MASTER OF SCIENCE IN TECHNICAL EDUCATION (ELECTRICAL AND ELECTRONIC ENGINEERING)

THESIS

STRENGTHS AND WEAKNESS OF INTERNSHIP PROGRAMS IN TVET: GOVERNMENT POLYTECHNIC INSTITUTES IN BANGLADESH

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THESIS ON

STRENGTHS AND WEAKNESS OF INTERNSHIP PROGRAMS IN TVET: GOVERNMENT POLYTECHNIC INSTITUTES IN BANGLADESH

Thesis Submitted in Partial Fulfillment of the Requirements of the Degree of Master of Science in Technical Education with Specialization Electrical and Electronic Engineering.

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DECLARATION

This is to certify that the work presented in this thesis is authentic and the outcome of investigation carried out by Nazmin Mahmuda Lina under the supervision of Dr. Md. Abu Raihan associate professor of the Department of Technical and Vocational Education (TVE), Islamic University of Technology (IUT), Gazipur, Bangladesh. It is hereby declared that this thesis report or part of it has not been submitted elsewhere for the award of any degree or Diploma. All literature and contributions cited are fully acknowledged.

…… ……..

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DEDICATION

I AM DEDICATING MY THESIS WORK TO MY PARENTS, FRIENDS, HONORABLE TEACHERS AN AS MY BROTHER NAZMUL ALAM BEG

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LIST OF ACRONYMS

TVET	: Technical and Vocational Education and Training
BTEB	: Bangladesh Technical Education Board
PI	: Polytechnic Institute
NACE	: National Association of Colleges and Employers
GoB	: Government of Bangladesh
IUT	: Islamic University of Technology
GPA	: Grade Point Average
ILO	: International Labor Organization
NSDC	: National skills development policy
NEMEMW and TC	:National Electro-medical Equipment Maintenance Workshop and Training Center
IFAC	: International Federation of Accountants
IEPS	: International Education Practice Statements
VSP	: Vocational Skills and Informal Sector Support Project
ICCES	: Integrated Community Centre for Employable Skills
STEP	: Skills Training and Employment Placement
SPSS	: Statistical Package for Social Science
WA	: Weighted Average
S.V	: Significance Value
$\chi o2$	: Chi-square observed value
$\chi c2$	: Chi-square critical value
$\chi 2$	: Chi-square value

ABSTRACT

*Internship programs in TVET in Bangladesh is longstanding but ineffective. Because, there had no study on identify strengths and weakness of internship programs in TVET: especially in the field of electro-medical engineering in government polytechnic institutes in Bangladesh. Thus, special objectives of this research are: to find out the strength of electro-medical engineering internship programs in government polytechnic institutes in Bangladesh, to find out the weakness of electro-medical engineering internship programs in government polytechnic institutes in Bangladesh, to suggest how to improve the TVET internship programs in government polytechnic institutes in Bangladesh. Quantitative method used in conducting this research which emphasizes understanding of phenomena through direct observation, communication with participants, or analysis a test and may stress contextual subjective accuracy over generality. There are 51 government Polytechnics in Bangladesh. However only 9 Polytechnics have been offering Diploma Engineering Degree in Electro-medical technology. Out of 9 Government Polytechnic Institutes this research was consider 3 Polytechnic Institute students were taken as a population of the research, such as Dhaka Mohila Polytechnic Institute, Rajshahi Mohila Polytechnic Institute, B. Baria Polytechnic Institute. The total population of the 3 Polytechnic was around 120 students, where sample size was 96 (80%) followed by random sampling technique. A structured questionnaire based on Five points scale was used as a data collection tools. Researcher herself purposively selected medical hospitals to collect the research data by using semi-structure questionnaires. Mean, Weighted average and statement-wise Chi-square test used for data analysis sing SPPS version 24. The research tried to find out the strengths and weaknesses in Hospital Institutions for improving of internship program by the research. The research find out major **strengths** of internship program such as: attainment of practical skills that are useful to real life situation; the internship program helped the trainees to get acquainted with functions of scientific machineries, which in turn build the capacity of trainees for their future world of work; the internship program also helps in bridging the gap between knowledge acquired in the institutions and the industrial tasks; and finally, it provides opportunity for trainees to enhance their problem solving skills and develop the ability to communicate ideas professionally and enhance. The research find out major **weakness** of internship program such as: Short duration of the entire program; though internship program was found to provide adequate knowledge and skill to the trainees, these limited to few machineries only; some of the reputable medical colleges were not accepting students for internship program. The respondents gave their opinions about improvement of the TVET internship programs in government polytechnic institutes in Bangladesh. According to the respondents comments the research revealed some **suggestions** of the internship program such as: the time duration of internship program should be extended, lack of skilled trainer in internship program of Electro-medical sector, lack of students' motivation to participate in practical class, the medical institutions should improve their medical instruments for training, and poor linkage between hospitals and TVET institutions.*

CHAPTER ONE

INTRODUCTION

1.1 Introduction

The introduction chapter describes the background information of the study. The researcher tried to identify strength and weakness of electro-medical engineering internship program to improve TVET in Bangladesh. It includes the statement of the problem, the objectives and the significance of the study, and the assumption, delimitation of the study, and definition of terms. The overview of the study is also highlighted in chapter one.

1.2 Background

National Association of Colleges and Employers (NACE) defines "An internship is a form of experiential learning that integrates knowledge and theory learned in the classroom with practical application and skills development in a professional setting. Internships give students the opportunity to gain valuable applied experience and make connections in professional fields they are considering for career paths; and give employers the opportunity to guide and evaluate talent"

There are large number of Technical Vocational Education and Training (TVET) institutes in Bangladesh but the quality of their internship programs is low standard. In these internship programs, there are numerous problems exist including less initiative and interest, underqualified and untrained teachers/trainers, less thinking ability, knowledge, skill, attitude, unfamiliarity about internship programs, etc. Similar problems were investigated and reported in other countries, but none of them have been conducted on TVET program in Bangladesh. Therefore, it requires a thorough investigation of the current status, strengths and weaknesses of TVET internship program in Bangladesh.

