to pay more and many talks" (Koca in Springfield, 2001, p.1)

1.2.2.3 Prestige and Job Status Related Attitude towards TVET Program

Technical/vocational education has been considered as education designed for low achievers/failures and for second-class citizenship as (Alloway et al., 2004; Teklehaimanot, 2002; Wanacott, 2000; Wanna, 1998) reported. In explaining the misconception, Wanacott

(2000, p.243), wrote as "The most enduring belief about vocational education is that it's only for non-college bound, the potential dropouts, or other students with special needs ... and this belief is not confined to students and their parents; it is often shared by other educators and policy makers." Therefore, one can easily understand the views of the students and the public of our country, where, students who failed to score for preparatory education are by policy made to attend TVET as an educational option (MOE, 1994).

Regarding the issue under discussion, Teklehaimanot (2002), has reported three misconception areas on Ethiopian TVET. These are:

1. The social outlook on trades and skills: This problem is attributed to degrading or providing poor estimation for manual and skill works.
2. The discriminatory practices of some educational planners and administrators: The problem emanated from federal level and reached the training institutions. The main misconception was observed from directives given to the regions that would be implemented accordingly. As Teklehaimanot (2002) did explicit, low achievers or in fact "failures" of grade 10 students were required to attend TVET. On the other hand, students who achieved the pass mark (2.0) and above required to attend the preparatory program. Such streaming procedure by it self discourages the most motivated students to prefer TVET, regardless of their achievement.
3. The biased attitudes of educational and training institutions and students themselves: Regarding this misconception, Teklehaimanot (2002), stressed that there was no resistance on selection criteria either from administrators or from staff. It was accepted as norm to admit students with low grades to TVET. As a result, in many regions the directive was comfortably accepted and implemented. Related to this problem, Teklehaimanot argued that the wrong assumptions were:

- Low achievers could join and succeeded in TVET and not in academic education.
- Technical training requires less knowledge than academic studies
- Those who once joined TVET may not or cannot join further academic studies in their career.

In addition to the above-explained misconception on TVET, ILO (1997) reported the following:

- Poor background of trainees and inappropriate recruitment procedures;
- Lack of encouragement and support for trainees to start their own business;
- Lack of creativity of trainees lack of providing initiation by relevant bodies;
- Accreditations not made by concerned organizations, and vocational skill despised by the society.

Therefore, it may not be difficult to estimate that the misconceptualising TVET can generate negative attitude toward the program from either the students or their parents or the general people.

The problem of job status of technical/vocational education is also related to miss-conceptualizing the program. In developing countries like Ethiopia, job stereotypes are predominant that render it undesirable for individuals to acquire vocational qualifications. The prestige factor is often also used to discourage participation in vocational education (Dessie, 1996). Technical/vocational education is often regarded as a last choice or option, only to be taken if access to further general (including higher education) is not available or denied (Wober, 1975). Poor participation in TVET was observed because; many people preferred white-collar jobs to blue-collar jobs (King, 1977).

Dessie (1996) indicated that the low participation in TVET and providing low status for the area can also arise from lack of quality and the fact that TVET does not necessarily prepare individuals for the world of work, since, in many cases, curricula do not match with the requirements of the work place. Hence, where low prestige and status dominate and where, training quality and labor market mismatch observed, it goes without saying that inevitably, there exist poor motivation and interest to enroll in TVET program.

Furthermore, (Maxwell, Cooper, & Biggs, 2000; Wanacott, 2000) indicated that high status was attributed to university over technical/vocational education and university degrees were perceived to provide the best opportunities for future employment. As Maxwell, Cooper, & Biggs (2000) presented, some students enroll in TVET program because it is the only program they could get available. Moreover, some students use the program as a stepping-stone to another program.

In general, the low status provided for TVET, specially, by public, may discourage students to attend the program. Because, the area/subjects to which society has attached high demand of positive value gain positive attitude and more likely preferred by students for study (Wanacott, 2000). Besides, new types of educational institutions/programs succeed, change or fail on community reaction. Thus, Admissions in most schools, especially in established schools is regulated by the demand and prestige value attached to various subjects (Morrow, 1995).

In fact, there are examples of countries like Germany, where, TVET prepares learners very well for the world of work, where necessary facilities and qualified teaching staff are adequate; in consequence, where the status and attributiveness of TVET are high (Kalleberg & Witte, 1995).

1.2.2.4 Perceptions of Students on the Value of TVET Program

Employment provides a sense of confidence in people and contributes more to positive mental health (Ngau, 1999). It also increases social interactions at work, greater sense of personal identity and greater structure to the day (Kalleberg & Witte, 1995). Thus, unemployment has bad psychological effect on people especially on those trained but could not find employment. Hence, it becomes normal for students tend to enroll in types of education/training that expected to bear them immediate employment after training and reject others that thought to have poor/no employment opportunities. For this matter, it is reasonable to propose that employment would have imperative influence on the development of Perceptions about choice of a field of study as a future profession (Rojewski & Sheng, 1993).

On the other hand, the effectiveness of TVET depends fundamentally on the extent to which trained persons use their skills in employment. Thus, the objective of the training should be geared to enable the young people both for salary employment as well as for self–employment in which they could positively value the program (Jone, Womble, & Searcy, 1997).

As UNESCO (1973) indicates, training is generally one of the several elements in government employment programs. There are also other crucial ingredients such as job creation, labor market information and counseling service, and income generating programs. Though these programs are being suggested to reduce the trained unemployed, job opportunities are difficult for developing countries.

According to Wanna (1998), in most developing countries, TVET is often assumed as a cure for huge number of unemployment. The logic behind this assumption is that youth people cannot find employment because they do not possess the skills required either by the employers or for successful self–employment. However, it is the absence of jobs rather than lack of appropriate skills that forms the main barrier to productive employment of the unemployed (Wanna, 1998; ILO, 1997).

Specially, self–employment depends heavily on the availability of markets, credit and on comparatively high level of entrepreneurial skill. One to lack of access to credit, lack of consumer demand the option for self–employment is almost exist in most developing countries (UNESCO, 1973). In short, providing training without job opportunity is nothing more than waste of scarce resources. In addition, students' perceptions of the value of TVET program, then, might not expected to be positive. Thus, developing countries must facilitate conditions for job opportunities; particularly for self–employment. If not they would not be in a position to positively influence students' attitude and to get the invaluable benefits of vocational education program.

1.2.2.5 Gender Difference in Attitude toward; TVET Program

Regarding gender and attitudes as related to technical/vocational education in specific and technology in general, boys found to have more interest in technology than did girls (Yundu, 2003; Boser, Palmer, & Daugherty 1998). Regardless of its degree, when it comes to significance, there was no demarcated difference of both sexes on interest towards technology (Becker & Maunsaiyat, 2002; Heywood, 1998). However, the researchers did not claim to cover the existence of gender differences in preferring to study some vocational areas.

Many researchers confirmed that there exist gender disparities in participation on technical/vocational education programs (Singh, Finn, & Goulet, 2004; Ukpore, 2003; Yundu, 2003; Ngau, 1999; Conroy, 1998). Generally, female participation in technical/vocational areas is very low compared to that of male (Ngau, 1999). On the other hand, while some fields of study like Automotive Technology, Mechanical Engineering, Water Technology and Construction Technology are more favored by male students, study fields like Home Economics, Secretarial Studies, Food Technology, Textile Technology and Garment making are regarded as female study areas (Sign, Finn, & Goulet, 2004; Ukpore, 2003; Ngau, 1999). Therefore, it is logical to argue that the type of training and skills acquired will have tremendous effect on employment opportunities. Thus, the skills female offered tend to prepare them for social roles of motherhood and homemaking rather than towards productivity and leadership, which inevitably undermine female roles and work areas they are largely participating in.

A gender difference in course choice, according to Ngau (1999) as cited in Keino is not based on biological, but is rooted in sex stereotyping the world. Categorizing jobs gender wise would make both male and female have different job attitudes (Singh, Finn, & Goulet, 2004 as cited in Schalartz, 1999). The justification for why do male and female have different attitudes as forwarded by Letkowitz and quoted in Singh et al., (2004, p.345), is:

> *...The observed differences appear to confirm the implicit assumption that women's reactions are indeed different from those of men as a consequence of some unspecified psychological factors or of differential sex–role socialization ... Moreover, it seems pertinent to note the rather invidious nature of the above comparisons: all of them cast women as less well–adapted to life, as less competitive and less career–oriented, and thus, by inference, as less effective at work than men.*

Ukpore (2003) notes that one of the factors that may influence people to have apathy or negative attitude towards a particular subject is gender. Gender is a cultural construct that distinguishes the roles, behavior, mental and emotional characteristics between females and males by society (Ukpore, 2003). It has been observed that there is gender disparity in technical/vocational education. The male-female disparity in TVET often associated with social and cultural discrimination, sex stereotyping, forced early marriage and unconscious influence from parental/family opinion (Yundu, 2003). The opportunity for females to realize their potentials in the technological areas is, therefore, suppressed or stifled (Ukpore, 2003).

A study done in Nigeria on influences of gender on secondary school students attitude to vocational education by Ukpore (2003) on sample of one hundred and fifty (75 male and 75 female) that obtained through structured questionnaire and analyzed with percentage and mean in rank order revealed that both male and female students have positive attitude towards vocational education. As the study indicated, females were more interested in Home Economics while males were more interested in technological areas of Automotive, Metal, and Engineering (Athanasou, 2001; Kelly et. 1982).

Yundu (2003, p. 29), wrote that "since the gender contrast as a whole defines, Technology as a male task and an Engineering university as a male place, women who have entered in male place are considered as boundary breakers." However, it becomes unreasonable to generalize to large population of technical/vocational students with that of study sample.

Conroy (1998), took 374 sample of grade 7–12 students of which 197 are males and 176 are females, to study influence of gender and program of enrolment on students' occupational and educational aspiration and employed regression for analysis. The result of the study indicated that the majority of the participants desired a professional occupation. Of

interest, more than 41% of students enrolled in vocational program desired to participate in preparatory program to study professional courses.

Ngau (1999) in his study of female participation and course choice in institutes of technology, in Kenya, reported that few girls who were found taking courses in Motor Vehicle Mechanic, Mechanical Engineering, Carpentry and Joinery, Plumbing and Metal Fabrication complained that they were often viewed abnormal, particularly by fellow trainees and some times by their teachers. Male students argued that females in the mentioned courses were wasting their time since no company wanted to employ them because females were weak. Females themselves said that the courses were dirty and, since the courses they involved required in the use of muscle power, they were not appropriate for ladies.

This shows that there exists gender segregation in technical and vocational education program (Kithyo & Petrina, 2002; Ngau, 1999). As a result, it becomes reasonable to expect the influence of gender on students' attitude toward technical/vocational education program in Ethiopia.

1.3 Purpose of the Research

The general objective of study was to investigate the attitude of students, particularly those enrolled in Construction and Industrial Technology fields of study towards TVET program as a function of the students' gender, field of study and year level. In addition, the study aims to investigate the relationship of academic attainment and attitude towards TVET program. The following are the specific objectives of the study.

- To examine the attitude of trainees towards TVET program.
- To identity whether year level, type of field of study and gender of trainees contribute to attitudinal differences towards TVET program.

- To examine the perceptions of students on the value of TVET program.
- To identity whether year level, type of field of study and gender of trainees contribute to perceptions differences on the value of TVET program.
- To identify the relationship of academic attainment and attitude towards TVET program.
- To identity the justifications of students for joining TVET.
- To provide the basis for minimizing some of the problems those negatively influence the attitude of students towards TVET program.
- To contribute some ideas that may help curriculum developers to base on, while designing courses of studies and to relate it to both trainees' interest and labor market demand.

1.4 General Statement of the Problem

Investment in TVET is believed to be a key element in the development process because it provides the skills and knowledge necessary for social and economic development. Yet, in many societies, particularly in Ethiopia, participation in TVET programs remains low. Literature on TVET in the past has much focused on curricula and economic matters. However, such measures usually fail because they ignore the importance and centrality of perceptions and aspirations of students and parents.

The public saw TVET program as education for youth with low academic abilities. This perception equates secondary education with intelligence and TVET with lack of intelligence; consequently, parents have prevented their children from taking courses in TVET. Choosing TVET is perceived as limiting one's educational attainment, which in turn reduces lifetime upward mobility. In addition, if it wanted to be undertaken, TVET

program is considered as an area of study more appropriate for males than females. Besides, while some fields of study, relatively favored by males some other is often selected by females (Alloway, et al., 2004; Wanacott, 2000).

Thus, unless programs intended to promote the role of TVET in economic development, take on board this underlying factor of a community's and students' negative perceptions of TVET, such programs as those advocated by the government doomed to fail.

Therefore, in order to investigate students' attitude towards TVET program, the following research questions were formulated to be answered in the course of the study.

1. What is the general interest and attitude of students towards TVET program?
2. Do students show significant differences in attitude towards TVET program as a function of their gender, field of study and year level?
3. What are the perceptions of students on the value of TVET program?
4. Do students show significant differences in perceptions on the value of TVET program as a function of their gender, field of study and year level?
5. For what reason(s) do students enroll in TVET program?
6. Is there any relationship between students' attitude towards TVET program and academic achievement?

1.5 Practical Consideration

Recently, many TVET institutions are opened throughout the country. The institutions aimed to produce capable middle level technicians for the labor market that the economy needs. It is also believed that the system helps to reduce the problem of unemployment. In consequence, huge number of students is placed in TVET institutions.

Even though some changes have been observed in TVET system, as to the present researcher's experience (work experience in TVET college being a coordinator or head) concerned, most of the TVET applicants decide to join TVET institutions when they understand that they have no other choices of educational opportunities or employment. Many students were observed complaining on their choice of TVET as future career.

On the other hand, however there is an intention to base the training on labor market demand, students' attitudes, perceptions and interest have not got attention and well assessed. In addition, though efforts were made to base the training on labor market demand, the measures that have been taken are not more than assessing the needs of employers (Gutmann, 2000). For this matter, it becomes crucial to know about students' attitudes and interests towards TVET program. Furthermore, conducting research on students' attitude towards TVET program believed to contribute the following.

1. The finding of the study may help the concerned bodies to design training programs according to the needs and interests of the students.
2. The finding of the study may become a base for vocational counselor to help students in choice of field of study. It may help them as grass root information in developing work interests and habits in students.
3. The suggestions forwarded in this study may help to create conducive training situation and aid students to benefit from the program.
4. The findings of the study may help to devise strategies by which trainees develop favorable attitude towards TVET program, if negative attitudes exist.
5. The findings and procedures of the study may be of value for further research in the related area.

1.7 Delimitation of the Study

The study is delimited to Oromia Regional Colleges of TVET; first year, second year and third year students were participants. The reasons why this study is delimited to this region were:

1. Since the present researcher is familiar with the region, there may be easy access to information.
2. No other research on students' attitude towards TVET has been carried out in the region.
3. Due to time and financial constraints, it became difficult to carry out extensive study in other regions. Moreover, these pressing constraints become obstacles to carry out extensive research on 10+1 and 10+2 of other TVET institutions of the region.

Therefore, the present study was carried out on two TVET Colleges of Oromia Region, namely: Asela (Industrial Technology) and Nekemte (Construction Technology) Colleges.

1.8 Limitation of the Study

In this country, there was no locally developed inventory, with established validity and reliability in the area of students' attitude towards TVET program. This was one of the constraints to have appropriate criterion measures for the study. Thus, the empirical validity test of this research was limited to expert judgment and statistical analyses procedure employed on pilot tryout of the present study only.

CHAPTER TWO

DESIGN OF THE STUDY

2.1 Method

To realize the objectives of the study, descriptive survey research method was used. Because, survey is an appropriate method to approach like attitude studies.

2.1.1 Variables of the study

The independent variables of the study are gender, field of study, year level and academic attainments while the dependent variable is the attitude score.

2.2 Sampling

2.2.1 TVET Colleges

Currently there were three regional TVET Colleges in Oromia; namely: Asela, Nekemte and Waliso. From the three regional TVET colleges, two of them (Asela and Nekemte) were purposely chosen for this study for having similar background in providing training. Both colleges offer training in Construction and Industrial Technology fields of study. They began to provide training in the same year in 1997 with similarly equipped materials and for the same objectives. The Construction Technology field of study provides training in Building Construction, Drafting, Surveying and Wood Work Technology. The Industrial Technology field of study, on the other hand, gives training in Auto Mechanics, General Mechanics, Electricity and Electronics.

A Technical/Vocational Education and Training (TVET) College was preferred for the study; because, students were selected from certificate program of all TVET institutions of the

Oromia Region and are placed in the TVET Colleges to attend training at 10+3/diploma level. Thus, selecting TVET Colleges for the study of students' attitude towards TVET program in the region would help to generalize the finding of the study for large population of students attending in the mentioned fields of study.

2.2.2 Participants

In the selected samples of 2 TVET Colleges (Asela & Nekemte), 1275 (M=825 & F=450) students were attending training in year levels (education levels) of 10+1, 10+2 and 10+3 in fields of study of Construction and Industrial Technology in academic year 2005/6. From the fields of study and year levels, the proportion of 30% for male and 50% for female students (that were secured by sample size determination formula of Israel, 1992) were used to select the participants (see appendix H). Different selection proportions were used because female population of the study was found smaller as compared to males. Accordingly, 475 (M=247 & F=228) were selected by random sample technique and were requested to participate on the study (for detail information see appendix B).

To obtain the required number of participants, the names of students were recorded and assigned consecutive numbers 1 to 825 for male and 826 to 1275 for female students in keeping their fields of study and year levels. Then, by the use of random number table (that was generated by computer), the previously mentioned samples were selected on the basis of proportions earlier explained (see appendix B).

Of the total sample selected, 50(M=33 & F=17) of them were eliminated from analysis because the respondents did not completely fill the instrument. Thus, the study comprised of 425 (M=214 & F=211) sample students.