Furco (1996) defines internship as engaging students in service activities primarily for the purpose of providing them with hands-on experience that enhances their learning or understanding of issues relevant to a particular area of study. According to Lam and Ching (2007) internship can assist students to bridge the gap between the academic learning process and the practical reality. The study aims to examine the perceptions of interns on various issues before and after their internship attachments to identify whether any gap exists in their perception. Issues are focused on what interns have learnt; the process by which they learnt;

the effect of what has been learnt on their expectations of their future profession; and choices of their future career. The internship program contributes significantly and positively towards enhancing the knowledge base and motivational level of students (Beard, 1998).

Hite and Bellizi (1986) found that the most commonly agreed benefit of internship attachments for students is improvising a valuable learning experience that complements their course work. Mihail (2006) noted that interns have successfully developed their personal skills, particularly relating to information technology, time management, communication skills, teamwork, specialist knowledge and ability to prioritize tasks.

In Bangladesh, the Technical and Vocational Educational and Training (TVET) system is deficient, outdated and ineffective in providing relevant skills and knowledge in work-oriented training. The resultant lack of capacity, due to the lack of funding and investment in resources on the part of both government and the private sector, at present remains central to reform efforts by the Government of Bangladesh (GoB), and international donor-funded organizations such as the International Labor Organization (ILO).

1.3 Statement of the problem

Various studies have been conducted on the students' internship program, such as (Mounce et al., 2004; Beard and Morton, 1999; Pasewarket al., 2001; English and Koeppen, 1993; and Hymon-Parker, 1998) and most of the studies were conducted the perceptions of the interns as well as that of the workers on the success; satisfaction; importance and usability of relevant practical experience obtained in the industry; and constraints faced during the program as well as their possible remedies. However, none of these researches have been conducted on TVET program in Bangladesh. This research was investigate the current status, with specific concentration on the strengths and weaknesses of TVET internship program in Bangladesh.

1.4 Study gap

The concept internship programs in TVET is longstanding but ineffective (NSDP, 2011). Because, there have no study conducted to identify strengths and weakness of internship programs in TVET: especially in the field of electro-medical engineering in government polytechnic institutes in Bangladesh.

1.5 Objectives of the study

General objective:

The study is helpful for the researcher to understand by investigate the strength and weakness of integrating internship program at selected polytechnic institute in Bangladesh.

Specific objectives:

The internship programs of Diploma in Electro-Medical Engineering programme of BTEB is implemented through Government polytechnic institutions. Therefore, the specific objectives of this study are as follows:

- To find out the strength of electro-medical engineering internship programs in government polytechnic institutes in Bangladesh.
- To find out the weakness of electro-medical engineering internship programs in government polytechnic institutes in Bangladesh.
- To suggest how to improve the TVET internship programs in government polytechnic institutes in Bangladesh.

1.6 Significance of the Study

The findings of this study was provide an avenue for the industrial personnel to monitor and evaluate the effectiveness of students' internship training process for quality outcomes. Furthermore, policy makers, education planners, administrators and researchers can get useful information from these findings. Thus, this study can contribute to the enhancement of internship programs in Bangladesh.

1.7 Assumptions

The researcher assumes that the current data on the research was available from relevant hospitals in Bangladesh.

1.8 Delimitations of the study

There have more than 51 Government Polytechnic Institutes in Bangladesh. This study was confined within only three Government Polytechnic Institutes Dhaka Mohila Polytechnic, Rajshahi Mohila Polytechnic and B. Baria Polytechnic Institutes as because the department of Electro-medical is available of their Polytechnic Institute. Research data was collected only from the students of Electro-medical Technology sections.

1.9 Definition of terms

- **Internship program:** "An internship is a form of experiential learning that integrates knowledge and theory learned in the classroom with practical application and skills development in a professional setting. Internships give students the opportunity to gain valuable applied experience and make connections in professional fields they are considering for career paths; and give employers the opportunity to guide and evaluate talent"
- **Apprenticeship program:** Apprenticeship program is a combination of on-the-job training and related classroom instruction under the supervision of a journey-level craft person or trade professional in which workers learn the practical and theoretical aspects of a highly skilled occupation. The Random House Dictionary defines the word as: "Any official or formal program to provide practical experience for beginners in an occupation or profession."
- **Difference between an apprenticeship and an internship:** The main difference between an apprenticeship and an internship is that internships are more exploratory. You're not bound to work for your employer after the internship is over (although many interns do receive job offers). If you start early enough to do a few internships throughout college, you can use the first ones to get a feel for what career you'd like to pursue and the later ones to build your experience.
- **Educational facilities:** Training equipment available for both theoretical and practical demonstrations in TVET institutions to ensure the quality of training offered; such as training manuals, workshops, machineries and others.
- **Polytechnic institute:** A technical school offering instruction in many industrial arts and applied sciences.
- **Enterprise:** Organized business activities aimed specially at growth and profit. In our case it defines micro and local enterprises that engaged in organizing trainees for employment.
- **Technical and Vocational Education:** Educational process involving in addition to general education, the study of technology and related science and the acquisition of practical skills and knowledge relating to occupation in various sectors of economic and social life.
- **TVET:** TVET is education, training or learning activity which provides knowledge, skills, attitudes relevant for employment and self-employment. It is concerned with the acquisition of knowledge and skill for the world of work.