Among the 425 participants, 212 (M=107 & F=105) and 213 (M=107 & F=106) were from Industrial and Construction fields of study respectively. In respect of year level of the participants, 143 (M=74 & F=69) were 10+3, 140 (M=68 & F=72) were 10+2 and 142(M=72& F=70) were 10+1 (see appendix B).

2.3 Development of Measuring Instrument

Attitude type items and supplementary questions on joining TVET program, which supposed to measure students' attitude towards TVET program were developed based on literature reviewed. The areas aimed to involve in measuring students' attitude towards TVET program were General interest and attitude towards TVET, Perceptions on the value of TVET, Gender related attitude towards TVET, employment opportunity related attitude towards TVET and job prestige and status of TVET program. However, at final, the instrument was made to comprise two major sub areas, namely: General attitude and value perceptions of the TVET program. The instrument was originally developed in English and was translated to Afan Oromo language so that the respondents could understand very well. Then, it was re-translated to English to assess the equivalence of Afan Oromo tool to English version. Both translations were assisted by two Afan Oromo graduating students to keep the contextual meanings of the items while translating. Then, to select good items expert judgment and try out or pilot study of the items were carried out as discussed here under.

2.3.1 Expert Judgment

Based on literature reviewed (Jones, & Womble, 1997; Womble, & Jones, 1996), 64-attitude type and 14 supplementary (12 closed ended & 2 open ended) items were developed. Then, it was given for 10 experts (3 Psychometricians, 2 developmental psychologists, 1 Educational Planning and Administration, graduated College teachers and 4 second year measurement & evaluation graduating students) for content validity. The major tasks of

the experts were to rate each item as highly, moderately or poorly to the extent each item measures the attitudes of students towards TVET program and to indicate whether each attitude type item is stated as positively, negatively or difficult to determine in either of positive or negative category.

On the basis of the rating of experts, items which received a mean rating score of 2.4 or 80% and above, and which were rated as positive or negative at the same time (for attitude type), were retained as good items while the remaining items were discarded. As a result, 53 attitude type items and 12 supplementary questions were selected and made ready for pilot study.

2.3.2 Pilot Study

The pilot study was conducted to test the instrument and to improve it for further use. The instrument for pilot study consisted of 53 items to be responded on a 5-point scale, 8 items on background information and 12 supplementary questions on joining TVET. This instrument was tested on 50 (M=25 & F=25) students at TVET College of Nekemte. Twenty-five respondents, (M=13 & F=12) from each field of study were selected. Responses of 5 students were not included for analysis of the tryout because they were not fully completed. Hence, the pilot study sample comprised of 45 participants.

Chi-square was employed to determine discriminating ability of the attitude type items. Accordingly, 3 items found not significantly discriminating, and were discarded from further treatment. Of the 50 remained items, 10 were discarded because of low item-total correlation (less than .30 coefficient of correlation). Four items were re-stated and improved based on the information forwarded by respondents. Thus, 40 attitude type items remained for main study purpose. In addition, based on comments and answers of the respondents to the background information and supplementary questions on joining

TVET, 2 items were re-stated, clarified and improved while 2 items were discarded from main study because they appeared repetitively.

2.4 Final Instrument and Reliabilities

The final instrument used to explore students' attitude towards TVET program comprised of two parts. The first part was the attitude scale and the second part was demographic information and questions on joining TVET program.

The attitude scale part consists of 40 items. Of the 40 items, 18 were stated negatively and 22 items were presented positively. It was to be responded on a 5-point scale that ranges from Strongly Agree, Agree, Undecided, Disagree, and Strongly Disagree. Five for Strongly Agree, four for Agree, three for Undecided two for Disagree and one for Strongly Disagree were assigned for item scoring.

The negatively stated items were reversibly scored for analyses. Besides, scores of the negatively stated items on Strongly Disagree and Disagree indicated positive attitude; while scores of the negatively appeared items on Strongly Agree and Agree indicated low positive or negative attitude. The responses to Undecided category indicated neutral attitude. Besides, the correlation of the final sample of the two sub-scales yields .63(see page 63).

The attitude scale had two sub-scales. These were "general attitude towards TVET program" and "perceptions of the value of TVET program" sub-scales (25 and 15 items respectively).

The demographic information and supplementary questions on joining TVET program consisted of 18 items. One to eight items were presented to understand the background of

participants. The remaining 10 (8 closed ended & 2 open ended) items included exploring further information about attitudes of students towards TVET program and reasons for joining the program.

Table 1 Reliabilities on Pilot and Final Samples

Types of Reliabilities	Participants	Sub-scales				Total	
		General Attitude		Perceptions on the value of TVET			
		Items	Reliability	Items	Reliability	Items	Reliability
Inter- rater	10	32	.80	21	.78	53	.86
Pilot Sample	45	25	.79	15	.84	40	.88
Final Sample	425	25	.71	15	.82	40	.85

***Total scale="General attitude" sub-scale plus "Perceptions on the value of TVET program" sub-scale.**

As indicated in the above table, reliabilities were calculated for inter- rater, pilot sample and final sample. On 53 items, inter – rater reliability became .86 alpha on which 10 experts participated. The pilot sample reliabilities were .88 alpha for 40 items of total scale, .79 alpha for 25 items of "general attitude" sub-scale and .84 for 15 items of "perceptions on the value of TVET program" sub-scale on which 45 students gave responses. Similarly, reliabilities were calculated for the final sample on which 425 students participated and obtained .85, .71 and .82 alphas for 40 items total scale, for 25 items "general attitude" sub-scale and for 15 items "perceptions on the value of TVET program" sub-scale respectively. For the calculations of reliabilities Cronbach's alpha internal consistency coefficient was used because it is appropriate for use with Likert type scales and because it has the advantage of being measurable from a single administration of the instrument. In nutshell, these considerations were the reasons for the researcher to accept the items and use them for final samples of the study.

2.5 Procedure of Data Collection

On the basis of pilot study, the instrument was improved. Before finalizing the instrument, it was validated by experts. On both pilot and main study, the instrument was administered during the students' free time not to take off their learning time as well as to give them ample time to respond to all items.

On the final study sample, one teacher from both colleges assisted the administration of the instrument. While students required responding to the instrument, the researcher was around to clarify whatever questions students might ask about the instrument. Thus, efforts were made to remove ambiguities about the instrument and related issues.

The instrument was administered three weeks after of the beginning of second semester. Thus, the three-year levels students (10+1, 10+2 and 10+3) had already known their previous semester exam scores. This helped to compute the correlation of attitude scores and course exam scores.

The scoring of attitude scale followed the usual procedures employed in Likert scale. That is, 5, 4, 3, 2, and 1 scales value were given for categories Strongly Agree, Agree, Undecided, Disagree and Strongly Disagree respectively for positively stated items while it was reverse for negatively stated items. The total score on each of the sub-scale was calculated. Thus, all respondents of the study had two sub-scales attitude scores and one total attitude score (the sum of the sub-scales).

2.6 Method of Data Analysis

Data obtained from attitude scale and supplementary questions separately were organized in away they were appropriate for analysis. The data were analyzed using

descriptive and inferential statistics. These methods of analyses focused on independent variables of fields of study, year level and gender. Correlation was employed to see the relationship of attitude scores and course exam scores.

In order to analyze the data, frequency, mean scores and standard deviations of the attitude sub-scales were calculated. Then, using attitude scores as a dependent variable, three independent variables were arranged in 2 X 2 X 3 (gender, field of study and year level or education level) design of a three-way analysis of variance (ANOVA). In addition, the relationships of attitude scores and course exam scores were calculated using the Pearson correlation product moment.

Chi-square test was used to analyze data secured through the attitude sub-scales and questions on joining TVET program and these were presented in separate parts. All differences were tested for statistical significance at the 0.05 level. The 12th version SPSS (Statistical Package for Social Sciences) program was used for data analyses.

CHAPTER THREE

RESULTS

The results of the study are presented in the following order. The first part deals with the demographic information of respondents. The second is about attitude of students towards TVET program. The third part deals with perceptions of students on the value of TVET program. The fourth part is opinion of students that were secured through additional questions. The fifth is about the relationship of attitude and academic attainment. The final part is about responses to open ended items.

3.1 Demographic Background Information

The demographic background of the participants presented to throw light about the general backgrounds of the respondents. The responses were tabulated for male and female categories and the corresponding percentages were calculated (see appendix G).

Respondents were selected from two TVET colleges (Asela 45.88% and Nekemte 54.12%). While 50.35% of student respondents were male, 49.65% were females. Regarding participants year level (education level), 33.65% were 10+1, 32.94% were 10+2 and 33.41% were 10+3.

The majority of respondents (about 83.30%) were in age group of 18-21 years. Thus, they expected to provide clear response to the instrument. Besides, they expected to indicate their attitude towards TVET program being free of other interferences. In addition, while 50.12% of them were from Construction field of study, 49.88% were from Industrial Technology area.

The respondents' father and mother educational levels found to be greater than grade five for about 72.94% and 56.46% respectively. Thus, it was assumed that the respondents' parents would have some contribution on career choices of their children. Regarding respondents' grade 10 exam score, while 44% of them reported that they had a score of less than 2.00, about 56% of them replied that they had a score of 2.00 and above. Therefore, one can easily observe that

there were considerable number of students in TVET program who could be considered as less achievers (failures), because by policy who scored 2.00 some times and above in national exam of grade 10 have made to join preparatory program to study academic subjects.

3.2 Attitude towards TVET Program

Table 2 provides information on students' general attitude towards TVET program

Table 2 "General Attitude" of Students towards TVET Program

No	Items	Responses in percent			Descriptive	
		SA+A	UD	SD+D	M	Sd.
1	Technical/ vocational education is my favorite field of study.	98.35	0.71	0.94	4.76	.52
2	I prefer TVET to academic subjects	93.65	2.35	4.00	4.55	.75
3	For me, technical/vocational education is fascinating and fun.	93.88	2.59	3.53	4.49	.76
4	*I feel inferior for studying TVET	11.06	3.76	85.18	4.22	1.12
5	*In my view, technical/vocational careers are boring	11.29	4.71	84.00	4.17	1.08
6	*I don't like to be called a 'technician'	8.71	1.88	89.41	4.37	1.02
7	*I don't like jobs that make hands dirty	8.24	4.71	87.06	4.24	1.00
8	*Technical/vocational jobs are laborious; it is why I dislike to study it	10.35	4.24	85.41	4.17	1.08
9	I feel that one has to be clever to study TVET	84.00	4.00	12.00	4.25	1.13
10	*I don't like TVET program	7.53	1.18	91.29	4.48	1.03
11	I like the type of projects and assignments we do on this training	93.41	1.41	5.176	4.50	.86
12	*In my understanding, TVET is designed for low achievers	27.53	6.82	65.65	3.62	1.50
13	I like my current field (major) of study	92.47	1.18	6.353	4.57	.91
14	I like to advice others to study technical/vocational education.	88.00	5.18	6.824	4.36	.97
15	I need to learn more in technical/vocational fields.	91.29	3.53	5.176	4.56	.86
16	*Some times I thought about dropping of this training	17.65	6.12	65.65	3.91	1.25
17	I feel I have been developing positive attitude towards technical jobs	91.29	0.71	8.00	4.44	.95
18	*I wish to study TVET program, till I find other opportunity	25.88	4.00	70.12	3.67	1.42
19	I feel I have been developing positive attitude towards TVET program	73.65	8.00	18.35	3.91	1.27
20	*I feel I have developed negative attitude to technical/vocational education program	18.82	4.24	76.94	3.94	1.33
21	I believe technical/vocational education is as difficult for boys as it is for girls	61.00	7.51	32.49	3.46	1.39
22	In my view, girls can also attend TVET as boys	94.82	1.41	3.765	4.58	.78
23	I disagree to categorize careers as for males' and females'	77.18	3.53	19.29	4.02	1.42
24	*In my view, since TVET is difficult for girls, they should not prefer to attend it	14.12	2.59	83.29	4.17	1.20
25	*I prefer to separate fields of study as for males' and for females'	13.18	3.29	83.53	4.26	1.23

Note: 1. SA=strongly agree, A=Agree, UD= Underside, D= Disagree and SD=Strongly Disagree
2. N=425
3. Each item is significant at P = 0.01, df=4 with Chi-square statistical test (see appendix C)
4. Grand mean = 4.23
5. See appendix C for percentage.
6. * Indicates negatively stated items

Items 4, 5, 6, 7, 8, 10, 12, 16, 18, 20, 24, and 25 were stated negatively while the remaining items were presented positively. For analysis purpose, the responses of the negatively stated items were reversibly scored. Thus, the response frequencies of the Strongly Agree and Agree categories for negatively stated items show the negative attitude of respondents. Similarly, response frequencies of the Disagree and Strongly Disagree categories indicate the positive attitude while the undecided category indicates neutral attitude.

Then, items 1, 2, 3, 11, 13, 15,17 and 22 were agreed by more than 90% of respondents (strongly agree plus agree) and their corresponding mean rating values were 4.76, 4.55, 4.49, 4.50, 4.57, 4.56, 4.44 and 4.58. The mean rating values of these items were substantially higher than the expected average, (i.e. 3). This shows that the students highly favored TVET program, preferred TVET to academic subjects, enjoyed TVET, aspired more to learn in TVET, liked their fields of study and felt that they developed positive attitude towards TVET program.

Moreover, items 9 and 14 were agreed by about 84% and 88% of respondents respectively (strongly agree plus agree), and their mean rating values found to be 4.25 and 4.36 in that order, which were higher than the expected average, (3). This shows that students felt TVET program as for able students and liked to advice others to join TVET program.

Furthermore, items 19 and 23 responded by about 73% and 77% students respectively (strongly agree plus agree). The mean rating values of the items were 3.91 and 4.02; again, which is higher than the expected average. Thus, students reported that they had positive attitude to TVET program at present time than was before they joined TVET, and did not like to separate fields of TVET program as for males and females.

On the other hand, while item 10 was strongly disagreed by more than 90% of the respondents, items 4, 5, 6, 7, 8, 24 and 25 were also disagreed by more than 80% of the respondents (strongly agree plus agree). The mean rating values of the items were 4.48, 4.22, 4.17, 4.37, 4.24, 4.17, 4.17 and 4.26 in that order. This shows that the students disagreed to feel inferior for studying TVET program, to consider TVET program as boring, to hate to be called technician and to dislike TVET program, and to consider TVET program as difficult for girls as it is for males.

In addition, items 16, 18 and 20 are disagreed by more than 70% (strongly agree plus agree) of students. The corresponding mean rating values of these items were 3.91, 3.67 and 3.94, which were higher than the expected average but not as high as the previous. Thus, students moderately disagreed to think about dropping of the training program.

Besides, the only items that received relatively low percentage of responses were item 12 and item 21 (about 65% and 60% for strongly disagree and disagree) with mean rating values of 3.62 and 3.46. This show that relatively more students disagreed to equate TVET program as for low achievers and relatively more students agreed that TVET program could equally serve both male and female students.

In sum, as the results of Table 2 indicate, most of the student respondents revealed favorable attitude towards TVET program. Besides, differences in response categories of each item among the respondents found to be significant with chi-square statistical test ($p < .01$, see appendix C).

The responses of the students were further examined to see if attitude towards TVET program differ by gender, fields of study and year level. These are presented in Table 3.

Table 3 Number of Observations (N), Means (M) and Standard Deviations (Sd) for "General Attitude" Scores by Gender, Field of Study and Year level

Year Level	Gender	Industrial Technology			Construction Technology			Total mean and Standard Deviation		
		N	Mean	Sd.	N	Mean	Sd.	M	F	Year level
10+1	M	36	109.81	6.68	36	107.81	8.20	108.81 (Sd= 7.9)	98.16 (Sd=10.88)	103.56 (Sd.=10.71)
	F	35	99.23	11.18	35	97.09	10.63			
10+2	M	34	108.24	7.33	34	107.76	7.66	108.00 (Sd=7.45)	102.69 (Sd= 9.04)	105.27 (Sd.=8.69
	F	36	101.03	8.79	36	104.36	9.09			
10+3	M	37	112.41	6.11	37	108.57	11.31	110.49 (Sd=9.23)	105.65 (Sd=8.41)	108.15 (Sd.=9.14)
	F	34	106.21	7.54	35	105.11	9.25			
Total	M	107	110.21	6.86	107	108.06	9.17	109.13 (Sd= 8.15)	102.16 (Sd=9.94)	105.67 (Sd.=9.72)
	F	105	102.10	9.68	106	102.21	10.25			
		213	106.19 (Sd.=9.29)		212	105.15 (Sd.=10.13)				

*** The maximum possible score was 125**

The data displayed in Table 3 show that the respondents had positive attitude towards TVET program. All attitudes mean scores were greater than the expected average score (62.5). Thus, student respondent currently attending TVET program have been exhibiting positive attitude towards TVET program irrespective of their gender, field of study and year level.

Nevertheless, the mean scores presented in the Table 3 show differences across the various treatment combinations. For example, the first year students in Industrial Technology field of study, males (mean=109.81) had higher attitude mean scores than females (mean=99.23). Thus, Table 4 deals about the differences.

Table 4 General Attitude summary table of ANOVA

Source of Variances	SS	df	MS	F	Sig.	R^2
Gender (G)	**5093.54**	**1**	**1093.54**	**65.64**	**.00**	**.137**
Field of Study (F)	113.70	1	113.70	1.47	.23	.004
Year level (Y)	**1519.11**	**2**	**759.55**	**9.79**	**.00**	**.045**
GxF	121.06	1	121.06	1.56	.21	.004
GxY	**741.02**	**2**	**370.51**	**4.78**	**.01**	**.023**
FxY	323.81	2	161.91	2.09	.13	.01
GxFxY	73.73	2	36.86	.48	.62	.002
Residual	32046.81	413	77.60			
Total	40078.22	424				

Table 4 shows the result of analysis of variance; where "general attitude" sub-scale score was considered as dependent variable and gender, field of study and year level (education level) as independent variables.