CHAPTER TWO

Review of related literature

Furco (1996) defines internship as engaging students in service activities primarily for the purpose of providing them with hands-on experience that enhances their learning or understanding of issues relevant to a particular area of study. According to Lam and Ching (2007) internship can assist students to bridge the gap between the academic learning process and the practical reality. McMahon and Quinn (1995) note that internship is considered as 'supervise work experiences' where students are closely supervised during their internship. A more revealing definition is given by the University of Wisconsin-Stout. (2008):

> "…Internships are conducted under the direction (direct or indirect) of an instructor and are designed to provide „real life" or „on the job" experiences for the students with the opportunity to critique and refine skills through contact with the instructor and with an onsite supervisor…"

In addition, an internship may be paid or unpaid and is usually for a specified time period in instances where credits are given.

Internships offered to undergraduates provide a smooth transition from the academic world to the working environment (Muhamad *et al.*, 2009). A number of studies confirm the assertion that internships are the best outside classroom learning activities (Hall *et al.*, 1995; Burnett, 2003; Mihail, 2006).

Prior research highlights various issues on internship attachments, including the importance of relevant practical experience for students (Mounce et al., 2004); effects of internship predictors on the successful field of experience (Beard and Morton, 1999); the importance of practical experience towards recruiting decisions of accounting employers (Pasewarket al., 2001); study on accounting internships and subsequent academic performance (English and Koeppen, 1993) and benefits and limitations of internships (Hymon-Parker,1998).

The study aims to examine the perceptions of interns on various issues before and after their internship attachments to identify whether any gap exists in their perception. Issues are focused on what interns have learnt; the process by which they learnt; the effect of what has been learnt on their expectations of their future profession; and choices of their future career. The internship programmed contributes significantly and positively towards enhancing the knowledge base and motivational level of students (Beard, 1998).

According to her, this experience can make subsequent study more meaningful and is useful to develop students professionally before entering the workplace. In 2007, the International Federation of Accountants (IFAC) issued the International Education Practice Statements (IEPS) 3: Practical Experience Requirements – Initial Professional Development for Professional Accountants, which stresses the importance of integrating formal education and practical experience in enabling graduates to develop their professional knowledge and professional skills. According to Beard (1998) this integration process may be achieved through an internship attachment.

Perhaps more than anything else internships help students in preparing for their careers. In a study by Gerken *et al.* (2012) career preparation topped the list in terms of frequency on the perceived functions of internship. Career awareness of students is enhanced, more so since they work in a career related or professional environment. The experience gained during internship affords students the chance to evaluate, reflect upon and try a career field (Scott, 1992; Mohd Jaffri *et al.*, 2011)

Burnett (2003) reports a finding of a study conducted to initiate changes in accounting education, which states that the best outside classroom learning activities are through an internship attachment. Findings of various studies have provided support for this suggestion (see for example: Mihail, 2006; Hall et al., 1995; Bernstein, 1979; Hursch and Borzak 1979; Eyler 1992). The rationale in offering the internship attachment as part of the academic programme is that students benefit from these internship experiences and exposure. Benefits include improvements in career-related direction (Lubbers, 2001; Beard and Morton, 1999), gaining practical experience (Lubbers, 2001), improved marketability of graduates (Swift and Kent, 1999; Hymon-Parker, 1998), job expectations (Knouse et al.,1999), interpersonal skills (Beard and Morton,1999), leadership (Cooket al.,2004) and understanding of the business applications of classroom learning (Cook et al.,2004; Hymon-Parker, 1998).

Hite and Bellizi (1986) found that the most commonly agreed benefit of internship attachments for students is improviding a valuable learning experience that complements their course work. Students have described internship attachment as a bridge between the theory of the classroom and the world of practice (Nevett, 1985). Internship programmes are perceived as a valuable

way to acquire broad competencies where the practical knowledge obtained supports and complements the theoretical studies learned in the classrooms (Mihail, 2006).

Empirical research in cognitive psychology has established that prior experiences are able to enhance the performance in fairly complex learning and problem solving tasks (Britton and Tesser, 1982). Ricks et al., (1989) argue that when individuals apply their work experience to a subsequent learning environment they can better analyze and question the theory, thus, serving as a learning condition that fosters and sustains the work and school environments. Both students and employers strongly agree that experience and exposure to the real job setting obtained from the internship programme are more valuable than additional coursework i.e. case studies and guest speakers in classes (Hall et al., 1995).

Internship attachments are also found to successfully enhance students' performance in accounting and auditing courses as well as in their overall GPA performance (English and Koeppen, 1993; Knechel and Snowball, 1987). The internship experience is argued to be beneficial in socializing the student through training, teamwork assignments, meetings with clients or employees, and various events hosted by the organization they are attached to during their internship (Lubbers, 2007/8). It was found that graduates with practical experience report positive changes in feelings of personal and social efficacy (Bernstein, 1976) and show a greater sense of responsibility and career development (Hursch and Borzak 1979; Eyler 1992). Mihail (2006) noted that interns have successfully developed their personal skills, particularly relating to information technology, time management, communication skills, teamwork, specialist knowledge and ability to prioritize tasks. Internship is perceived as the most effective strategy for the employment opportunity (Callanan and Benzing, 2004; Brooks et al., 1995; Knouse et al., 1999; Taylor, 1998 and Scott, 1992). Practical experience and exposure gained during the internship programme are found to be helpful in improving career decision making (Brooks et al., 1995; Taylor, 1998). Internship is the best way for students to explore the suitability of a particular job (Scott, 1992). According to Cannon and Arnold (1998), internship may pave the way for permanent employment upon graduation as well as providing an in-depth understanding of actual business practice.

It was found that business school graduates that have gone through an internship attachment tend to secure their first jobs faster than graduates without internship experience (Knouseet al.,1999). Further, business graduates with internship experience are likely to get conspicuously

higher starting pay and report greater job satisfaction compared to their non-internship counterparts (Gault et al.,2000). Various researches investigate the expectations of students and employers towards the internship programme. Tackett et al. (2001) mention four specific areas, namely, ethics, oral and written communication skills, office conduct and technical skills where interns and employers have conflicting perceptions. Students hope to receive monetary rewards and be treated as regular employees. However, employers are not willing to treat interns as regular employees and, thus, normally assign duties that are more appropriate for college students (Hall et al., 1995).

Employers are warned not to treat interns as part-time employees as this will result in an unsatisfactory internship and will most likely damage the relationship between the employer and the universities (Tackett et al, 2001). Universities should be responsible to ensure that internships are meaningful learning experiences for their students (Tackett et al., 2001). According to them, this may be accomplished by careful examination of feedback from employers and interns; and is followed by the modification of the internship programme accordingly.

Program Effectiveness in Ghana

The evidence on the effectiveness of TVET training programs in Ghana, though limited, has been more encouraging. On the macro level (i.e., by looking at returns to education), a recent World Bank study on job creation and skill development in Ghana, by performing regression analysis on data from Ghana Living Standard Survey Round 5 (GLSS 5), found strong evidence on increased employability and earnings associated with TVET education. (World Bank, 2009, pg. 1) Specifically, TVET raised the likelihood of holding wage employment, and the magnitude is even larger than those with a senior secondary education. Among wage workers, TVET also raised income, having a magnitude that compared favorably with senior secondary education. (World Bank, 2009, pgs. 95 & 97) This is a quite remarkable, considering that among all junior high school graduates, only those who are academically strong can proceed to senior secondary schools.

On the micro level (i.e., by looking at specific projects), the evidence is limited. While donor-funded projects such as the World Bank's Vocational Skills and Informal Sector Support Project (VSP) and IFAD's Rural Enterprise Projects have been evaluated, government-funded projects such as ICCES (Integrated Community Centre for Employable Skills), STEP (Skills

Training and Employment Placement) have not been evaluated. (Palmer, 2007, pgs. 21-22) The World Bank's VSP project, which was carried out in 1995-2001 and aimed to upgrade the skills of master craftsman and apprentices, had some modest successes. For example, apprentices experienced improved ability to read technical designs, better finished products, improved employment prospects, and enhanced self-esteem; while master craftsman reported improvements in their technical efficiency and productivity. (Palmer, 2007) However, the evaluation was not done in a rigorous manner, and the overall project was graded as "unsatisfactory" by the World Bank. (World Bank 2001, pg. 5)

CHAPTER THREE
RESEARCH METHODOLOGY

3.1 Introduction

The most important focus on this chapter is the method and design of the study the researcher employed in undertaking this research work. Quantitative research method was used in conducting this study. According to Zulueta & Costales, (2003) view quantitative that each of the objectives is done through the assigning of numerical values to the variables and the mathematical analysis of those values.

3.2 Design of the study

The descriptive method was used for the study as its nature of the problem. The semi-structure ended questionnaires was used as tools for collecting necessary data for fulfilling the objectives of the problem. Quantitative research was used in a situation where the study focus on people by the use of questionnaire to determine their opinion on strengths and weakness.

3.3 Research field

The research was carried out on the internship electro-medical students, those are from Government Polytechnic Institute in Bangladesh. The data of the research was collected from the place of internship training program such as from the relevant hospitals recognized by the Polytechnic Institute in Bangladesh.

3.4 Population

In general, all the Polytechnic students of Diploma Engineering (Electro-medical technology) in Bangladesh are the population of this research. There are 51 government Polytechnics in Bangladesh. However only 9 Polytechnics have been offering Diploma Engineering Degree in Electro-medical technology. Out of 9 Government Polytechnic Institutes this research was consider 3 Polytechnic Institute students were taken as a population of the research. The total population of the 3 Polytechnic was around 120(approximately)

3.5 Sample

Total 3 Polytechnics were selected purposively and then all the individuals of the selected institutions were chosen in the proposed sample. Thus, the research was take 80% population. Thus, the sample of the research was 96.

3.6 Sample Technique

Total 3 Polytechnics were selected purposively and the random sampling technique was used to take the sample (96) of the research.

3.7 Data Collection Procedures

Researcher of the research was go to the purposively selected Medical Hospitals to collect the research data by using questionnaires. Such as, National Electro-medical Equipment Maintenance Workshop and Training Center (NEMEMW and TC), Health care Engineering Technology, Medical institute and so on**.**

3.8 Data Collection Tool

The researcher collected data using semi-structure ended questionnaire. Questionnaire is one of the important tools for gathering more data within a limited time. It is suitable in collective study approach of this descriptive and quantitative research. Therefore researcher prepared appropriate questionnaire as data collection tools. The questionnaire was structured into two parts, part 'I' consisted on the questions about the background of the respondents or respondents information and part 'II' which consisted of questions about strengths and weakness by internship programs in polytechnics institutes tabulated in two sections and one section open ended opportunities as shown in appendix. The data format was designed on Likert type five (5) point-scale as follows:

Table 3. 1 Likert type five point scale

Scale	**Points**
Strongly agree (SA)	5
Agree (A)	4
Undecided (U)	3
Disagree (D)	2
Strongly disagree (SD)	1

3.9 Data analysis

Data collected from the respondents through questionnaires were analyzed and tabulated in the form of the frequencies and percentages also each table tabulated were followed by its detailed interpretation. Quantitative method of data analysis was used, where Chi-square test and weighted average was use to find out the significance of the differences of data obtained together and questionnaires were also analyzed by weighted average (WA) meanwhile Statistical Packages for Social Science (SPPS) version 24 software was used for analyzing and interpreting the data obtained. In finding out whether the opinions of the respondents were statistically significant, the significant value was compared with the critical value at 0.05 level of significance and degree of freedom was calculated as well but criteria for Likert type *five point scale* was interpreted in the table below;

Table 3. 2 Interpretation of Weighted average based on Likert type five point scale

Weighted Average	Responses
5≥ WA > 4.5	SA (5)
4.5≥ WA >3.5	A (4)
3.5≥ WA> 2.5	U (3)
2.5≥ WA> 1.5	D (2)
1.5≥WA > 0	SD (1)

3.10 Ethical Consideration

The selection process of the participants and their participation in this study has required the approval of the three selected polytechnic institutes. Each participant was given a questionnaire and required time to fill the questionnaire voluntarily. All the participants' information were used and kept confidential and remains anonymous. Moreover, the study was ensure that all the data collected was use aliases. Participants did not have any influence and link with the aliases.