As shown in Table 4, the gender difference in attitude mean scores was significant [F (1,413) = 65.64, P < 0.01]. That is, closer examination of the means shows that male respondents exhibited substantially higher attitude mean scores than female participants (the mean scores were 109.13 and 102.16 respectively). In addition, the year level main effect showed statistical significance [F (2, 413) = 9.79, P < 0.01]. The Tukey's multiple comparison test (Hinkle, Wiersma, & Jurs, 1994) revealed that the 10+3 year level (3rd year) students were found to have substantially higher attitude mean scores than did the 10+2 year level (2nd year) and the 10+1 year level (1st year) students (mean = 108.15, 105.27 and 103.56 respectively). The other pair wise comparison was not significant.

Moreover, the Gender-by-year level interaction was statistically significant [F (2,413) = 4.78, P < 0.01] and it is an ordinal type interaction (Hinkle, Wiersma, & Jurs, 1994) as depicted in Table 1.

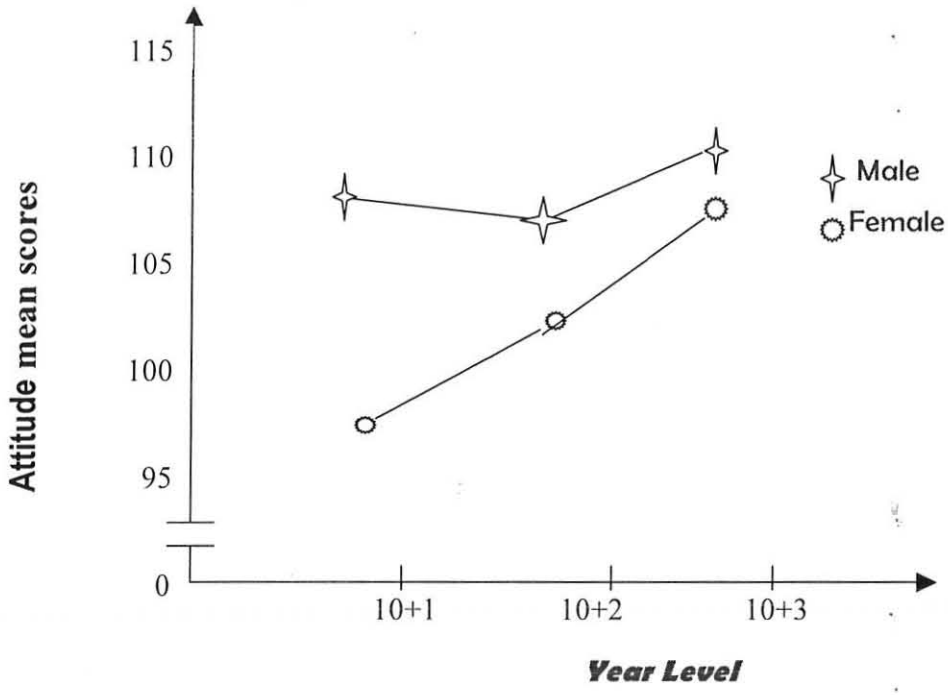


Figure 1 ***Gender– by – year level interactions ("General attitude sub- scale")***

As can be seen from Figure 1, in 10+1 year level through 10+3 year level, males (108.81, 108.00 and 110.49 respectively) had significantly higher attitude mean scores than females (98.16, 102.69 and 105.65). In addition, the magnitude of differences in attitude mean scores between male and female students found to increase as a year level increases. Moreover, while females showed consistent attitude mean scores increase with the rise of year levels, males exhibited slightly low decline in 10+2 and significant increase in attitude mean scores in 10+3 year levels. Besides, the magnitude of differences in attitude means scores between male and female students were very high in 10+1 year level than was in 10+2 and 10+3 year levels. Hence, the effect of year level was not the same for male and female students; in fact the two main effects were significant.

On the other hand, the differences in attitude mean scores observed between Construction Technology (mean=105.15) and Industrial Technology (mean=106.19), fields of study was not

statistically significant. In addition, except the gender-by-year level, the remaining interactions were not statistically significant.

3.3 Perceptions of Students on the Value of TVET program

Table 5, presents about students' perceptions on the value TVET program. It further investigates to what extent students relate TVET program to job opportunity and personal success in life.

Table 5 Students' Perceptions on the Value of TVET Program

No	Items	Responses in percent			Descriptive	
		SA+A	UD	DA+D	M	Sd.
1	I believe that TVET is as useful as academic subjects	92.00	2.82	5.176	4.52	.82
2	I feel secured in studying technical/vocational education	82.59	4.24	13.18	4.14	1.11
3	*I feel insecure for studying technical/vocational courses.	18.82	4.24	76.94	3.97	1.28
4	*Studying TVET is waste of time for me	7.059	2.12	90.82	4.60	.94
5	*I feel I have been pushed into low-level, none-academic types of training	15.53	3.06	81.41	4.12	1.12
6	I expect to make good income when I compete my training	88.00	4.24	7.765	4.34	1.00
7	*I dislike technical/vocational education; because, it will be difficult for me to get a job after I complete my training.	18.82	7.06	74.12	3.85	1.27
8	*I estimate technical/ vocation education program causes large unemployment.	17.88	4.71	77.41	4.04	1.18
9	I believe that TVET program will make me successful in life	83.06	3.29	13.65	4.20	1.14
10	*In my view, technical/vocational education has a little to do with daily life.	11.53	6.82	81.65	4.14	1.07
11	I believe that TVET program well prepares me to competitively appear for workforce	86.82	3.06	10.12	4.31	1.04
12	I believe that TVET program helps me to develop necessary skills to accomplish a task	87.06	2.59	10.35	4.35	.95
13	In my understanding, technical/vocational education is one of the most demanding profession	93.41	1.88	4.706	4.57	.83
14	I think it is possible to reduce unemployment by expanding technical/vocational education.	91.29	2.82	5.882	4.52	.86
15	I believe technical/vocational education is good for the future of this country	92.00	3.06	4.941	4.58	.87

Note: 1. SA=strongly agree, A=Agree, UD= Underside, D= Disagree and SD= Strongly Disagree
2. N=425
3. Each item is significant at P= 0.01, df=4 with chi-square statistical test (See appendix C)
4. Grand mean = 4.28
5. See appendix C for percentage
6. * Indicates negatively stated items.

Items 3, 4, 5, 7, 8, and 10 of Table 5 were negatively stated while the remaining was positively stated. The scoring and analysis of the responses were performed as already explained for Table 2.

Items 1, 13, 14, and 15 were agreed by more than 90% of respondents (strongly agree plus agree). The corresponding mean ratings of these items were 4.52, 4.57, 4.52 and 4.58 respectively. This shows that students strongly felt TVET program useful as academic subjects, as very demanding profession and as having considerable contribution for reducing the employment problem and then helps to develop a country (See appendix **C**).

Moreover, items 2, 6, 9, 11, and 12 were agreed by more than 80% of the respondents (strongly agree plus agree) and their mean rating values were 4.14, 4.34, 4.20, 4.31 and 4.35 in that order. This shows that students felt success in studying TVET, expected to make good income upon graduation and successful in life and believed to get marketable skills for competitive labor market.

On the other hand, responses to the negatively stated items ranges from about 74% for item 7 to 90% for item 4 (strongly agree plus agree). The mean rating values of these items ranged from 4.60 to 3.85. Hence, students strongly disagreed and disagreed to feel insecure for studying TVET, to estimate as waste of time for studying TVET, to feel as unable for studying TVET, to fear for employment opportunity and to view TVET as having no contribution for daily life. Thus, all together, the responses on Table 5 indicate that the students valued TVET program as very useful for personal life and for the development of a country. Hence, they revealed high favorable attitude in the form of the high value of TVET program. Finally, the answers to each response category among the students showed significant differences among respondents with chi-square statistical test ($P < .01$) see appendix **C.**

The responses on the statements as shown in Table 6 were further examined by gender, field of study and year level of respondents.

Table 6 Number of Observations (N), Means (M) and Standard deviations (Sd) for Value Scores by Gender, Field of Study and Year level

Year Level	Gender	Industrial technology			Construction Technology			Total Mean and standard Deviation Scores		
		N	Mean	Sd.	N	Mean	Sd.	M	F	Year level
10+1	M	36	66.56	5.64	36	66.31	5.83	66.43 (Sd=5.70)	59.94 (Sd=7.36)	63.23 (Sd.=7.31)
	F	35	61.00	7.17	35	58.89	7.50			
10+2	M	34	66.68	5.62	34	66.53	5.36	66.60 (Sd=5.45)	61.72 (Sd=8.44)	64.09 (Sd.=7.53)
	F	36	60.64	8.99	36	62.81	7.83			
10+3	M	37	69.84	4.88	37	69.00	5.81	69.42 (Sd=5.35)	64.20 (Sd=7.82)	66.90 (Sd.=7.13)
	F	34	63.29	8.54	35	65.09	7.05			
Total	M	107	67.73	5.55	107	67.31	5.76	67.52 (Sd=5.65)	61.94 (Sd=8.05)	64.75 (Sd.=7.47)
	F	105	61.62	8.28	106	62.26	7.83			
		212	64.70 (Sd.=7.66)		213	64.80 (Sd.=7.30)				

- **The maximum possible score was 75**

As Table 6 indicates, the mean scores of perceptions on the value of TVET program appeared to be high for 10+3 year students in both fields of study than the 10+1 and 10+2 year levels. Females showed more value mean scores in 10+3 year level than the other year levels. On the other hand, the differences in value mean scores between Industrial and Construction Technology fields of study were not uniform across the year levels for the participants. For example, 10+1 year level Industrial Technology major female students (mean= 61.00) obtained more value mean score than the 10+2 year level (mean= 60.64); on the other hand, the Construction Technology major females had more value mean score in 10+2 year level (mean = 62.81) than 10+1 year level (mean = 58.89). Thus, the student

respondents showed differences in their value of TVET across the different treatment combinations, which Table 7 deals for significance.

To investigate differences in perception on the value of TVET program, ANOVA was performed on perceptions scores as a function of the respondents' gender, field of study and year level.

Table 7 Perceptions on the Value of TVET Program

Summary Table of ANOVA

Source of Variances	SS	df	MS	F	Sig.	R^2
Gender (G)	**3249.34**	**1**	**3249.34**	**70.23**	**.00**	**.145**
Field of Study (F)	1.09	1	1.09	.02	.88	.000
Year level (Y)	**997.71**	**2**	**498.85**	**10.78**	**.00**	**.050**
GxF	27.95	1	27.95	.60	.44	.001
GxY	50.53	2	25.26	.54	.58	.003
FxY	92.36	2	46.18	1.00	.37	.005
GxFxY	111.57	2	55.79	1.21	.30	.006
Residual	19108.76	413	46.27			
Total	23689.56	424				

As Table 7 indicated, the gender main effect was significant [F (1, 413)=70.23, P < 0.01]. Further examination shows male students (mean=67.52) had substantially higher value mean scores as compared with female students (mean=61.94). In addition, the year–level main effect was statistically significant. Employing Tukey's multiple comparison tests, third year students (mean=66.90) found to score significantly higher than second year (mean= 64.09) and first year (mean=63.23). The first year and the second year value mean scores groups-comparison test not showed significant differences.

In similar way, the slight difference in value mean scores between students' of Industrial Technology (mean=64.70) and Construction Technology (mean=64.80) fields of study observed were not significant. In addition, all the interaction effects were not significant.

Table 8 Numbers of Observations (N), Means (M) and Standard Deviations (Sd.) for Total Attitude Scores by Gender, Field of Study and Year Level.

Year Level	Gender	Industrial technology			Construction Technology			Total Mean and standard Deviation Scores		
		N	Mean	Sd.	N	Mean	Sd.	M	F	Year level
10+1	M	36	176.25	10.79	36	173.97	13.05	175.11 (Sd.=11.94)	156.74 (Sd.=18.47)	166.06 (Sd.=17.99)
	F	35	159.63	14.40	35	153.86	19.31			
10+2	M	34	174.41	12.20	34	174.29	11.76	174.35 (Sd.=11.89)	163.24 (Sd.=17.11)	168.64 (Sd.=15.77)
	F	36	159.42	18.04	36	167.06	15.45			
10+3	M	37	182.27	8.52	37	176.84	19.18	179.55 (Sd.=14.99)	169.70 (Sd.=14,09)	174.80 (Sd.=15.33)
	F	34	168.91	13.73	35	170.46	14.60			
Total	M	107	177.75	10.99	107	175.07	15.03	176.41 (13.20)	163.19 (Sd.=17.41)	169.85 (Sd.=16.78)
	F	105	162.56	16.96	106	163.82	17.91			
		212	170.23 (Sd.=16.14)		213	169.47 (Sd.=17.42)				

- **The maximum possible score was 200**
- **Total attitude score = "General attitude" sub-scale score plus "Perceptions on the Value of TVET" sub-scale score**

Table 8 deals with total attitude scores ("general attitude" plus "perceptions on the value of TVET" sub scales). All attitudes mean scores were greater than the expected average score (100.00). This would suggest those students currently attending training in TVET program have been exhibiting favorable attitude towards TVET program and positive perceptions on its values.

However, the mean scores shown in Table 8 indicate differences across the various treatment combinations. These differences are presented in Table 9.

Table 9 Total Attitude Scale Summary Table of ANOVA

Source of Variances	SS	df	MS	F	Sig.	R^2
Gender (G)	**18268.68**	**1**	**18268.64**	**82.24**	**.00**	**.166**
Field of Study (F)	57.48	1	57.48	.26	.61	.001
Year level (Y)	**5587.81**	**2**	**2793.90**	**12.61**	**.00**	**.058**
GxF	372.60	1	372.60	1.69	.20	.004
GxY	**195.15**	**2**	**747.58**	**3.37**	**.04**	**.016**
FxY	1142.96	2	571.48	2.58	.08	.012
GxFxY	698.91	2	349.46	1.58	.21	.008
Residual	91529.86	413	221.62			
Total	119361.06	424				

As depicted in Table 4 and 7 of the sub-scales, Table 9 also indicates the gender main effect for total attitude scores were statistically significant. Closer examinations of the attitude mean scores indicate that males (mean=176.41) obtained substantially higher attitude mean scores than females (mean=163.19). In addition, the year level main effect was statistically significant. Tukey's multiple comparison tests revealed that 10+3 year levels (mean=174.80) obtained significantly higher attitude mean scores than 10+1 (mean=166.06) and 10+2 (mean=168.64) year levels. Nevertheless, the groups-mean pair wise comparison of first year and second year were not significant.

Furthermore, the gender-by-year level interaction was found to be statistically significant [F (2,413) =3.37, P<. 05] as depicted in Figure 2.

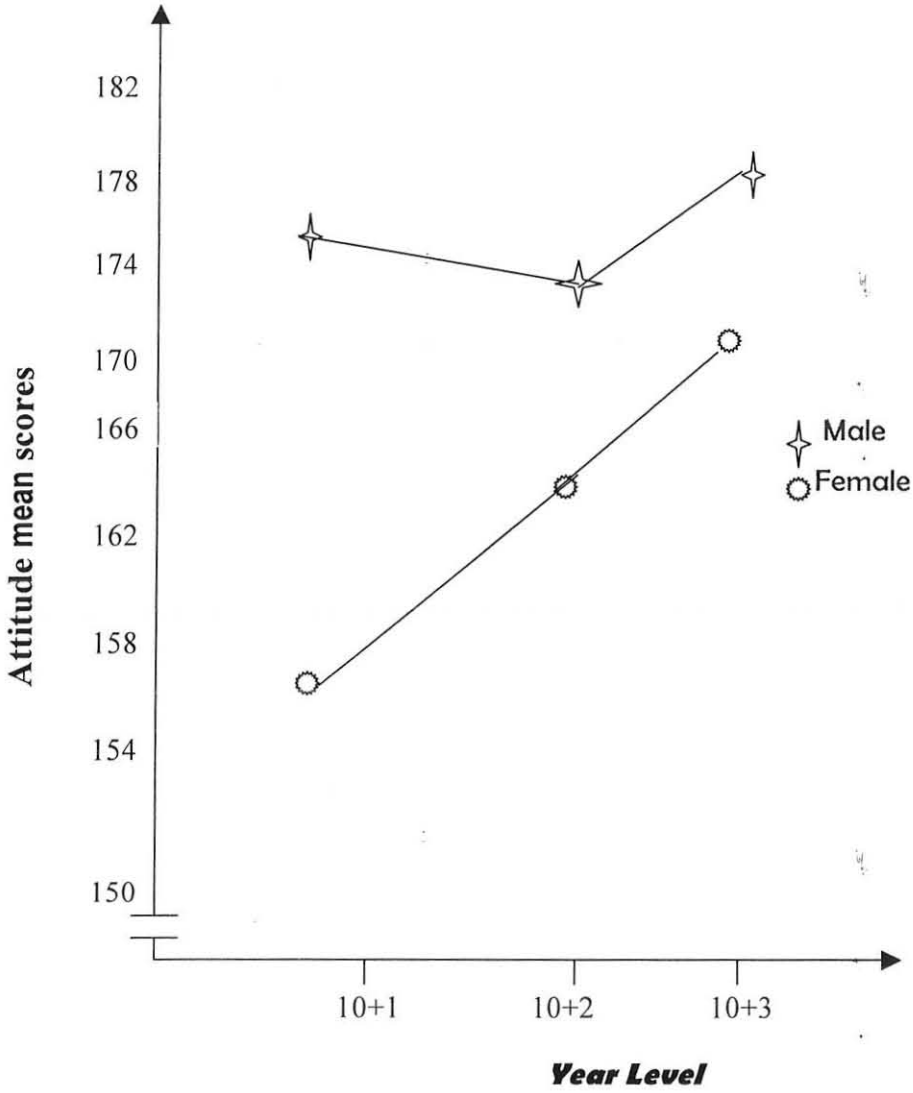


Figure 2 Gender-by-Year level interactions (Total attitude scale)

Similar to Figure 1, in each year level (10+1 through 10+3), male students had substantially higher mean attitude scores than female respondents. Nevertheless, the magnitude of the differences varies from one-year level to another. The magnitude of differences was high for 10+1 year level than 10+2 and 10+3 while the 10+3 was the minimum compared to the others. This shows that the attitude gap between male and female students towards TVET program decreases as a rise of an education level.

On the other hand, the field of study main effect and except the gender-by-year level interaction, the remaining interactions not statistically significant.

3.4 Students Opinion on Issues Related to TVET program

Additional questions of closed ended type were presented for the students together with the attitude scale. It was aimed to collect supplementary information on students' attitude towards the TVET program. The results of the obtained data presented as reason for joining TVET program, plan before and after joining TVET, source of information about TVET and general views towards TVET.

3.4.1 Reason for Joining TVET program

Respondents were asked to indicate their most important reason for enrolling in TVET program in order to investigate their underlying interest towards TVET. Besides, the responses might help to assess if male and female students would show significant differences in reasons for enrolling in TVET program. The responses are presented in Table 10.

Table 10 Reasons for Enrolling in TVET Program

Items	Response Frequency & Percentage by Respondents Gender						Chi-square
	Male		Female		Total		
	N	%	N	%	No	%	
Most important reason for enrolling in TVET							
A. High interest in the area	59	27.57	42	12.91	101	23.76	
B. Thought it would help me get a good job after training	21	9.81	13	6.16	34	8.00	
C. Low score in 10th grade exam (unable to meet the requirements of other institution)	69	32.24	101	47.87	170	40.00	*16.44**
D. Thought the course has further training opportunity	39	18.22	23	10.90	62	14.59	
E. Thought it would be easy to attend and earn a good grade	7	3.27	8	3.79	15	3.53	
F. Friends recommended it to me	5	2.34	9	4.27	14	3.29	
G. Parents recommended it to me	6	2.80	8	3.79	14	3.29	
H. Other	9	4.21	7	3.32	16	3.76	
Total	**214**	**100.00**	**211**	**100.00**	**425**	**100.00**	

*** P<. 05, [Table value $\chi^2(.05, 7) = 14.07$]**

The chi-square test was employed and significant differences found between male and female participants in reasons for enrolling in TVET program (χ^2 = 16.44, df = 7, P < 0.05). Accordingly, more male (27.57%) than female (12.91%) students indicated "personal interest" as a reason for enrolling in TVET program. On the other hand, more female (47.87%) than male (32.24%) students reported that their main reason was "scoring low" (unable to meet the requirements of other institution). In fact, "scoring low" was the main reason for enrolling in TVET program (40% male plus female students). Further, 18.22% of male and 10.90% female respondents thought the course would provide them future training opportunity. In contrast, female students (4.27% and 3.79%) informed that they joined TVET program on the recommendation of friends and parents than male students (2.34% and 2.80%) respectively, though they were not the major reasons.

All together, even though, both male and female students vary in their reasons for enrolling in TVET program, the major reason for attending TVET program was found to be "scoring low in grade 10" (40% of the total sample). The second and third reasons were 'personal interest' and 'expectation of further training' from the program in that order.

Thus, it appears that students join TVET, not based on their interest, inclination, and ability as first choice; but forced to join it when they were unable to meet for preparatory (academic) or other program requirements due to low achievement in 10th grade national exam. This shows that students came to TVET program with poor interest and academic ability.

3.4.2 Plans before and after joining TVET

Students were asked whether they had planned to join TVET when they were in secondary school and would have shown more desire to continue in TVET program as indicated in Table 11.

Table 11 Plans before and after joining TVET

No	Items	Response Frequency & Percentage by Respondents Gender						Chi-square
		Male		Female		Total		
		N	%	N	%	N	%	
1	**What was Your Plan to do after you complete grade 10?**							
	A. Get a job right away	15	7.01	18	8.53	33	7.76	11.79**
	B. Attend preparatory program	121	56.54	93	44.08	214	50.35	
	C. Attend TVET	73	34.11	82	38.86	155	36.47	
	D. Other	5	2.34	18	8.53	23	4.41	
	Total	**214**	**100.00**	**211**	**100.00**	**425**	**100**	
2	**Immediate plan upon graduation from TVET College**							
	A. Attend further training in current field of study	131	61.21	97	45.97	228	53.65	16.79**
	B. Attend academic subjects by improving grade 10 exam score (GPA)	8	3.74	25	18.85	33	7.76	
	C. Begin work	65	30.37	70	33.18	135	31.76	
	D. Not decided	10	4.67	19	9.00	29	6.82	
	Total	**214**	**100.00**	**211**	**100.00**	**425**	**100.00**	

****P<. 01, [Table value χ^2 (.01, 3) =11.35]**

Table 11 presented to see to what extent students had planned to join TVET program before completing grade 10 and after graduation from TVET College.

Significant differences (χ^2=11.79, df = 3, P < 0.01) were found between male and female students on the plan upon completion of grade 10. Higher proportion of male students (56.54%) had the plan to attend a preparatory (non-vocational) program as compared to 44.08% of female students. On the other hand, 38.86% of female students had the plan to study TVET program as compared to 34.11% male students. Only 7.01% of male students and 8.53% female students indicated they had the plan to begin a job right away of completion of grade 10, while 2.34% of male and 8.53% of female students reported that they had a plan other than the presented preferences.

Thus, one can observe that most of the respondents did not plan to study TVET program as their first choice when they were in grade 10. For both sexes, TVET program was the second

preference (plan). As the obtained data further indicated, the majority of student respondents preferred academic subjects to TVET that would show their poor interest in TVET program when they were in grade 10 or attending academic subjects.

Similarly, significant difference (χ^2=16.79, df=3, P < 0.01) was found between male and female respondents on their immediate plan upon graduation from TVET program. More male (61.21%) than female (45.97%) students have plans to continue studying TVET program of their current field, while relatively 33.18% of females and 30.37% of males intended to begin work upon their graduation. Therefore, immediate plan upon graduation from TVET College varied between the genders of respondents though the responses of the majority were to continue further training in TVET upon graduation from TVET College.

Further examination of the responses of item 2 of Table 11 indicates that reversibly, large proportion of respondents (53.65% of the total of male and female) wanted to further participate in TVET program. Besides, 31.76% of students (of the total) intended to begin work upon graduation that might show the confidence they developed through training. Thus, it appears that students have developed favorable interest in TVET program while pursuing the program. In other way of explanation, being participating in the TVET program has positive influencing role on students' interest to TVET program. From the analysis of item 1 and item 2 of Table 11, then, one can understand that students showed positive attitude towards TVET program while participating in the program; however, they had not revealed strong interest while they were in grade 10 (academic program).

3.4.3 Source of Information about TVET

The underlying assumption to ask source of information about TVET program was to secure information to the extent TVET colleges were providing appropriate and timely information for students in developing favorable attitude towards TVET program.

Table 12 Students' Source of Career Information

Items	Response Frequency & Percentage by Respondents Gender						Chi-square
	Male		Female		Total		
	No	%	No	%	No	%	
Where the most career information obtained?							
A. From Parents	6	2.80	7	3.32	13	3.59	
B. From teachers	20	9.35	24	11.37	44	10.35	
C. From near by individuals	18	8.41	33	15.64	51	12.00	
D. From friends	24	11.41	26	12.32	50	11.76	*10.46**
E. From Vocational counselor	17	7.94	7	3.32	24	5.65	
F. From Media (Radio, TV, News paper)	102	47.66	86	40.56	188	44.24	
G. You have no any source of information	27	12.62	28	13.27	55	12.94	
Total	214	100.00	211	100.00	425	100.00	

*** P>.05, [Table value χ^2 (.05, 6) =12.59]**

As Table 12 indicates, no significant differences were found between male and female students on "where the most career information was obtained". However, the majority of both groups 47.66% of males and 40.56% of females rated media (Radio, TV and Newspaper) as their major sources of information. Surprisingly, the vocational counseling that could be the major sources was reported as a source of career information only by 7.94% and 3.32% male and female's respondents respectively! Thus, students seemed to lack appropriate and timely career information regarding TVET Colleges.

3.4.4 General Views towards TVET

In addition to the attitude scale, some questions were presented to obtain additional information on students' general views towards TVET program.

Table 13 General Views of Students towards TVET Program

No	Items	Response Frequency & Percentage by Respondents Gender						Chi-square
		Male		Female		Total		
		No.	%	No.	%	No.	%	
1	**In your view, the prestige TVET has**							
	A. High	24	11.21	33	15.64	57	13.41	*8.79**
	B. Medium	107	50.00	124	58.77	231	54.35	
	C. Low	83	38.79	54	25.59	137	32.24	
	Total	**214**	**100.00**	**211**	**100.00**	**425**	**100.00**	
2	**Do you believe that grade 10 high achievers join TVET?**							
	A. Yes	143	66.82	116	54.99	259	60.94	*6.26*
	B. No	71	33.18	95	45.02	166	39.06	
	Total	**214**	**100.00**	**211**	**100.00**	**425**	**100.00**	
2	**Degree of assistance your teachers are providing you**							
	A. High	169	78.97	163	77.25	169	78.12	*11.83***
	B. Medium	39	18.22	26	12.32	39	15.29	
	C. Low	6	2.80	22	10.43	6	6.59	
	Total	**214**	**100.00**	**211**	**100.00**	**425**	**100.00**	
3.	**Do you like your college work?**							
	A. Yes	195	91.12	179	84.83	374	88.00	*3.98**
	B. No	19	8.88	32	15.17	51	12.00	
	Total	**214**	**100.00**	**211**	**100.00**	**425**	**100.00**	
4	**In your view, the knowledge/skill you are getting on the training is**							
	C. Very good	86	40.19	71	33.65	157	36.94	*2.41****
	D. Good	108	50.47	117	55.45	225	52.94	
	E. Not good	12	5.61	16	7.58	28	6.59	
	D. Not Very good	8	3.74	7	3.32	15	3.53	
	Total	**214**	**100.00**	**211**	**100.00**	**425**	**100.00**	

*** P<. 05 [Table value χ^2 (.05, 2) =5.99 and X^2 (.05, 1) =3.84]**

**** P<. 01 [Table value χ^2 (.01, 2) =9.21]**

*****P> .05 [Table value χ^2 (.05, 3) =11.35]**

As can be seen from Table 13 on item 1, it was the majority, more females (58.77%) than males (50.00%) regarded TVET program as having a medium prestige while more males (38.79%) than females (25.59%) considered the program as having a low prestige. Besides,

there were only 11.21% males and 15.64% females who estimated TVET program as having a high prestige. This differences in perceiving TVET program as a high, a medium and a low prestige between the male and female respondents were found to be statistically significant (χ^2= 8.79, df=2, P < 0.01).

Closer inspection of the total proportion (54.35%) indicated that the majority of student respondents were viewing TVET program as having more prestige but not as strong as a high prestige.

Item 2 of Table 13 shows significant differences in conviction between male and female students in decision whether grade 10 high achievers favored to attend TVET program or not. Accordingly, 66.82% of male students suggested joining TVET program of grade 10 high achievers as compared to 54.99% of female students. On the other hand, the proportion was high also for female (45.02%) than for male (33.18%) students who opposed the grade 10 high achievers to join TVET program. Nevertheless, the comparison of total proportion for both male and female responses indicates that the respondents agreed upon grade 10 high achievers attending TVET program. This shows that majority of the respondents did not consider TVET program as for low achievers (failures). Again, it appears more likely that current TVET program participants were showing positive attitude towards TVET program.

The respondents' evaluation of the assistance teachers provide was high (78.12% of male and female). The data, then, would suggest that male students (78.97%) had a strong feeling to the assistance teachers providing. The female students (77.25%) also felt that teachers provide the necessary assistance. Moreover, while only 18.22% of male students weighted the assistance as medium, 12.32% of females supported the evaluation. Once

again, 91.12% males reported that they liked their college work as compared to 84.83% of females, 8.88% of males and 15.17% females respectively were reflected negative feeling towards the college's activity. In addition, there were significant differences between male and female students in degree of liking their college work (χ^2=3.98, df=1, P < 0.05). That is, number of males was slightly higher than females in liking college work though both had strong positive feeling.

The difference of male and female respondents in viewing the knowledge/skill they obtained from the training was found not statistically significant (χ^2=2.41, df= 3, P > 0.05). Nevertheless, 50.47% of males and 55.45% females viewed the knowledge/skill they obtained as good condition and 40.19% of males and 33.65% females estimated as very good. In sum, there were about 9% males and 11% females who poorly viewed the knowledge/skill they obtained from TVET program as not good or not very good. The implication for this is that, respondents have been viewing themselves as benefited of TVET program that might indicate their positive attitude towards the TVET program.

3.5 Relationship between Attitudes towards TVET Program and Academic Attainment

To measure the relationship between attitude towards TVET program and achievement (course exam score), the attitude scores were obtained by the sub-scales and by summing up the scores secured through the sub–scales for "general attitude" and "perceptions on the value of TVET program". The course exam scores were obtained from record offices of TVET colleges. The course exam scores did not include scores on common courses and supportive course; it only represented the main course exam scores. Then, attitude scores and course exam scores were correlated to identify the contribution of one to the other (see appendix F).

The correlation between the attitude total scores and course exam scores was found to be 0.51 while the correlation of attitude sub-scales scores and course exam scores were .50 and .39 for "general attitude" and for "perceptions on the value of TVET" respectively and significant (P<. 01), see Table 14. Hence, the contribution of course exam scores for the students' attitude was 26% and vice versa. Thus, other things being equal, the contribution of academic attainment for students' attitude towards TVET program was found to be considerably significant and vice versa; because, attitude and achievement influence one the other (Seleshi, 1995). For detail information, the correlations of the attitude sub-scale scores, total attitude scale scores and course exam scores were indicated in Table 14.

Table 14 Correlations between Attitude Scores and Course Exam Scores

Variables	General attitude total score	Perceptions sub-scale total score	Total attitude score	Course exam score
General attitude total score	—	.63**	.92**	.50**
Perceptions sub-scale total score		—	.85**	.39**
Total attitude score			—	.51**
Course exam score				—

*** N=425**
**** P<. 01**

All correlations are significant (P<. 01). The relationship of "general attitude" su-scale and total attitude" scale is stronger than the remaining relationships.

3.6 Students Response to the Open Ended Items of the Instrument

There were 2 open-ended items for the students to respond. Most of them reacted to each item. For the first item stated, "In general, what main problems do you observe in the TVET college you are attending training"? 90.12% of the students reported that there were inadequacies of teaching materials. They said that they were using one computer for 6 to 10 students at a time. Because of lack of teaching materials (raw materials) like cement, electric wires, sheet metal, diodes, lumbers, papers and other similar materials, the practical training hours were often substituted by theory lessons. Thus, the lack of teaching materials was found as the major problem.

In addition, about 85% of students complained that they were not getting appropriate information about apprenticeship and job opportunity. This shows that the function of vocational counseling was weak in the sample colleges. Furthermore, some students indicated that, though, they came from far area of peasants' family, they were not provided with a pocket money while some other students were earning some payment monthly. This shows that, the students were not well informed about the payment.

For the second item stated, "... indicate some ideas that you think help to develop positive attitudes of students towards TVET program", about 88% of the students proposed

- To provide necessary and adequate teaching materials
- To arrange conditions for employment opportunities
- To provide pocket money or to arrange boarding facility in the college and other similar ideas.

CHAPTER FOUR

DISCUSSION

An attempt was made to measure students' attitude towards TVET program by developing a 40-item attitude scale, 8 demographic information and 10 supplementary questions on joining TVET program. In addition, course exam scores were obtained from the records of the students. On a sample of 425 trainee-students, the attitude scale found to have a reliability of .85 alpha. Thus, for the analyses presented in chapter Three, discussions are made as indicated in this chapter.

4.1. Attitude towards TVET Program

One of the basic questions that is to be answered in this research was what interest and attitude do students have towards TVET program. As shown in Table 2, more than 90% of students responded that they considered TVET program as their favorite field of study. And, preferred TVET to academic subjects viewed TVET as fascinating and fun, liked the type of project and assignments provided them, liked their current fields of study, aspired to learn more in TVET program and felt that they developed positive attitude to the technical jobs and TVET program. The present finding is similar to the findings of (Alloway et al., 2004; 1989 Black, 1976)

On the other hand, more than 85% of the respondents indicated their disagreement to the items related to hate TVET, to feel inferior for studying TVET and to dislike TVET program. These responses indicate that students were found to have positive attitude towards TVET program.

As previously revealed in literature, there were positive and negative reactions towards TVET program (Claus, 1990). The present research corresponds to the positive finding (Swortzel et al., 2003). Furthermore, Womble & Jones (1996) study is supported by the present research finding that students involved in TVET program had positive perceptions to work and career-related issues.

Moreover, Becker & Maunsaiyat (2002) indicated that students found to have interest in technology. However, they more regarded technology as just for males. Furthermore, Osborne & Dyer (2000) found that students' perceptions on secondary vocational program were generally quite positive. As Bell (1975) indicated, even though the prestige factor was one of the most discouraging factors to participate in TVET program, now a day's attitude desirably changed. So, it may be due to the current change of attitude that the participants of this study showed high degree of positive attitude towards TVET program.

The finding of present research (students had positive attitude towards TVET program) was inconsistent with findings of (Teklehaimanot, 2002; Conroy, 1998; Dassie, 1996) as previously described in the review of the literature. Dassie & Tekelhaimanot mainly identified the problem of prestige and status as barrier to positive attitude to TVET program. In addition, Tekelehaimanot explored the misconception on TVET program as hindering factor for poor perceptions of students, administrators, and public on TVET program. Conroy found that most students desired professional occupation (academic subjects).

Though the present and some of previous research results are found to be not in agreement, the following factors seemed to be common. The prestige and job status factors, as barriers of positive attitude to TVET program, are also observed in present study though to a less in extent. This is evident from Table 13. About 54.35% of students scaled TVET on a

medium prestige level, while 32.24% estimated it as a low prestigious program. What has to be noted is that having medium prestige is not equivalent to having no prestige. Thus, for the present sample of students TVET has medium prestige but not high. Then, the inference on present and previous findings is that in both cases the prestige factor in some way or another influenced students' attitude. That is, currently, students' attitude towards TVET program is positive but its degree might not be extremely high, as prestige factor is concerned.