3.11 Validation of the research tool

Initially the questionnaires were prepared by the researcher by the instruction of the research advisor. After that, the questionnaire was given to the Principals of the two Polytechnic Institutes to validation and to judge the suitability. Then the questionnaires were ready to use for collecting the research data.

CHAPTER FOUR

Analysis and Interpretation of Data

4.1 Introduction

The data obtained from the respondents through questionnaire was tabulated in form of frequencies and percentages, separate tables were prepared for different aspect of the questionnaires each table is interpreted base on the feedback received from the respondents. Chi-square test and Weighted average (WA) were calculated and analyzed from the data collected in the questionnaires in form of Likert type *five point scale* using SPSS version 24 software. The statement of respondents were tasted at 0.05 significant levels by calculating the value of chi-square (χ**2**) for each items of the data compeering the calculated observed value of (χo2) with the critical value (χc2) obtained from the Chi-square (χ**2**) table.

4.2 Responses to the Demographic

Table 4.2. 1 Demographic information

Valid		Frequency	Percent	Valid Percent	Cumulative Percent
	Female	66	68.8	68.8	68.8
	Male	30	31.3	31.3	100.0
	Total	96	100.0	100.0	

The above table 4.1 represents the demographic information of the students. Out of the total ninety six (96) respondents, 88.8% were males and 31.3% females from the study area. These participants, most of them are in the participants of the Healthcare engineering technology is 41.7% and National Electro-medical equipment maintenance workshop and training center is 58.3%.

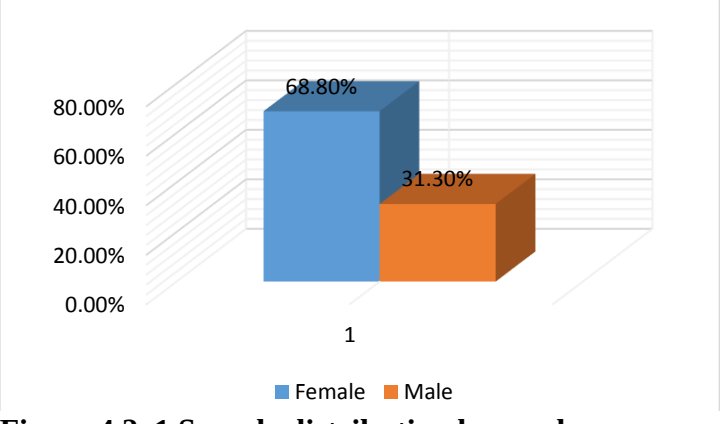

Figure 4.2. 1 Sample distribution by gender

Table 4.2. 2 Place of apprenticeship

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Healthcare Engineering Technology	40	41.7	41.7	41.7
	National Electro-medical Equipment Maintenance Workshop and Training Center	56	58.3	58.3	100.0
	Total	96	100.0	100.0	

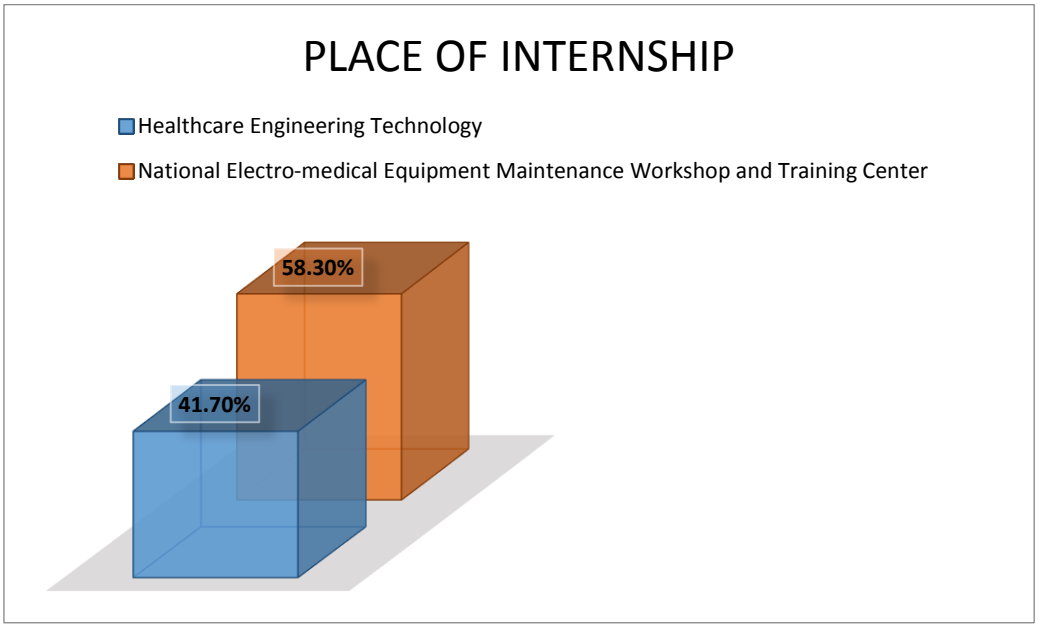

Figure 4.2. 2: Sample distribution by place of internship

4.3 Analysis of objective 1

To find the **strength** of electro-medical engineering internship programs in government polytechnic institutes in Bangladesh.

Table 4.3. 1 Showing analyze the strength of electro-medical engineering internship programs

S/N	Statement	5(SA)	4(A)	3(U)	2(D)	1(SD)	WA	χ^2	Sig. Value	Df
1	Practical skills were appropriately and significantly gained by the internship training/program	25 (26%)	60 (62.5%)	5 (5.2%)	2 (2.1%)	4 (4.2%)	4.04	126.40	.000	4
2	The knowledge and skill gained by the internship program is useful for real life situation	45 (46.9%)	47 (49%)	4 (4.2%)	- -	- -	4.43	36.81	.000	2
3	Internship helped the trainees to acquainted with the functions of scientific machineries	56 (58.3%)	37 (38.5%)	3 (3.1%)	- -	- -	4.55	45.06	.000	2
4	Internship program builds the capacities of the trainees for their future world of work	44 (45.8%)	47 (49%)	3 (3.1%)	2 (2.1%)	-	4.39	77.25	.000	3
5	Skill achieved by the internship connect the knowledge which was gained from Polytechnic	38 (39.6%)	51 (53.1%)	6 (6.3%)	1 (1%)	-	4.31	74.08	.000	3
6	The unfamiliar problems are clarified in the internship	28 (29.2%)	52 (54.2%)	9 (9.4%)	2 (2.1%)	5 (5.2%)	4.00	91.40	.000	4
7	Internship program developed ideas and enhanced experiences	46 (47.9%)	43 (44.8%)	6 (6.3%)	1 (1%)	-	4.40	70.75	.000	3
8	Internship helped to develop ability to communicate ideas professionally with people	49 (51%)	42 (43.8%)	1 (1%)	- -	4 (4.2%)	4.38	78.25	.000	3
9	Internship enhanced creativity of the trainees	19 (19.8%)	68 (70.8%)	4 (4.2%)	4 (4.2%)	1 (1%)	4.04	165.35	.000	4
10	Internship inspired problem solving skills	54 (56.3%)	34 (35.4%)	7 (7.3%)	1 (1%)	-	4.47	75.75	.000	3

Table 4.3. 2 Test statistics for mean and standard deviation

Statistics										
		Streangth1	Streangth2	Strength3	Strength4	Strength5	Strength6	Strength7	Strength8	Strength9	Strength10
N	Valid	96	96	96	96	96	96	96	96	96	96
	Missing	0	0	0	0	0	0	0	0	0	0
Mean		4.04	4.43	4.55	4.39	4.31	4.00	4.40	4.38	4.04	4.47
Std. Deviation		.882	.576	.560	.655	.638	.973	.657	.874	.710	.680

Chi-Square Test Statistics

Table 4.3. 3 Showing Chi-Square Test Statistics of objective one

Test Statistics										
	Streangth1	Streangth2	Strengthh3	Strengthh4	Strengthh5	Strengthh6	Strengthh7	Strengthh8	Strengthh9	Strengthh10
Chi-Square	126.40	36.81	45.06	77.25	74.08	91.40	70.75	78.25	165.35	75.75
Df	4	2	2	3	3	4	3	3	4	3
Asymp. Sig.	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000

Statement 1, From statement one of the returned questionnaire, we found that 26% of the respondents were strongly agree, 62.5% of the respondents were agree, 5.2% undecided , 2.1% disagree and 4.2% strongly disagree that practical skills were appropriately and significantly gained by the internship training/program. The weighted average is 4.04 (4.04≥3.50) which agrees that, there is practical skills appropriately and significantly gained by the internship training/program. Chi-square test was conducted at df = 4 with significant value of 0.000 which is less than 0.05 level of significance and Chi-square observed $_{\chi}o2$ (126.40) were greater than Chi-square critical $_{\chi}c2$ (9.49), that is $_{\chi}o2$ (126.40) > $_{\chi}c2$ (9.49) which indicates that the null hypothesis (responses on this statement are not statistically significant) is rejected that means research hypothesis is accepted. Therefore, the researcher concluded that it was statistically significant to agree that there is practical skills appropriately and significantly gained by the internship training/program

Table 4.3. 4 Showing the opinion of the respondents for statement strength one

Streangth1					
		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Strongly Disagree	4	4.2	4.2	4.2
	Disagree	2	2.1	2.1	6.3
	Undecided	5	5.2	5.2	11.5
	Agree	60	62.5	62.5	74.0
	Strongly Agree	25	26.0	26.0	100.0
	Total	96	100.0	100.0	

We were observed that by the bar chart 26% of the respondents were strongly agree, 62.5% of the respondents were agree, 5.2% undecided, 2.1% disagree and 4.2% strongly disagree that practical skills were appropriately and significantly gained by the internship training/program. So researcher have got the information that maximum respondents agree that practical skills were appropriately and significantly gained by the internship training/program.

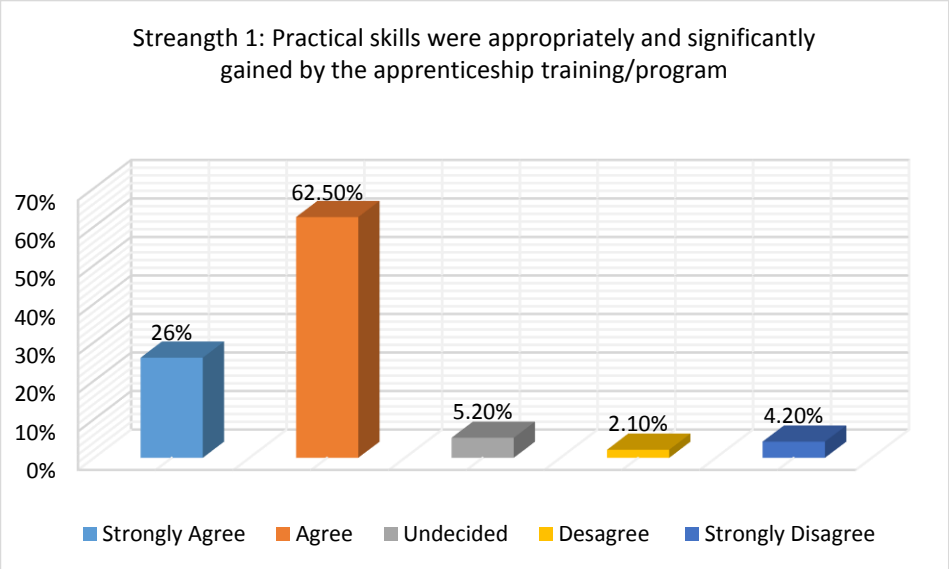

Figure 4.3. 1: percentile of the respondents with bar chart for statement strength one