Similarly, as the response of item 12 of Table 2 shows, about 65% respondents disagreed with the item stated as "in my understanding TVET is designed for low achievers." The percentage of responses to this item can be considered low compared with responses to other items. Thus, only some students thought TVET was for low achievers while the majority did not. This happened, may be because the background of students has been contributed. About 44.03% students reported that they had a GPA of less than 2.00, which was low for preparatory program as indicated in appendix G. Moreover, items 16 and 18 of Table 2 received 76% and 70 %(strongly disagree and disagree) responses respectively, that show disagreement but not strong to the item "to thought to drop the training" as compared with other items. Besides, as Table 11 indicated, 7.76% students wanted to attend academic subjects upon their graduation from TVET College.

Thus, the common element is that the prestige factor influenced students' attitude towards TVET though the present research participants reported positive attitude towards the program.

Therefore, the finding of the present research is not self-contradictory. Rather, it is the matter of degree and preferences. The majority of students reported TVET program as their

most favorite field of study. Only very few aspired to attend academic subjects upon graduation while the overwhelming majority did not. On one hand, it is human nature to favor something and to aspire of another. Hence, it may not surprise being having positive attitude to TVET program and to aspire to attend academic subjects. On the other hand, it is the nature of social science research to base its finding over the majority ruled by the previously set level of significance.

Thus, the participants of present study showed more favorable attitude towards TVET program though they reacted to some issues like prestige and achievement factors are concerned with low rating.

4.2 Differences in Attitude towards TVET Program

As indicated in Table 4, there were significant differences in attitude mean scores between male and female students [F (1,413) =65.64, R^2 = .14] on "general attitude" sub-scale. That is, male students showed substantially higher positive attitude than did females towards TVET program.

Besides, the result of this study revealed that 14% of the variance in attitude scores was accounted for by the variations in gender of the students as "general attitude sub-scale concerned". This was the largest contribution relative to the variances accounted for by the other factors. These perhaps due to the fact TVET program (especially technological fields) were considered just for males. The response to item 21 of Table 2 indicates this fact. There were about 61% of the respondents who believed TVET program as difficult for boys as it was for girls. In addition, the mean rating value of the item was 3.46, which were very closer to the expected average (3) compared with other items of the Table. That is, a considerable number of respondents did not accept TVET as equally difficult for both male and female

that shows the gender differences in TVET program. For this matter, the gender differences in the total attitude mean scores ("general attitude" and "perceptions on the value of TVET" sub-scales) revealed similar significant result ($F(1,413) = 82.24$, $P < .00$ and $R^2 = .17$).

The present research result is consistent with the previous studies (Swortzel et al., 2003; Yundu, 2003; Ngau, 1999; Boser, Palmer, & Daugherty, 1998; Morrow, 1993), which reported differences in attitude towards TVET program between male and female students. Other studies (Wang, 2004; Wolters, 1989) similarly, identified gender differences in attitude towards fields of study. Contrarily, Adams, Womble, & Jones, (2001), pointed out differences in attitude at different grade level; not between male and female students. Chen (1991), reported gender difference in attitude towards TVET program in that females found to have more favorable attitude than males. This happened probably because most of Chen's research participants were in fields of study like Business, Secretarial and Home Economic courses, which are regarded as female study areas.

As Table 4 shows, the year level main effect was statistically significant [$F(2,413) = 9.79$, $P < .00$]. The 10+3 year level male students had substantially higher attitude mean scores than did 10+2 and 10+1 year level students. Though the attitudes mean scores differences between 10+2 and 10+1 year levels showed no statistical differences, there was consistent increase of attitudes from 10+1 to 10+2 year level students and favorable increase of attitude from first year to third year male students.

Other researchers (Becker & Maunsaiyat, 2002) found out significant differences between boys and girls in attitude towards technology, but not significant effect of grade level on general interest in technology. King (1977) reported that students' educational or occupational level has nothing to do with how they feel about TVET program. Volk, Yip, &

Lo (2003) revealed that girls generally found to have less positive attitude during the beginning of the study and significantly showed positive attitudes after three years of training that corresponds to the present study.

In the present study, the field of study main effect showed slight differences but not significant in attitude means scores between students' of Construction (mean=105.15) and Industrial (mean=106.19) Technology fields of study. Contrarily, Swortzel et al., (2003) reported significant relationship between program type and attitude towards TVET program. Difference in attitude was found not significant between students' of the two fields of study of the present research might be due to having similar background, which is, both fields of study were having relatively similar opportunity of employment.

The gender-by-Year level interaction revealed females less favorable regards to TVET program compared with males in each year level (10+1, 10+2 and 10+3). Females' attitude to TVET consistently increased as a function of year level; but the increase never exceeded that of boys. Boys showed low decline in attitude in 10+2 year level but substantially high increase in 10+3 year level. In sum, males showed higher esteem to TVET program in 10+1, 10+2 and 10+3 year levels than did females.

Yundu (2003) found boys generally showed higher preferences to technological areas than girls did. Thus, the present study finding supports the outcome of Yundu's study.

In discussion of gender difference in attitude towards TVET program, we observe the influence of gender on students' attitude towards TVET program, though both males and females were found to have positive attitude towards the program. The underlying reasons

for the differences assumed to be multi-dimensional. For the relevance of this study, it suffices to reflect the education and gender-role stereotyping.

Historically, education and training have been heavily segregated along gender lines. Girls taught to sew, cook and fulfill caring roles, while boys learned metal work, wood work and technical skills; because, females considered weak to perform such similar technological activities. To this support as indicated by Athanasou (2001), gender rather than individual achievement, potential informed choice, is the key determinant of vocational education and training experiences of students.

Thus, it may not surprise, then, to find males had more positive attitude than females. Because, the area of training on which the present research performed an investigation was the type of male biased fields of study (Industrial and Construction Technology). As supporting evidence, study done by Kelly et al., (1982) on Gender Role at Home and School indicated that the jobs like Nurse, Secretary, Social Worker and Hair dresser were considered much more suitable for girls than for boys and the jobs of Engineer, Electrician and Draughtsman were considered much more suitable for boys than girls by parents.

The significant differences in attitude towards TVET program across the year level found out by present research need more explanations. As the educational backgrounds of student respondents indicate (appendix G), a good number of students could not join preparatory program because their exam scores were below the requirement. Thus, they were indirectly forced to join TVET program. By policy, it is the TVET program, which is accessible for these students; "The students who discontinue the formal academic educational and who wish to acquire a trade will be trained in different vocations or

techniques ..." (MOE, 1994. p.16). In addition, as responses to item 1 of Table 11 shows, about 50% of students had no plan to join TVET program while they were in grade 10.

The above information shows that the interest students had towards TVET just before or when they joined TVET were not favorable, if not negative or neutral. In addition, the attitude means scores of 10+1 (103.56), 10+2 (105.27) and 10+3 (108.15) year levels indicated the fact that students showed more positive attitude as their education level increased.

Hence, comparatively, lower level of attitude to TVET program of the first year students compared with that of second and third years indicates the background attitude that students had to the program (because majority preferred to join preparatory program).

On the other hand, the attitude mean scores obtained at 10+2 and especially at 10+3 show that enrolment in TVET program is associated with progress of favorable attitude. It further implies that the training provided for the students was worth contributing which is consistent with the students' responses to item 4 of Table 13. That is, about 90% of students estimated the knowledge and skills they obtained from TVET program as very good and good. As a result, they developed self confidence, positive attitude and viewed TVET program as their favorite field of study.

4.3 Students' Perceptions on the Value of TVET Program

Responses to the 15 items presented in Table 5, ranged from a high percentage of 93.4 to 74.1 (strongly agree plus agree). Similarly, mean scores for the individual items ranged from a mean of 4.60 to 3.85. Thus, students' perception on the value of TVET program was generally positive.

Moreover, to the supplementary questions on joining TVET that were presented to further explore information on students' attitude towards TVET Program, as shown in Table 13, the students' reaction was quite positive. They evaluated the assistance their teachers provided them as high (78.12% of respondents) and the chi-square test of the differences in response categories between male and female students found to be significant χ^2[(0.01, 2)= 11.83, P < 0.01]. Besides, 88.00% of the respondents answered they liked college works. Further, the respondents estimated the knowledge and skills obtained from the training as very high (about 90% of very good and good responses); however, the chi-square test for differences in response categories between male and female students showed no significance [χ^2 (0.05, 3) = 2.41, P > 0.05].

Previous studies (Swortzel et al., 2003; Jones et al., 1997; Womble & Jones, 1996; Kalleberg & Witte 1995) similarly reported positive perceptions of students on the value of TVET courses they were attending. Abdekarim's (1997) investigation to the issue under discussion, found to be similar to the present study. That is, though TVET program was known by the stigma as choices of the less successful, currently the trainees who joined the program were not for the case of "unable to pursue" academic education, but because the program offers them better prospects in the labor market.

4.4 Differences in Perceptions on the Value of TVET Program

The effects of gender, field of study and year level on perceptions of the value of TVET program were examined through analysis of variance. Moreover, it was found that gender and year level main effects were statistically significant. The significant gender main effect [F (1, 413) = 70.23, P < 0.00, R^2= 0.15] shows that male students substantially had higher mean attitude scores (mean= 67.52) than had female students (mean= 61.94). In addition,

15% of the variances in attitude mean scores were accounted for by the variation in gender of the respondents. Hence, male students than female students more valued TVET program as useful and worth contributing for the daily life of an individual and a country's development. In addition, the results on total attitude scale strength this fact (see table 9).

Gender differences on perceptions of the value of TVET program happened for various reasons. As found out in previous discussion, males had more positive attitude towards TVET program. Consequently, it is possible, then, to say that males would attentively follow the training so that they acquired better knowledge and skills that helped them to feel confident and competitively appear in the labor market.

It is also possible to estimate the kind of field of study (Construction and Industrial) they involved in (male and female) would contribute to the differences. Because, the Construction and Industrial fields of study were considered males' area, while home domestic fields like Cooking and Caring regarded for females. As a result, female participants of this study may think as less successful in labor market even though, they had the necessary skills and knowledge to accomplish a task. Because, for one thing, the labor market may not favor them and for another thing, they were not in female's field of study. This implies that in one way or another, gender appears to have influence in perceptions on the value of TVET program.

Kithyo & Petrina (2002) indicated that, in Kenya, women were under represented in technological fields of study for one main reason that they themselves believe unprepared to cope with science and technological subjects or lack confidence in pursuing masculine courses. Moreover, the finding of Kithyo and Petrina in addition to what was indicated in the literature, females enrolled in courses like Motor-Vehicle Mechanics, Electrical

Engineering and Carpentry found extremely difficult to get placement for internship or industrial attachment. The few employers who admitted these girls found not to give them opportunity to practice in all area of the industry. It might be for the indicated reasons that females' enrolment in sample TVET Colleges of the present study was very low compared with males. Enrolment in Construction Technology was 402 (62.71%) for males and 239 (37.29%) for females while that of Industrial Technology was 423 (66.72%) for males and 211 (33.28%) for females (see appendix B).

Hence, it becomes not surprising to found gender difference in attitude in general and differences in perceptions on the value of TVET program in specific, in fields of study of Construction and Industrial Technology.

The significant year level main effect [$F(2, 413) = 10.78$, $P < .00$] indicated 10+3 year level students found to had more positive perceptions than did 10+1 and 10+2 year levels to the value of TVET program (mean=66.90, 63.23 and 64.09 respectively). However, 10+1 and 10+2 year levels showed differences in attitude mean scores, in that 10+2 had higher, relatively, the differences found not to be statistically significant. Nevertheless, the perceptions mean scores obtained reveals that students' perceptions to the value of TVET program increased with an increase of educational level. This finding is consistent with finding of (Adams, Womble, & Jones, 2001; Jones & Womble, 1997). Volk et al., (2003) reported that girls with three years of training had perceptions that are more positive on the value of technology than one year.

Differences in perceptions on the value of TVET program among the year levels indicate that students obtained better knowledge and skills in the consecutive training levels. That is, the training significantly contributed to the students' perceptions so that the 10+2 than

10+1; and the 10+3 than both 10+1 and 10+2 year level students valued the program as useful and as having employment opportunity that influenced them to feel secured for participating in the program.

4.5 Reason for Enrolling in TVET Program

As sown in Table 10, about 40% (Male plus Female) students indicated, "scoring low in 10^{th} grade exam score" (unable to meet the requirement of other institution) as the reason to prefer to join in TVET program. The second and third reasons for enrolment in TVET as responded by 23.76% and 14.5% of students were high interest in the area and thought the course would have further training opportunity. The remaining reasons were not significant when they were seen individually as compared with the three main reasons.

Besides, gender main effect significant differences were observed in reasons for enrolment in TVET program [$\chi^2(0.01, 7) = 16.44$, $P < 0.01$]. Females were found to associate to "low scoring" (47.87%) than males (32.24%) while males associated to high interest (27.57%) than females (12.91%). Similarly, 18.22% of males thought the course would have further training opportunity than did 10.90% of females.

Thus, the three main reasons for enrolling in TVET program for the majority of student were 'low scoring' (in grade 10), 'interest' and 'expectation for further training' in TVET program in that order; whereas, parents' and friends' recommendations found to be the minimum reasons for the students to join TVET program. Other research finding (Hairston, 2000), reported that parents recommendation as the main reason for enrolment in TVET program. Maxwell, Cooper, & Biggs (2000) found immediate job focus, personal aspiration and employment opportunity as reasons for students to join TVET program.

Barak (2002) report was somewhat different from others. That is, 10 graders preferred to study Electronics for the reason they thought important and interesting for which they could find jobs after graduation. Contrarily, grade 12 (after 2 years of training), responded that if they were previously known what they later study, they would have not chosen Electronics. This indicates students' interest and attitude declined to study Electronics as they longer studied the course, which does not relate to the present study. Alloway et al., (2004) found students self-determination, career advisors and academic achievement for reasons to enroll in TVET which partly relates to the present research finding.

Questions presented in Table 11 aimed to further investigate reasons for enrolling in TVET program and to see whether students intended to continue in the fields of TVET program. Then, 50.35% (the total) students replied that they wanted to study academic subjects after grade 10. Contrarily, 36.47% of students replied that they intended to join TVET program after grade 10. Thus, the majority of respondents wanted to attend academic subjects and less in number aspired to join TVET program when they were in grade 10. Besides, differences were observed between male and female students ($\chi^2(0.01, 3)=11.79$, $P < 0.01$]. That is, while more males showed interest in academic subjects than females, more females wanted to study TVET than males after grade 10.

On the other hand, as item 2 of Table 11 indicates about 53.65% students wanted to continue to study TVET, and 31.76% aspired to begin work in fields they trained upon gradation from TVET College while the remaining were wanted to study academic subjects and yet not decided. Generally, students were found to continue in their current fields of study after graduation from TVET College. Similarly, (Alloway et at., 2004; Hairston, (2000); Maxwell, Cooper, & Biggs , 2000) found students wanted to continue in their fields of study.

Regarding gender differences, more boys than girls wanted to continue training in TVET and more girls than boys had the plan to begin work in their fields of study upon graduation from TVET College and the test of the differences was significant [χ^2 (.01, 3) = 16.79, P < 0.01].

As the above explanation reveals, the majority of students did not want to study TVET after grade 10. Contrarily, the majority of students showed more inclination to TVET program and wanted to stay in TVET program either by continuing further training or by beginning works in their field of study. This shows that the background interest of students in TVET was poor but after participating in TVET, they showed more interest in the program, which shows significant contribution of the training to the students' interests and attitudes.

Though TVET program seem to be contributing for students' attitude towards the program, currently TVET Colleges seem to lack appropriate service of vocational counseling. There were only 5.65% of the respondents who answered vocational counseling as their source of career information. In addition, to open ended item presented for additional information, 85% of the students reported they lacked timely information on apprenticeship and employment opportunity when they were on training.

4.6 Relationship between Attitudes towards TVET Program and Academic Attainment

The result of correlation between attitude scores on TVET program and course exam scores indicated relatively strong positive correlation (0.51) for total attitude scores and course exam scores while that of "general attitude" and "perception on the value of TVET program" as correlated with course exam scores were .50 and .39 respectively and found to be significant (P < 0.01). The contribution of variance between academic attainment (course exam scores) and attitude towards TVET program was 26%. This result agrees with the finding reported by (Adams, Womble, & Jones, 2001; Jones & Womble, 1997). However, there was a slight difference. In the former study, those students who earned As, Bs and Cs equally exhibited positive attitude than who earned Ds; the later study indicated that those students who achieved As and Bs

showed positive attitude than Cs and Ds. In both researches, students' grade earned on skill training generated significant differences in attitude to the training program.

Though the present study used exam scores (letter grading was not used in TVET Colleges) to correlate with attitude scores to investigate their relationships and the previous researches used letter grades and employed factor analysis, the present finding supports the previous studies. In the present study, it is possible to interpret that attitudes of students towards vocational program were influenced by the grades earned on training. Besides, students who achieved high grades more tended to show positive interest and attitude to TVET program than who got low grades. Thus, the correlation became positive.

The correlation was positive and strong may be because the training provided in the sample colleges was effective. Besides, since students found to have positive attitude towards TVET program (previous discussions), they would attentively attend the training and found to earn better grades. In other direction, since the students already known their course exam scores, it may be possible to say that their grades (better grades) might have contributed to positive attitude. Moreover, since the respondents reported that they liked college activities (84.83% of Table 13) so they might perform projects and assignments as expected in which they earned better scores.