Statement 2, From statement two of the returned questionnaire, we found that 46.9% of the respondents were strongly agree, 49% of the respondents were agree, 4.2% undecided that the knowledge and skill gained by the internship training/program useful for real life situation. The

weighted average is 4.43 (4.43 ≥ 3.50) which agrees that, there is the knowledge and skill gained by the internship training/program useful for real life situation. Chi-square test was conducted at df = 2 with significant value of 0.000 which is less than 0.05 level of significance and Chi-square observed $_{\chi}$o2 (36.81) were greater than Chi-square critical $_{\chi}$c2 (5.99), that is $_{\chi}$o2 (36.81) > $_{\chi}$c2 (5.99) which indicates that the null hypothesis (responses on this statement are not statistically significant) is rejected that means research hypothesis is accepted. Therefore, the researcher concluded that it was statistically significant to agree that there is the knowledge and skill gained by the internship training/program useful for real life situation

Table 4.3. 5: Showing the opinion of the respondents for statement strength two

Streangth2					
		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Undecided	4	4.2	4.2	4.2
	Agree	47	49.0	49.0	53.1
	Strongly Agree	45	46.9	46.9	100.0
	Total	96	100.0	100.0	

We were observed that by the bar chart 46.9% of the respondents were strongly agree, 49% of the respondents were agree, 4.2% undecided that the knowledge and skill gained by the internship training/program useful for real life situation. So researcher have got the information that maximum respondents agree that practical skills appropriately and significantly gained by the internship training/program.

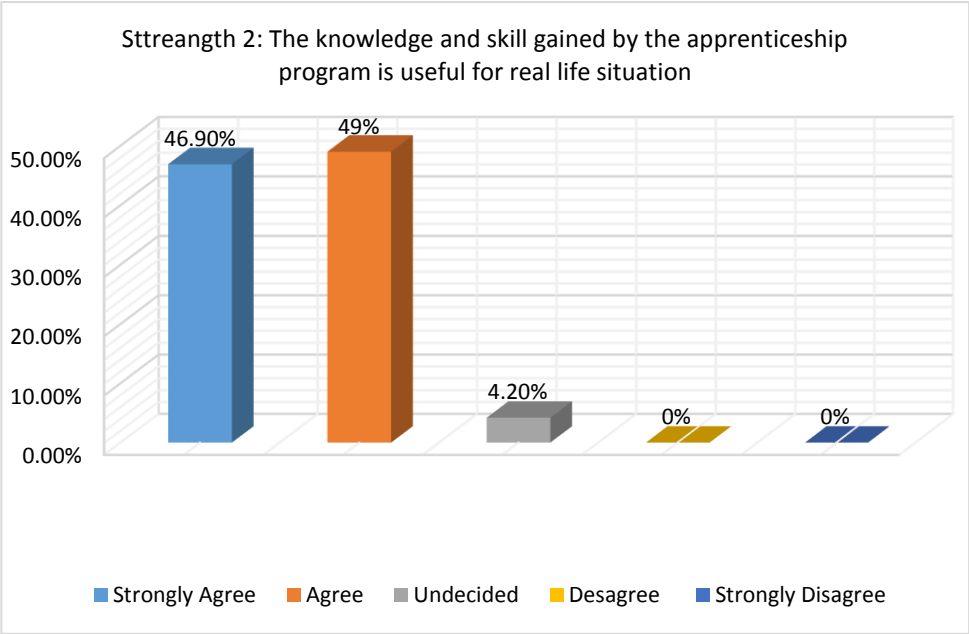

Figure 4.3. 2: Showing percentile of the respondents with bar chart for statement strength two

Statement 3, From statement three of the returned questionnaire, we found that 58.3% of the respondents were strongly agree, 38.5% of the respondents were agree, and 3.1% undecided that the internship helped the trainees to acquainted with the functions of scientific machineries. The weighted average is 4.55 (4.55 ≥ 4.50) which strongly agrees that, there is internship helped the trainees acquainted with the functions of scientific machineries. Chi-square test was conducted at df = 2 with significant value of 0.000 which is less than 0.05 level of significance and Chi-square observed $_{\chi}$o2 (45.06) were greater than Chi-square critical $_{\chi}$c2 (5.99), that is $_{\chi}$o2 (45.06) > $_{\chi}$c2 (5.99) which indicates that the null hypothesis (responses on this statement are not statistically significant) is rejected that means research hypothesis is accepted. Therefore, the researcher concluded that it was statistically significant to agree that there is internship helped the trainees acquainted with the functions of scientific machineries.

Table 4.3. 6: Showing the opinion of the respondents for statement strength three

Strength3

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Undecided	3	3.1	3.1	3.1
	Agree	37	38.5	38.5	41.7
	Strongly Agree	56	58.3	58.3	100.0
	Total	96	100.0	100.0	