However this result needs to be viewed both with encouragement and caution, high correlation was obtained probably because, the course exam score used for correlation comprises of only the main training course exam scores (not included common courses and supportive courses). That is, the variable that might have influenced students' attitude is reduced to only one subject area. The interest generated by the main course might have resulted in positive attitude. It needs to be seen how the correlation would have been if other course exam scores were also studied. At least, one could safely interpret that main training course and attitudes might be interacting positively with each other.

CHAPTER FIVE

SUMMARY, CONCLUSSIONS AND RECOMMENDATIONS

5.1 Summary and Findings

The purpose of the study was to investigate the attitude of students; particularly those enrolled in Construction and Industrial Technology fields of study, towards TVET program as a function of the students' gender, field of study, year level, and academic attainment. The study was conducted in Oromia Regional TVET Colleges of Asela and Nekemte.

The following specific questions were formulated for investigation.

1. What is the general interest and attitude of students towards TVET program?
2. Do students show significant differences in attitude towards TVET program as a function of their gender, field of study and year level?
3. What are the perceptions of students on the value of TVET program?
4. Do students show significant differences on perceptions of the value of TVET program as a function of their gender, field of study and year level?
5. For what reason(s) do students enroll in TVET program?
6. Is there any relationship between students' attitude towards TVET program and academic achievement?

There were three regional colleges of TVET in Oromia Region. Of these, two were purposely selected. From these sample colleges, 475 participants (Male=247 and Female=228) were randomly selected from the three-year levels (10+1, 10+2 and 10+3) and fields of study (Construction and Industrial) Technology. Of the total 475 samples, the responses of 425 (M=214 & F=211) students were used for analyses.

An instrument consisting of two parts (attitude scale plus demographic information and questions on joining TVET program) was used to collect data. The instrument was originally developed in English and translated in Afan Oromo Language. The Afan Oromo version was distributed for all respondents. The translation, validation and reliability estimate of the instrument involved expert judgments. There were 40 attitude items of five-point scale Likert type, 8-background information and 10 supplementary questions on joining TVET program. The attitude type has 2 sub-scales namely: "general attitude" and "Perceptions on the Value of TVET program".

Then, the instrument was administered on pilot group of 50 sample students. Based on this, item analysis was carried out and the instrument was revised. On pilot study, the reliability of the total scale was .88 alpha and that of the sub scales were .79 and .84 alphas for "general attitude" and "perceptions on the value of TVET program" respectively. Then, data were collected using the revised instrument. For the final sample study, reliabilities were calculated and the total scale reliability was .85 alpha while the sub-scales' were .71 alpha for "general attitude" and .82 alpha for "perceptions on the value of TVET program". Percentage, Mean, Chi-square, Analysis of Variance, and correlation were employed to analyze the data. Besides, course exam scores were obtained from records of students' and correlated with total attitude scores.

From the analyses, the following results were obtained.

1. Majority of students expressed favorable attitude towards TVET program. Their responses to 25 items presented to measure their general interest and attitude towards TVET program ranged from mean of 4.76 to 3.46 for individual items and with the grand mean of 4.23. Each item responses were subjected to item

discrimination ability and the difference found to be significant with chi-square statistical test ($P< 0.01$). Thus, students viewed TVET program as interesting, fascinating and fun; liked the training and projects given on the training, wanted to study TVET more, agreed to advice others to join TVET, felt positive attitude towards the program and disagreed to categorize fields of training of TVET as for males and females.

2. Statistically significant differences in attitude mean scores between male and female respondents were observed. Accordingly, male students were found to have substantially higher attitude mean scores than females. As a result, male students have more favorable attitude towards TVET than females. To the differences in attitude between male and female students, the gender role stereotyping of field of study assumed to have high contributing role. The gender variable was the highest contributing factors for differences in attitude mean scores than the other variables, as per Table 4 and Table 8 analyses.
3. With regard to year level, the third year students revealed substantially higher attitude mean scores than second and first year students. Though second year obtained higher attitude mean scores than first year, the group-means-comparison test did not yield a significant result.

Overall, the year level main effect was significant. The third year students had more favorable attitude than second and first years. Second year had more positive attitude than first year. Besides, the attitude towards TVET program showed a trend of positive increase with the rise in year of study.

4. A statistical significant difference was revealed when gender main effect interacted with year level main effect. Male students received high attitude mean scores than females in each year level. Females exhibited consistent attitude mean scores

increase with an increase of education level. Males showed slight attitude mean decline in 10+2 year level and observed substantially high attitude mean score in 10+3 year level. The magnitude of differences in attitude mean scores between male and female students was high in 10+1 year level than it was in 10+2 and 10+3 year levels. In sum, male-female attitude towards TVET program varied across year levels. Moreover, the increase of favorable attitude corresponded with a rise of year level of students though male students showed very low decline in attitude mean scores in 10+2 year level.

5. No statistical significant differences in attitude mean scores between field of study of Construction and Industrial Technology students were observed. In addition, except the` gender-by-year level, the remaining interactions were not significant. As a result, no significant differences in attitude toward TVET program between Construction and Industrial Technology fields of study among students.
6. The perceptions of students on the value of TVET program were generally positive. Students' responses to 15 items presented to measure their perceptions ranged from mean 4.60 to mean 3.85 with the grand mean 4.28. In addition, each item response differences (among strongly agree, agree, undecided, disagree and strongly disagree) were found to be significant with chi-square statistical test ($P < 0.01$).

Accordingly, the student respondent viewed TVET program as equally useful as academic subjects, as very demanding area of study, as that contribute to personal daily life and a country's development and as that has employment opportunity. All together, students felt secured in life for studying TVET program and had strong convictions in their field of study as that enables them to be successful in life after completion of the training.

7. A statistical significant difference was observed in perceptions mean scores between male and female students. Males found to have substantially higher perceptions mean scores than females. Males viewed TVET program as more useful that contributes for daily life and country's development. Males than females felt more secured in life for studying TVET program. The highest variance in attitude mean scores was accounted for by the variation in gender of the students than any other variables under discussion.
8. The perceptions mean scores on the value of TVET program revealed significant variation across year levels. In each year level (10+1, 10+2 and 10+3) males received more perceptions mean scores than female students. The 10+3 year level found to have significantly more perceptions mean scores than did 10+2 and 10+1 year levels. On the other hand, 10+2 and 10+1 year levels revealed differences in perceptions mean scores; but it was not significant. Generally, third year students were found to be more positively valued TVET program than second and first years. In addition, positive perceptions on the value of TVET program increased with a rise of a year level of students.
9. The field of study main effect and all the possible interactions were not significant. Thus, no significant differences in perceptions on the value of TVET program were observed between students' of fields of study (Construction and Industrial).
10. The three most important reasons for which students enrolled in TVET program were 'scoring low' in 10^{th} grade (unable to meet the requirements of other institution), personal interest and expecting the program as it provides further opportunity of training in that order.

    Besides, more females' than males attributed to 'scoring low' to join TVET program. Contrarily, more males than females attributed to personal interest and to expectation of further training as reasons for joining TVET program.

11. The majority of students had no plan to study TVET program when they were in grade 10. Most of them wanted to pursue in academic subjects. They found to have low interest and low attitude towards TVET program. They were not informed well about TVET program before completion of grade 10.

    Nevertheless, after they participated in TVET program, they showed more interest and attitude towards the program and its value. As a result, the overwhelming majority wanted to pursue in TVET program either by extending to further training in the area or beginning work in their fields of training upon graduation from TVET College. In addition, the training program found to be positively influenced students' interest and attitude towards TVET program.

12. While the main source of career information of students was the popular media (Radio, TV and Newspaper), the function of vocational counseling on the carrier information was found to be low. In addition, male and female students showed differences in their sources of career information. More males than females considered media as their sources of career information. Conversely, more females than males used the near by individuals as their sources of information.
13. Considerable number of students viewed TVET program as prestigious field of study. Males were found to view TVET program as more prestigious and esteemed than females.
14. More males than females believed that high achievers join TVET program. In other expression, more females than females estimated TVET program as appropriate for low achievers.
15. As a whole, students were found to have positive views to the assistance teachers providing them on the over all College activities. They also viewed the knowledge

and skills obtained on the training as of high degree. The differences between male and female in valuing the assistance teachers provided seem to be gender based.

16. The relationship between attitude scores and course exam scores was high. Their correlation was significant and positive. The course exam scores contributed high to the positive attitude of students towards TVET program (26%) and vice versa.
17. Overall, the attitudes and the perceptions of TVET college students toward TVET program were quite positive. The participants generally believed that TVET program is a viable option to prepare for further education and employment. Nevertheless, no significant differences in attitude between students' of Construction and Industrial Technology fields of study found in that both of them believed to have similar employment opportunity.

5.2 Conclusions

Based on the findings of the study, the following conclusions have been made.

1. TVET College students' attitude towards TVET program is positive. The majority of students consider studying TVET program as interesting, fascinating and fun and they like to perform their assignments and project works. TVET college students want to learn more in TVET program. They like to advice others to study TVET program as them selves. They dislike categorizing fields of study as for males and as for females. They have good outlook for any field of study of TVET program.

   Male and female students show differences in their attitude towards TVET program; males than females view TVET programs as more positive. Attitude towards TVET program is more influenced by gender of students than any other variables under discussion.

Attitude towards TVET program also varies on year level of students. Third year students like TVET program more and have positive attitude towards it than second and first year students. Second year students exhibited more positive interest to TVET program than first year. Attitudes toward TVET program grow up with a rise of year level.

The attitudes of male and female students towards TVET program change as a function of their year level. There is consistent increase in positive attitude among female students through the year levels, while males showed slight decline in 10+2 and improvement in 10+3. Nevertheless, no significant differences in attitude between students' of Construction and Industrial Technology fields of study were found.

2. Students' perceptions of the value on TVET program are positive. Most students view TVET program as useful and important for daily life and country's development. Variations in perceptions on the value of TVET program exist in gender and year level main effects. Males than females view TVET program as more useful and important. Perceptions on the value of TVET program show development with improvement of year level of students. That is, third year students than first and second year, and second year than first year view TVET program as valuable field of study.

   The gender variable is the greatest contributor for differences in perceptions on the value of TVET program than the year level, field of study and their interactions.

Contrarily, the results show that no significant differences in perceptions on the value of TVET program between students' of the fields of study of Construction and Industrial Technology. They do not show differences because they are often have similar employment opportunity. So, one may find differences in perceptions and attitude in fields of study if one investigates the differences, for example, between construction and secretarial fields of study.

3. Large number of students joins TVET College due to 'scoring low' (unable to meet the requirements of other institution). Some students join TVET for the inclination they have in the area. Relatively, fewer students prefer to join TVET for the expectation of further training that TVET program may provide.

   The role parents, teachers and vocational guidance are playing to attract students towards TVET program is not significant.

4. The most known sources of career information for TVET students is the popular media (Radio, TV and Newspaper). Nevertheless, one doubts whether students availably get the mentioned Medias. The current TVET college condition shows that they are not facilitated and equipped with necessary materials and books. The service of newspaper seems negligible.

5. TVET program is getting recognition. Students begin to view it as relatively prestigious and esteemed fields of study. Thus, TVET program seem to have bright future. The old fashion of viewing TVET program as for low achievers or "failures" passed away. Both male and female students tend to view it as interesting and important. Present students less discriminate fields of study as for male and for female.

6. More females than males regard TVET as for 'low achievers'. Contrarily, more males than females wish TVET program for high achievers.

7. Students are positive to teacher assistance and college works. But males are large to females to view it as positive, the assistances teachers were rendering. One may guess for this relation as caused by gender relationship. Because, TVET colleges are dominated by male teachers. For example, no female teachers in Nekemte TVET College.
8. While students are in grade 10, they want to study preparatory program. However, after they enroll in TVET, they show change of interest and want to more pursue in TVET program. That is, TVET program is positively influencing students' attitude.
9. Attitude and achievement positively correlate. Students who achieve better course exam scores show positive attitude towards TVET program and vise versa.

5.3 Recommendations

In the light of the findings of the present study, the investigator forwards the following suggestions to be taken in consideration to improve students' attitude towards TVET program and its value.

1. The findings of present study necessitate minimizing the gap of male and female students' attitude towards TVET program. To this effect, it would be advisable for teachers to pay attention on female students to provide necessary assistance, help, and advice and should have concern for female students' education. Besides, the vocational counselor should arrange discussion programs about apprenticeship, career information, employment opportunity, and studying TVET in order to remove biased perceptions on TVET program. In addition, it is advisable to arrange initiative programs for female students especially at TVET colleges.
2. The role of vocational counselor is multidimensional in TVET colleges. To say some, he/she provides career information, arrange apprenticeship programs, assess training

needs, and labor market demand, which are key activities of TVET colleges. Hence, TVET colleges should give priority to strengthen the function of vocational guidance.

3. Disclosed in this study were data indicating favorable attitude of students toward TVET program and its value that shows increasing demand for the program. Thus, TVET institutions should expand field of study based on the needs of student and labor market demand. In addition, the curriculum developers should design courses of study according to local needs and then, create awareness about the courses.
4. Though the result of present study revealed that students currently enrolled in TVET program have developed favorable attitude, it further requires investigating about the underlying reasons in order to strengthen them and explore ways that help to develop more positive attitude towards TVET program.
5. As the findings of the study indicated, students who were attending academic subjects (grade 10) did not want to join TVET program, while who enrolled in TVET program showed high interest in the area. This indicates that students might not get first hand information about TVET program while they were attending secondary schools. Hence, the TVET institutions and secondary schools should cooperatively work to provide career information for students before they complete secondary school that believed to positively influence students' attitude and increase entrants to TVET program as well.
6. At present time, male teachers dominate TVET colleges. For that matter, female students may consider TVET program as for males, which is believed to influence their attitudes of TVET colleges in general and fields of study in particular. Thus, in order to influence positively female students' attitude towards TVET program, it requires having some female model teachers in TVET colleges.

7. To better understand students' attitude towards TVET program, it is advisable to extend investigation among specific fields of study like Automotive, Electricity, Surveying, Woodwork, Secretarial Science, and Business areas.
8. Since the scores students achieve on the training have high contribution to students' attitude and vice versa, teachers are expected to provide training in which students understand and develop positive attitude and achieve better as well.
9. Since it is universally agreed that gender discrimination starts at an early age, parents should encourage their children to read vocational subjects according to their abilities.
10. To further investigate students' attitude towards TVET program, it needs to develop a locally based attitude inventories. Such an inventory the reliability and validity of which are standardized over many trials is crucial to promote research and curricular planning in the area. Thus, researchers in the field of TVET are expected to develop such scales.
11. Government should provide all TVET colleges with necessary facilities, training materials and funds for effective training in technical/vocational subjects, as practical in technical/vocational program involve a lot of materials and funds. In addition, the involvement of private sector and community should be strengthened because; their participation in the program would share the burden of government as well as help to achieve the intended objectives.
12. Equivalent to other types of college, for example, as Teachers' Training college, Nursing School and others, all TVET college students should be involved in cost sharing program that enables them earn pocket money while they are on training.
13. Students attending training in Industrial Technology field of study showed slightly more attitude than students of Construction Technology field of study. Hence, it becomes indispensable to investigate the underlying reasons in order to improve the attitude of students who are following training in Contraction Technology field of study.

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Appendix A: Instrument (English)

Addis Ababa University

School of Graduate Studies
Faculty of Education

Part I: Attitude scale

The following questions are not meant for testing your knowledge. They are presented to understand what trainees think and feel about Technical /Vocational Education and Training (TVET). There is no right or wrong answer. Please answer as you really think and feel. But, be sure that the answers are exactly represented your own feeling. Your answers will be kept confidential. Read each statement carefully and respond by ticking (✓) one alternative for one question that most represent your thinking and feeling. Try to avoid ticking "UD" as far as possible.

If you strongly agree, tick **SA**

If you agree, tick **A**

If you undecided, tick **UD**

If you disagree, tick **D**

If you strongly disagree, tick **SD**

No	Statements	SA	A	UD	D	SD
1	Technical/ vocational education is my favorite field of study.					
2	I prefer TVET to academic subjects					
3	I believe that TVET is as useful as academic subjects					
4	I feel secured in studying technical/vocational education					
5	I feel insecure for studying technical/vocational courses.					
6	For me, technical/vocational education is fascinating and fun.					
7	I feel inferior for studying TVET					
8	In my view, technical/vocational careers are boring					
9	I don't like to be called a 'technician'					
10	I don't like jobs that make hands dirty					
11	Technical/vocational jobs are laborious; it is why I dislike to study it					
12	I feel that one has to be clever to study TVET					
13	I do not like TVET program					
14	I like the type of projects and assignments we do on this training					
15	In my understanding, TVET is designed for low achievers					
16	I like my current field (major) of study					
17	I like to advice others to study technical/vocational education.					
18	I need to learn more in technical/vocational fields.					

19	Studying TVET is waste of time for me					
20	I feel I have been pushed into low-level, none-academic types of training					
21	I expect to make good income when I compete my training					
22	I dislike technical/vocational education; because, it will be difficult for me to get a job after I complete my training.					
23	Some times I thought about dropping this training					
24	I estimate technical/ vocation education program causes large unemployment.					
25	I believe that TVET program will make me successful in life					
26	In my view, technical/vocational education has a little to do with daily life.					
27	I believe that TVET program well prepares me to competitively appear for workforce					
28	I believe that TVET program helps me to develop necessary skills to accomplish a task					
29	I feel I have been developing positive attitude towards technical jobs					
30	In my understanding, technical/vocational education is one of the most demanding profession					
31	I think it is possible to reduce unemployment by expanding technical/vocational education.					
32	I believe technical/vocational education is good for the future of this country					
33	I wish to study TVET program, till I find other opportunity					
34	I have positive attitude to technical/vocational education program now than before I joined it					
35	I feel I have developed negative attitude to technical/vocational education program					
36	I believe technical/vocational education is as difficult for boys as it is for girls					
37	In my view, girls can also attend TVET as boys					
38	I disagree to categorize careers as for males' and females'					
39	In my view, since TVET is difficult for girls, they should not prefer to attend it					
40	I prefer to separate fields of study as for males' and for females'					

Part II: Background Information and About Studying TVET

Direction: Give your answers by making tick (√) in the given boxes or write short answers on the space

1. The name of the college you study in is: A/ Asela ☐ B/ Nekemte ☐
2. Your sex: A/ Male ☐ B/ Female ☐
3. Your Age: A/ Less than 14 years ☐ B/ 14-17 years ☐ C/ 18-21 years ☐
   D/ Greater than 21 years ☐
4. Length of training A/ 10+1 ☐ B/ 10+2 ☐ C/ 10+3 ☐
5. Write the name of your field of study _____

☐ ☐

6. Your father's education level is A/ Less than grade 5 B/ Grade 5-8
C/grade 9-12 ☐ D/ Greater than grade 12 ☐
E/ I don't know ☐

7. Your mother's educational level is A/ Less than grade 5 B/ Grade 5-8 ☐
C/ Grade 9-12 ☐ D/ Greater than grade 12 ☐
E/ I do not know ☐

8. Immediate plan upon completing grade 10
A/ get a job right away ☐ B/ attend preparatory program ☐
C/ attend TVET ☐ D/ other _____

9. Most important reason for enrolling in TVET
A/ High interest in the area ☐
B/ thought it would help me get a good job after training ☐
C/ Low score in 10th grade exam (unable to meet the requirements of other institution) ☐
D/Thought the course would has further training opportunity ☐
E/ Thought it would be easy to attend and earn a good grade ☐
F/ Friend recommended it to me ☐
G/ Parents recommended it to me ☐
H/ Other _____

10. Immediate plan upon graduation from TVET College
A/ attend further training in current field of study ☐
B/ attend academic subjects by improving grade 10 exam score (GPA) ☐
C/ begin work ☐
D/ not decided ☐
E/ other _____

11. Where the most career information was obtained
A/ From Parents ☐ B/ from teachers ☐ C/ from near by individuals ☐
D/ from friends ☐ E/ From Vocational counselor ☐
F/ from Media (Radio, TV, News paper) ☐
G/ You have no any source of information ☐

12. In your view, the prestige TVET has
A/ High ☐ B/ Medium ☐ C/ Low ☐

13. Do you believe that grade 10 high achievers join TVET?
A/ Yes ☐ B/ No ☐

14. Degree of assistance your teachers are providing you is
A/ high ☐ B/ Medium ☐

C/ Low ☐

15. Do you like your college work? A/ Yes ☐ B/ No ☐

16. In your view the knowledge/skill you are getting on the training is

A/ Very good ☐ B/ Good ☐ C/ Not good ☐

D/ Not Very good ☐

17. In general, what are the main problems that you observe on the training?

A/ _____

B/ _____

C/ _____

D/ _____

18. Please write some ideas that you think help to develop positive attitudes of students towards TVET

A/ _____

B/ _____

C/ _____

D/ _____

19. Write Your Name _____

Thank you very much for responding this questionnaire

Instrument (Afan Oromo Version)

Addis Ababa University

School of Graduate Studies

College of Education

I Madaallii Yaadaa

Gaaffileen armaan gaditti argaman dandeettii kee madaaluuf kan dhiyaatan miti. Barattootni Barnoota Teeknikaa fi Ogummaa hordofuu ilaalchisee kan yaadanii fi kan isaanitti dhaga'amu beekuuf kan qophaa'edha. Kanaaf, haaluma yaadduu fi sitti dhagahamuun deebsi. Iccitiin deebii kee eenyuuttuu dabarsamee hin kennamu; sirrattis dhiibbaa geessisu hin qabu. Waan kana ta'eef, himoota kennaman bilcheessii dubbisiitii bakka deebiitiif kenname irratti mallattoo " ✓ " kaa'uun kan yaadduu fi kan sitti dhagahamu ibsi. Hanga dandahametti deebii "**C**" filachuu hin yaaliin.

***Ibsa Deebii:**

1. **Yaadicha Baay'een Deeggara** **(A)**
2. **Yaadicha Nan Deeggara** **(B)**
3. **Yaadicha Hin Deeggarus, Hin Mormus** **(C)**
4. **Yaadicha Nan Morma** **(D)**
5. **Yaadicha Baay'een Morma** **(E)**

*** Yaadachiisa: Gaaffilee hundaaf deebii kennuun barbaachisaadha**

T.L	Hima	yaadicha				
		A	B	C	D	E
1	Barnoota Teeknikaa fi Ogummaa (BTO) nan jaalladha					
2	Barnoota qalamaa(academic) irra caalaa BTO filadha					
3	Barnootni Teeknikaa fi Ogummaa, akkuma barnoota qalamaa(Herrega, Ingiliffaa, Seenaa, Keemistirii fi kkf) nama fayyada jedheen amana					
4	Barnoota Teeknikaa fi Ogummaa(BTO) hordofuun koo sodaa hojii dhabuu naaf salphiseera					
5	Barnoota Teeknikaa fi Ogummaa(BTO) hordofuun koo sodaa jireenyaa na keessatti uumeera					
6	Barnootni Teeknikaa fi Ogummaa (BTO) natti tola (naa mijata)					
7	Waanan BTO (Barnoota Teeknikaa fi Ogummaa) hordofuutiif, gadi aantummaan natti dhagahama					
8	Akka kootti, Barnootni Teeknikaa fi Ogummaa nuffisiisaadha/ hifachiisaadha(is boring).					
9	'Teeknishaanii' jedhameen waamamuu hin fedhu					
10	Hojiiwwan harka namaa xureessan(kan akka giriisii, fi haalluu ykn cilee) hin jaalladhu					
11	Hojiin Teeknikaa fi Ogummaa humna ykn irree waan gaafatuuf natti hin tolu					
12	Namni BTO hordofu, akka nama sammuu cimaa qabuutti natti dhagahama					
13	BTO hin jalladhu					
14	Piroojektiiwwanii fi abbaltiiwwan(assignments) leenjii kana irratti hojjechaa jirru nan jaalladha					

15	Akka yaada kootti, Barnootni Teeknikaa fi Ogummaa(BTO, barataa qabxii gadi aanaa qabaniif kan qophaa'edha					
16	Gosa ogummaa amma hordofaa jiru nan jaalladha					
17	Namni biraallee, akkuma koo, Barnoota Teeknikaa fi Ogummaa(BTO) akka hordofu nan gorsa					
18	Barnoota Teeknikaa fi Ogummaa(BTO), itti fufiinsaan hordofuu nan fedha					
19	Akka kootti, BTO hordofuun yeroo gubuudha					
20	Yeroo ammaa, akkan barnootaa fi leenjii gadi aanaa hordofaa jiruutti natti dhagahama					
21	Yeroon leenjiii kana xumuru, galii gaarii argadha jedheen abdadha					
22	Leenjii booda carraan hojii argachuu dhiphaa waan natti fakkaatuuf BTO nan jibba					
23	Yeroo tokko tokko, leenjii kana dhiisuuf nan yaada					
24	Sagantaan BTO, hojii dhabeeyyota akka baay'isuu danda'u natti mul'ata					
25	Sagantaan BTO, bu'aa qabeessa na taasisa jedheen amana					
26	Akka yaada kootti, Barnootni Teeknikaa fi Ogummaa, jireenya guyyaa guyyaatiif kan fayyadu hin qabu					
27	Sagantaan BTO, dorgommii hojii irratti morkataa cimaa akka na taasisu nan amana					
28	Sagantaan BTO, ogummaa gahaa(ga'aa) hojii tokko rawwachuu kan na dandeessisu na gonfachiisa jedheen amana					
29	Ergan leenjii kana jalqabee asitti fedhan hojii/dalaga 'teeknikaatiif' qabu dabaleera					
30	Akka hubannoo kootti, BTOn baay'ee kan barbaachisuu fi barbaadamudha					
31	Akka yaada kootti, sagantaan BTO babal'isuun rakkoo hojii dhabummaa ni salphisa					
32	Akka yaada kootti, sagantaan BTO guddina biyya kana fuula duraatiif baa'yee ni barbaachisa					
33	Sagantaa BTO, hangan carraa gara biroo argadhu duwwaatti hordofuun barbaada					
34	Utuun leenjii kana hin jalqabiin durarra, amma BTO nan jaalladha					
35	Leenjii ergan jalqabee assitti, akkan BTO jibbaa dhufeetti natti dhagahama					
36	Akka hubannoo kootti, BTOn dhalaa fi dhiiraaf qixxee ulfaata					
37	Akka yaada kootti, dubartootnis akkuma dhiiraa sagantaa BTO hordofuu ni danda'u					
38	Ani isa namootni dalaga dhiiraa fi dhalaa/dubaraa jedhanii hojii/dalaga hiran/qoodan nan morma					
39	Akka yaada kootti, BTOn dubartootatti waan ulfaatuuf utuu filachuu dhiisanii waayya					
40	BTOn kan dhalaa fi kan dhiiraa jedhamee utuu qoodame natti tola					

II Odeeffannoo Duuboo fi Dhimmoota Hordoffii Barnoota Teeknikaa fi Ogummaa (BTO) ilaallatan

Gaaffilee kanaa gadii mallattoo "√"kaa'uun ykn bakka duwwaa irratti barreessuun deebisi.

1. Maqaan kolleejjii amma keessa barataa jirtuu A) Assallaa ☐ B) Naqamtee ☐
2. Saalli kee A) Dhiira ☐ B) Dhalaa ☐
3. Umuriin kee A) 14 gadi ☐ B) 14-17 ☐ C) 18-21 ☐ E) 21 ol ☐

4. Sadarkaan leenjii kee ammaa A) 10+1 ☐ B) 10+2 ☐ C) 10+3 ☐

5. Ogummaa itti leenji'aa jirtu barreessi _____

6. Sadarkaan barnoota abbaa:

A) Kutaa 5 gadi ☐ B) Kutaa 5-8 ☐ C) Kutaa ☐

D) Kutaa 12 ol ☐ E) Hin beeku ☐

7. Sadarkaan barnootahaadha kee:

A) Kutaa 5 gadi ☐ B) Kutaa 5-8 ☐ C) Kutaa 9-12 ☐

D) Kutaa 12 ol ☐ E) Hin beeku ☐

8. Akka barnoota kutaa 10^{ffaa} xumurteen maal hojjechuuf yaaddee turte?

A) Daftee hojii jalqabuu ☐ B) Barnoota piriiparatorii hordofuu ☐

C) Barnoota BTO hordofuu ☐ D) Kan biraa yoota'e ibsi _____

9. Sababni akka Barnoota Teeknikaa fi Ogummaa filattu si taasise maal?

A) Fedha ati BTOf qabdu ☐ B) Barnootichi dafee hojii waan sii argamsiisuuf ☐

C) Qabxiin qormaata kutaa 10^{ffaa} kee xiqqaa waan ta'eef ☐

D) Leenjiichi carraa barnoota gara fuula duraa waan qabuuf ☐ E) BTOn salphaa waan ta'eef ☐ F) Dhiibbaa hiriyyaa kee ☐

G) Dhiibbaa waarra kee ☐ H) Kan biraa yoo ta'e sababicha ibsi _____

10. Barnoota/leenjii kana akka xumurteen daftee maal gochuu barbaada?

A) Gosa ogummaa ammaan leenjii/barnoota itti fufuu ☐

B) Qabxii fooyyessuun barnoota qalamaa itti fufuu ☐

C) Hojii jalqabu ☐ D) Hin murteessine ☐

E) Gara biroo _____

11. Odeeeffannoo hojii/ dalagaa eessaa argatta?

A) Warra kee irraa ☐ B) Barsiistota irraa ☐

C) Namoota naannoo irraa ☐ D) Hiriyyaa irraa ☐

E) Vookeshinaal kawunsiler irraa F) Miidiyaa (radiyoo, talaviziyoonii, gaazexaa) irraa ☐ G) Madda odeeffannoo tokkollee hin qabu ☐

12. Akka yaada keetti BTOn hawwaasa biratti fudhatamaa fi kabaja inni qabu

A) Olaanaa ☐ B) Giddugaleessa ☐ C) Gadaanaa ☐

13. Barattootni qormaata kutaa 10^{ffaa} tti qabxii olaanaa fidan BTO galuu qabu jettee amantaa? A) Eeyyee ☐ B) Lakki ☐

14. Gargaarsa barsiitootni leenjii irratti sii kennaa jiran

A) Baay'ee quubsaadha ☐ B) Quubsaadha ☐

C) Xiqqaadha ☐ D) Baay'ee xiqqaadha ☐

15. Hojii/dalaga kolleejjicha keessatti raawwataa jirtu ni jaallattaa?

A) Eeyyee ☐ B) Lakki ☐

16. Kolleejjicha keessatti barnoota/leenjii ati argataa jirtu

A) Baay'ee gaariidha ☐ B) Gaariidha ☐ C) Gaariii miti ☐ D) Baay'ee gaarii miti ☐

17. Walumaagala rakkoo gurguddoo barnoota BTO keessatti mul'ataa jiran barreessi.

A) _____

B) _____

C) _____

18. Barattootni BTO irraatti yaada fi ilaalcha gaarii qabachuun haala gaariin barnoota isaanii akka hordofaniif akka yaada keetti wantoota guutamuu malan gabaabsii barreessi.

A) _____

B) _____

C) _____

19. Maqa kee barreessi _____

Yeeroo kee fudhattee deebii laachuu keetiif guddaa galatoomi!

Appendix B

Population of the study

Sex	Field of Study							
	Construction Technology				Industrial Technology			
	10+1	10+2	10+3		10+1	10+2	10+3	Total
Male	140	134	128	402	143	139	141	423
Female	81	78	80	239	71	70	70	211
Total	221	212	208	641	214	209	211	634

Participants of the Study

Sex	Field of Study							
	Construction Technology				Industrial Technology			
	10+1	10+2	10+3	Total	10+1	10+2	10+3	Total
Male	36	34	37	107	36	34	37	107
Female	35	36	35	106	35	36	34	105
Total	71	70	72	213	71	70	71	212

Appendix C

Frequencies, Percentages and Chi-square for Attitude Scale General Attitude

Sub-scale

No	Items	Frequency (F) and %	SA	A	UD	D	SD	Chi-square
1	Technical/ vocational education is my favorite field of study.	F	336	82	3	3	1	982.52
		%	79.1	19.3	.7	.7	.2	
2	I prefer TVET to academic subjects	F	278	120	10	15	2	657.51
		%	65.4	28.2	2.4	3.5	.5	
3	For me, technical/vocational education is fascinating and fun.	F	254	145	11	11	4	584.40
		%	59.8	34.1	2.6	2.6	.9	
4	I feel inferior for studying TVET	F	24	23	16	134	228	413.84
		%	5.6	5.4	3.8	31.5	53.6	
5	In my view, technical/vocational careers are boring	F	17	31	20	150	207	363.22
		%	4.0	7.3	4.7	35.3	48.7	
6	I don't like to be called a 'technician'	F	18	19	8	122	258	542.02
		%	4.2	4.5	1.9	28.7	60.7	
7	I don't like jobs that make hands dirty	F	16	19	20	163	207	403.65
		%	3.8	4.5	4.7	38.4	48.7	
8	Technical/vocational jobs are laborious; it is why I dislike to study it	F	23	21	18	162	201	374.28
		%	5.4	4.9	4.2	38.1	47.3	
9	I feel that one has to be clever to study TVET	F	245	112	17	30	21	447.93
		%	57.6	26.4	4.0	7.1	4.9	
10	I don't like TVET program	F	24	8	5	92	296	713.18
		%	5.6	1.9	1.2	21.6	69.6	
11	I like the type of projects and assignments we do on this training	F	273	124	6	11	11	635.98
		%	64.2	29.2	1.4	2.6	2.6	
12	In my understanding, TVET is designed for low achievers	F	69	48	29	108	271	149.25
		%	16.2	11.3	6.8	25.4	40.2	
13	I like my current field (major) of study	F	316	77	5	14	13	824.12
		%	74.4	18.1	1.2	3.3	3.1	
14	I like to advice others to study technical/vocational education	F	247	127	22	15	14	493.15
		%	58.1	29.9	5.2	3.5	3.3	
15	I need to learn more in technical/vocational fields.	F	306	82	15	14	8	761.41
		%	72.0	19.3	3.5	3.3	1.9	

16	Some times I thought about dropping this training	F	34	41	26	152	127	236.19
		%	8.0	9.6	6.1	35.8	40.5	
17	I feel I have been developing positive attitude towards technical jobs	F	271	117	3	23	11	607.81
		%	63.8	27.5	.7	5.4	2.6	
18	I wish to study TVET program, till I find other opportunity	F	57	53	17	144	154	172.64
		%	13.4	12.5	4.0	33.9	36.2	
19	I feel I have been developing positive attitude towards TVET program	F	183	130	34	47	31	218.71
		%	43.1	30.6	8.0	11.1	7.3	
20	I feel I have developed negative attitude to technical/vocational education program	F	43	37	18	133	194	267.55
		%	10.1	8.7	4.2	31.3	45.6	
21	I believe technical/vocational education is as difficult for boys as it is for girls	F	126	129	32	92	46	94.07
		%	29.6	30.4	7.5	21.6	10.8	
22	In my view, girls can also attend TVET as boys	F	286	117	6	13	3	700.87
		%	67.3	27.5	1.4	3.1	.7	
23	I disagree to categorize careers as for males' and females'	F	242	86	15	28	54	397.18
		%	56.9	20.2	3.5	6.6	12.7	
24	In my view, since TVET is difficult for girls, they should not prefer to attend it	F	28	32	11	122	232	406.02
		%	6.6	7.5	2.6	28.7	54.6	
25	I prefer to separate fields of study as for males' and for females'	F	33	23	14	86	269	534.66
		%	7.8	5.4	3.3	20.2	63.3	

Perceptions on the Value of TVET Program Sub-scale

No	Items	F & %	SA	A	UD	D	SD	Chi-square
1	I believe that TVET is as useful as academic subjects	F	283	108	12	18	4	660.14
		%	66.6	25.4	2.8	4.2	.9	
2	I feel secured in studying technical/vocational education	F	208	143	18	39	17	349.67
		%	48.9	33.6	4.2	9.2	4.0	
3	I feel insecure for studying technical/vocational courses.	F	32	48	18	129	198	274.97
		%	7.5	11.3	4.2	30.4	46.6	
4	Studying TVET is waste of time for me	F	12	18	9	49	337	945.81
		%	2.8	4.2	2.1	11.5	79.3	
5	I feel I have been pushed into low-level, none-academic types of training	F	34	32	13	115	231	386.00
		%	8.0	7.5	3.1	27.1	54.4	
6	I expect to make good income when I compete my training	F	246	128	18	17	16	489.93
		%	57.9	30.1	4.2	4.0	3.8	
7	I dislike technical/vocational education; because, it will be difficult for me to get a job after I complete my training.	F	36	44	30	154	161	207.58
		%	8.5	10.4	7.1	36.2	37.9	
8	I estimate technical/ vocation education program causes large unemployment.	F	41	35	20	105	224	333.91
		%	9.6	8.2	4.7	24.7	52.7	
9	I believe that TVET program will make me successful in life	F	239	114	14	33	25	422.38
		%	56.2	26.8	3.3	7.8	5.9	
10	In my view, technical/vocational education has a little to do with daily life.	F	25	24	29	136	211	340.40
		%	5.9	5.6	6.8	32.0	49.6	
11	I believe that TVET program well prepares me to competitively appear for workforce	F	250	119	13	24	19	489.91
		%	58.8	28.0	3.1	5.6	4.5	
12	I believe that TVET program helps me to develop necessary skills to accomplish a task	F	261	109	11	31	13	530.92
		%	61.4	25.6	2.6	7.3	3.1	
13	In my understanding, technical/vocational education is one of the most demanding profession	F	300	97	8	11	9	747.65
		%	70.6	22.8	1.9	2.6	2.1	
14	I think it is possible to reduce unemployment by expanding technical/vocational education.	F	288	100	12	19	6	674.82
		%	67.8	23.5	2.8	4.5	1.4	
15	I believe technical/vocational education is good for the future of this country	F	311	80	13	10	11	792.78
		%	73.2	18.8	3.1	2.4	2.6	

Appendix D (General Attitude sub-scale Univariate Analysis of Variance)

Variables		Value Label	N
Gender	4.00	Female	211
	5.00	Male	214
Field of study	4.00	Industrial technology	212
	5.00	Construction technology	213
Year level	3.00	10+1	142
	4.00	10+2	140
	5.00	10+3	143

Dependent Variable: General attitude total score

Source	Type III Sum of Squares	df	Mean Square	F	Sig.	Partial Eta Squared
Corrected Model	8031.414(a)	11	730.129	9.409	.000	.200
Intercept	4738303.515	1	4738303.515	61064.410	.000	.993
Q2 (Gender)	5093.542	1	5093.542	65.643	.000	.004
Q19 (Field of study)	113.703	1	113.703	1.465	.227	.137
Q4 (Year level)	1519.106	2	759.553	9.789	.000	.045
Q2 * Q19	121.061	1	121.061	1.560	.212	.004
Q2 * Q4	741.017	2	370.509	4.775	.009	.010
Q19 * Q4	323.812	2	161.906	2.087	.125	.023
Q2 * Q19 * Q4	73.725	2	36.863	.475	.622	.002
Error	32046.807	413	77.595			.200
Total	4785533.000	425				
Corrected Total	40078.221	424				

Post Hoc Tests (Year level)

Dependent Variable: General attitude total score Tukey HSD (Multiple Comparisons)

(I) Year level	(J) Year level	Mean Difference (I-J)	Std. Error	Sig.
10+1	10+2	-1.7151	1.04914	.232
	10+3	-4.5975*	1.04358	.000
10+2	10+1	1.7151	1.04914	.232
	10+3	-2.8824*	1.04732	.017
10+3	10+1	4.5975*	1.04358	.000
	10+2	2.8824*	1.04732	.017

Based on observed means.

*** The mean difference is significant at the .05 level.**

Perceptions on the Value of TVET program (Univariate Analysis of Variance)

Variables		Value Label	N
Gender	4.00	Female	211
	5.00	Male	214
Field of Study	4.00	Industrial technology	212
	5.00	Construction technology	213
Year level	3.00	10+1	142
	4.00	10+2	140
	5.00	10+3	143

Dependent Variable: Perception on the value TVET total score

Source	Type III Sum of Squares	df	Mean Square	F	Sig.	Partial Eta Squared
Corrected Model	4580.807(a)	11	416.437	9.001	.000	. 193
Intercept	1778544.256	1	1778544.256	38439.907	.000	. 989
Q2 (Gender)	3249.335	1	3249.335	70.228	.000	. 000
Q19 (Field of study)	1.094	1	1.094	.024	.878	. 145
Q4 (Year level)	997.708	2	498.854	10.782	.000	.050
Q2 * Q19	27.954	1	27.954	.604	.437	.001
Q2 * Q4	50.528	2	25.264	.546	.580	.005
Q19 * Q4	92.364	2	46.182	.998	.369	.003
Q2 * Q19 * Q4	111.570	2	55.785	1.206	.301	. 006
Error	19108.756	413	46.268			
Total	1805561.000	425				
Corrected Total	23689.562	424				

Post Hoc Tests (Year level)

Dependent Variable: Perception on the value TVET total score

Tukey HSD (Multiple Comparisons)

(I) Year level	(J) Year level	Mean Difference (I-J)	Std. Error	Sig.
10+1	10+2	-.8605	.81014	.538
	10+3	-3.6697*	.80584	.000
10+2	10+1	.8605	.81014	.538
	10+3	-2.8092*	.80873	.002
10+3	10+1	3.6697*	.80584	.000
	10+2	2.8092*	.80873	.002

Based on observed means.

*** The mean difference is significant at the .05 levels.**

Appendix E Total Attitude Sub-Scale (Univariate Analysis of Variance)

Variables		Value Label	N
Gender	4.00	Female	211
	5.00	Male	214
Field of Study	4.00	Industrial technology	212
	5.00	Construction technology	213
Year level	3.00	10+1	142
	4.00	10+2	140
	5.00	10+3	143

Dependent Variable: Total attitude score (Tests of Between-Subjects Effects)

Source	Type III Sum of Squares	df	Mean Square	F	Sig.	Partial Eta Squared
Corrected Model	27831.201(a)	11	2530.109	11.416	.000	.233
Intercept	12240246,956	1	12240246,956	55230.305	.000	.993
Q2 (gender)	18268.639	1	18268.639	82.432	.000	.001
Q19 (Field of Study)	57.480	1	57.480	.259	.611	.166
Q4 (Year level)	5587.806	2	2793.903	12.607	.000	.058
Q2 * Q19	372.597	1	372.597	1.681	.195	.004
Q2 * Q4	1495.153	2	747.576	3.373	.035	.012
Q19 * Q4	1142.957	2	571.479	2.579	.077	.016
Q2 * Q19 * Q4	698.913	2	349.456	1.577	.208	. 008
Error	91529.858	413	221.622			
Total	12379771,000	425				
Corrected Total	119361.059	424				

Post Hoc Tests (Year level

Dependent Variable: Total attitude score (Tukey HSD, Multiple Comparisons)

(I) Year level	(J) Year level	Mean Difference (I-J)	Std. Error	Sig.
10+1	10+2	-2.5794	1.77306	.314
	10+3	-8.7409*	1.76367	.000
10+2	10+1	2.5794	1.77306	.314
	10+3	-6.1615*	1.76998	.002
10+3	10+1	8.7409*	1.76367	.000
	10+2	6.1615*	1.76998	.002

Based on observed means.

*** The mean difference is significant at the .05 level.**

Appendix F Attitude Total Scores and Courses Exam Scores

No.	Attitude score	Course exam score	No.	Attitude score	Course exam score	No.	Attitude score	Course exam score	No.	Course exam score	Attitude score
1	108	91	46	103	86	79	116	84	124	106	73
2	117	88	47	104	81	80	103	75	125	108	72
3	114	80	48	89	75	81	108	85	126	109	72
4	119	85	49	112	75	82	97	66	127	82	69
5	117	80	50	110	71	83	107	85	128	91	75
6	112	88	51	115	84	84	96	67	129	99	72
7	117	88	52	97	76	85	114	76	130	89	65
8	112	75	53	101	71	86	110	80	131	97	85
9	103	67	54	110	87	87	103	74	132	115	82
10	104	85	55	107	69	88	106	67	133	116	93
11	109	81	56	107	79	89	117	79	134	91	83
12	96	93	57	110	82	90	119	74	135	81	69
13	117	91	46	103	86	91	105	75	136	103	81
14	107	85	47	104	81	92	108	63	137	92	79
15	103	74	48	89	75	93	96	85	138	115	84
16	108	70	49	112	75	94	99	83	139	117	80
17	105	63	50	110	71	95	101	84	140	92	69
18	107	85	51	115	84	96	96	88	141	108	79
19	114	83	52	97	76	97	115	83	142	102	78
20	104	81	53	101	71	98	104	71	143	108	81
21	89	87	54	110	87	99	109	90	144	93	79
22	97	86	55	107	69	100	91	69	145	105	74
23	105	75	56	107	79	101	93	85	146	100	81
24	100	90	57	110	82	102	84	68	147	100	85
25	122	82	58	110	90	103	103	94	148	108	84
26	118	89	59	104	81	104	94	69	149	112	86
27	106	89	60	93	72	105	101	82	150	97	81
28	120	89	61	80	65	106	110	67	151	94	81
29	103	72	62	103	77	107	103	85	152	95	75
30	119	86	63	118	69	108	116	86	153	96	64
31	118	84	64	90	74	109	107	84	154	96	73
32	104	81	65	109	65	110	117	81	155	108	72
33	114	84	66	110	74	111	100	83	156	112	77
34	113	78	67	114	80	112	101	87	157	108	89
35	107	82	68	109	75	113	96	85	158	90	74
36	117	81	69	105	86	114	110	75	159	120	80
37	116	85	70	95	78	115	106	79	160	118	81
38	119	88	71	105	86	116	113	80	161	110	79
39	107	75	72	109	81	117	115	80	162	98	73
40	116	80	73	89	69	118	97	80	163	97	69
41	111	82	74	101	82	119	114	72	164	111	76
42	111	90	75	111	88	120	97	76	165	109	88
43	114	90	76	102	78	121	108	84	166	97	84
44	116	75	77	116	75	122	106	75	167	115	82
45	104	83	78	97	66	123	111	81	168	84	62

No.	Attitude score	Course exam score	No.	Attitude score	Course exam score	No.	Attitude score	Course exam score	No.	Course exam score	Attitude score
169	89	68	212	120	82	242	109	70	288	107	80
170	102	87	213	109	65	243	111	80	289	124	93
171	118	93	214	84	65	244	103	80	290	112	80
169	89	68	215	99	69	245	110	84	291	116	91
170	102	87	216	112	88	246	117	88	292	105	80
171	118	93	217	117	88	247	112	89	293	88	76
172	84	75	218	111	90	248	116	93	294	90	76
173	105	86	219	111	87	249	117	90	295	112	74
174	112	75	220	116	88	250	92	68	296	120	88
175	108	78	221	96	80	251	116	86	297	89	62
176	104	82	222	104	81	252	98	88	298	113	89
177	84	68	223	102	87	253	115	81	299	109	65
178	104	83	224	110	80	254	102	80	300	104	68
179	107	84	225	93	76	255	115	85	301	101	80
180	88	65	226	100	79	256	110	89	302	88	75
181	107	69	227	102	82	257	108	81	303	99	78
182	110	82	212	120	82	258	107	80	304	91	69
183	118	82	213	109	65	259	97	79	305	93	91
184	98	89	214	84	65	260	97	78	306	101	68
185	102	85	215	99	69	261	103	77	307	114	84
186	113	80	216	112	88	262	110	77	308	109	83
187	114	80	217	117	88	263	125	94	309	117	90
188	102	87	218	111	90	264	117	85	310	115	86
189	111	88	219	111	87	265	108	81	311	80	68
190	111	86	220	116	88	266	97	75	312	119	90
191	99	81	221	96	80	267	112	79	313	107	92
192	115	85	222	104	81	268	93	77	314	112	80
193	118	82	223	102	87	269	96	72	315	102	84
194	90	75	224	110	80	270	106	80	316	117	80
195	92	63	225	93	76	271	123	90	317	108	75
196	118	88	226	100	79	272	107	83	318	107	73
197	95	68	227	102	82	273	122	84	319	105	87
198	101	81	228	102	87	274	87	76	320	102	82
199	99	86	229	110	75	275	93	72	321	111	83
200	86	69	230	116	70	276	83	64	322	114	77
201	113	92	231	114	88	277	96	80	323	92	77
202	95	75	232	106	80	278	90	80	324	115	83
203	116	89	233	117	75	279	86	80	325	112	83
204	105	82	234	110	89	280	57	58	326	109	89
205	112	82	235	107	60	281	100	79	327	102	76
206	100	88	236	114	80	282	110	77	328	115	81
207	97	82	237	110	79	283	87	75	329	108	77
208	76	69	238	119	83	284	87	284	330	121	92
209	104	80	239	107	81	285	117	285	331	102	88
210	112	75	240	109	81	286	117	286	332	109	87
211	104	81	241	114	80	287	113	287	333	100	71

No.	Attitude score	Course exam score	No.	Attitude score	Course exam score	No.	Attitude score	Course exam score
334	108	84	378	119	94	404	118	88
335	106	74	379	85	62	405	111	81
336	80	65	380	109	82	406	119	88
337	119	82	381	93	75	407	102	84
338	110	82	382	113	87	408	110	86
339	94	71	383	117	82	409	110	79
340	114	85	384	105	82	410	110	78
341	99	84	385	108	86	411	114	75
342	116	84	386	114	80	412	105	86
343	88	76	387	94	79	413	121	84
344	102	82	388	105	88	414	114	85
345	100	80	389	120	87	415	105	79
346	110	86	390	96	75	416	100	65
347	111	79	391	118	77	417	120	94
348	104	86	392	108	90	418	108	89
349	103	67	393	108	97	419	116	85
350	120	85	394	121	89	420	97	80
351	111	84	395	111	88	421	90	76
352	102	77	378	119	94	422	108	84
353	108	81	379	85	62	423	101	87
354	105	69	380	109	82	424	106	80
355	102	79	381	93	75	425	94	68
356	113	74	382	113	87			
357	109	89	383	117	82			
358	102	94	384	105	82			
359	102	87	385	108	86			
360	105	96	386	114	80			
361	109	84	387	94	79			
362	109	89	388	105	88			
363	105	83	389	120	87			
364	93	65	390	96	75			
365	116	89	391	118	77			
366	109	74	392	108	90			
367	113	68	393	108	97			
368	103	65	394	121	89			
369	103	89	395	111	88			
370	89	62	396	114	84			
371	110	70	397	98	84			
372	116	69	398	117	90			
373	115	73	399	109	85			
374	108	88	400	104	85			
375	114	88	401	104	81			
376	108	81	402	104	83			
377	100	72	403	104	80			

Appendix G. Demographic Background Information

No.	Items	Frequencies of responses					
		Male		Female		Total	
		N	%	N	%	N	%
1	Sample colleges A. Asela	104	24.47	91	21.41	195	45.88
	B. Nekemte	110	25.88	120	28.24	230	54.12
2	Gender	214	50.35	211	49.65	425	100.00
3	Year (Education) Level A. 10+1	74	17.41	69	16.24	143	33.65
	B. 10+2	68	16	72	16.94	140	32.94
	C. 10+3	72	16.94	70	16.47	142	33.41
4	Age A. Less than 14 years	1	0.24	1	0.24	2	0.47
	B. 14-17 years	23	5.41	35	8.24	58	13.65
	C. 18-21 years	181	42.69	173	40.71	354	83.30
	D. Greater than 21	9	2.12	2	0.47	11	2.59
5	Field of study A. Construction Technology	107	25.18	106	24.94	213	50.12
	B. Industrial Technology	107	25.18	105	24.71	212	49.88
6	Respondents father's educational level A. Less than grade 5	61	14.35	36	8.47	97	22.82
	B. Grade 5-8	41	9.65	28	6.59	69	16.24
	C. Grade 9-12	29	6.82	51	12.00	80	18.82
	D. Greater than grade 12	74	17.41	87	20.47	161	37.88
	E. I don't know	9	2.12	9	2.12	18	4.24
7	Respondents mother's educational level A. Less than grade 5	94	22.12	65	15.29	159	37.41
	B. Grade 5-8	44	10.35	40	9.41	84	19.76
	C. Grade 9-12	27	6.35	44	10.35	71	16.70
	D. Greater than grade 12	37	8.71	48	11.29	85	20.00
	E. I don't know	12	2.82	14	3.29	26	6.12
8	Respondents grade 10 exam score A. Less than 1.20	1	0.24	1	0.24	2	0.47
	B. 1.20-1.49	-	-	3	0.71	3	0.71
	C. 1.50-1.79	16	3.76	51	12.00	67	15.76
	D. 1.80-1.99	47	11.06	68	16.00	115	27.09
	E. 2.00 and above	150	35.29	88	20.71	238	56.00

Appendix H

Formula for Calculating a Sample Size by Glenn D. Israel Formula

$$\text{Equation 3:} \qquad n = \frac{N}{1 + N(e)^2}$$

Source: http://www.sut.ac.th/im/data/read6.pdf

N is the population size
n is sample size
e is level of significance

DECLARATION

I, the undersigned, declare that this thesis is my original work and has not been presented for a degree in any other university, and that all sources of materials used for this thesis have been acknowledged.

Name: Lellisa Challa

Signature: _____

Place: Department of Psychology, AAU, School of Graduate Studies

Date of Submission: June 16, 2006

Advisor's Approval

This thesis has been submitted for examination with my approval as University advisor.

Name: Dr. Mohan Raju

Signature: _____ 16/6/06

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