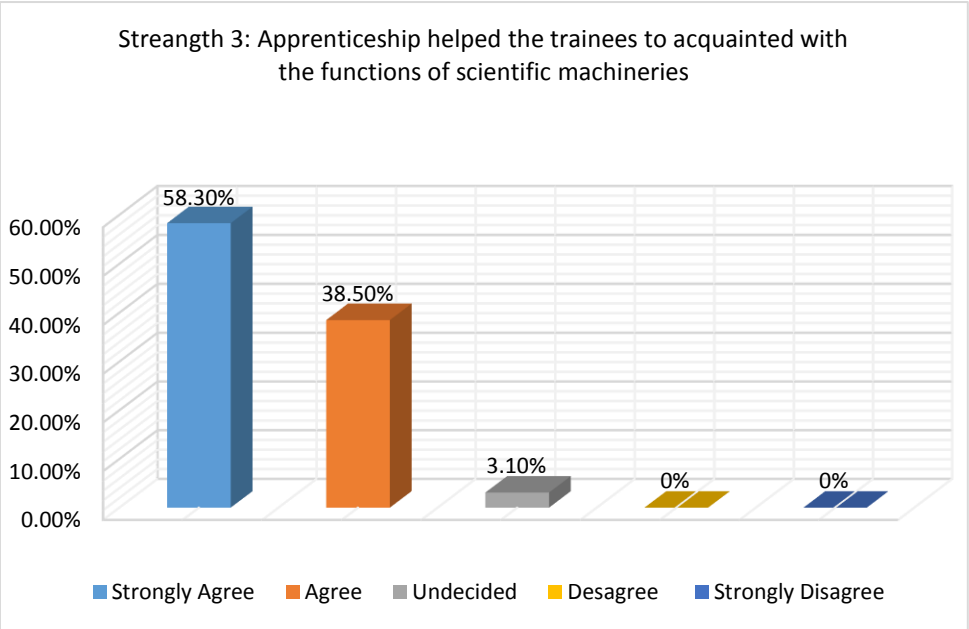

Figure 4.3. 3: Showing percentile of the respondents with bar chart for statement strength three

Statement 4, From statement four of the returned questionnaire, we found that 45.8% of the respondents were strongly agree, and 49% of the respondents were agree, 3.1% undecided, 2.1% disagree that internship program builds the capacities of the trainees for their future world of work. The weighted average is 4.39 (4.39 ≥ 3.50) which agrees that, there is internship program builds the capacities of the trainees for their future world of work. Chi-square test was conducted at df = 3 with significant value of 0.000 which is less than 0.05 level of significance and Chi-square observed $_{\chi}$o2 (77.25) were greater than Chi-square critical $_{\chi}$c2 (7.82), that is $_{\chi}$o2 (77.25) > $_{\chi}$c2 (7.82) which indicates that the null hypothesis (responses on this statement are not statistically significant) is rejected that means research hypothesis is accepted. Therefore, the researcher concluded that it was statistically significant to agree that there is internship program builds the capacities of the trainees for their future world of work.

Table 4.3. 7: Showing the opinion of the respondents for statement strength four

Strength4					
		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Disagree	2	2.1	2.1	2.1
	Undecided	3	3.1	3.1	5.2
	Agree	47	49.0	49.0	54.2
	Strongly Agree	44	45.8	45.8	100.0
	Total	96	100.0	100.0	

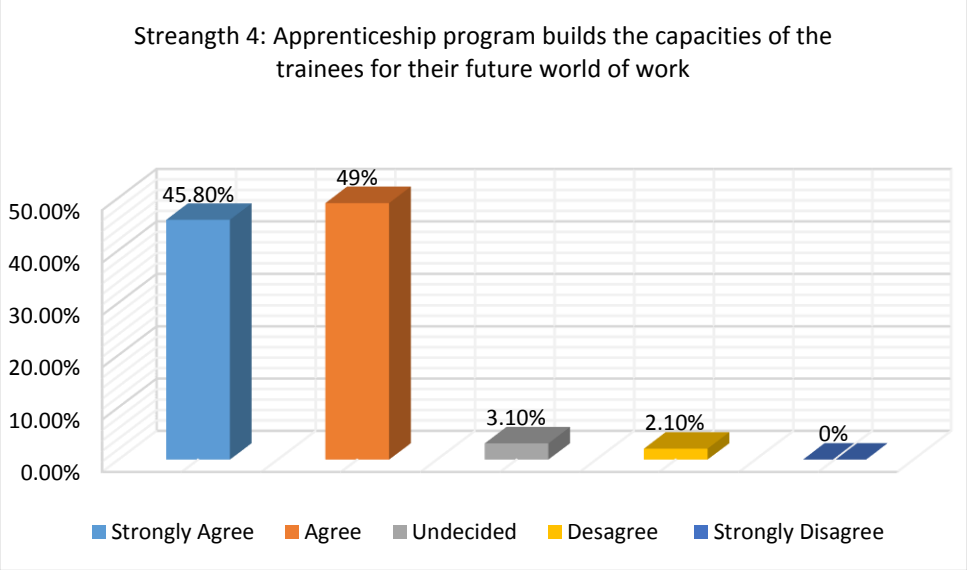

Figure 4.3. 4: Showing percentile of the respondents with bar chart for statement strength four

Statement 5, From statement five of the returned questionnaire, we found that 39.6% of the respondents were strongly agree, and 53.1% of the respondents were agree, 6.3% undecided and 1% disagree that the skill achieved by the internship connect the knowledge which was gained from Polytechnic. The weighted average is 4.31 ($4.31 \geq 3.50$) which agrees that, there is the skill achieved by the internship connect the knowledge which was gained from Polytechnic. Chi-square test was conducted at df = 3 with significant value of 0.000 which is less than 0.05 level of significance and Chi-square observed $_{\chi}o2$ (74.08) were greater than Chi-square critical $_{\chi}c2$ (7.82), that is $_{\chi}o2$ (74.08) > $_{\chi}c2$ (7.82) which indicates that the null hypothesis (responses on this statement are not statistically significant) is rejected that means research hypothesis is accepted. Therefore, the researcher concluded that it was statistically significant to agree that there is the skill achieved by the internship connect the knowledge which was gained from Polytechnic.

Table 4.3. 8: Showing the opinion of the respondents for statement strength five

Strength5

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Disagree	1	1.0	1.0	1.0
	Undecided	6	6.3	6.3	7.3
	Agree	51	53.1	53.1	60.4
	Strongly Agree	38	39.6	39.6	100.0
	Total	96	100.0	100.0	

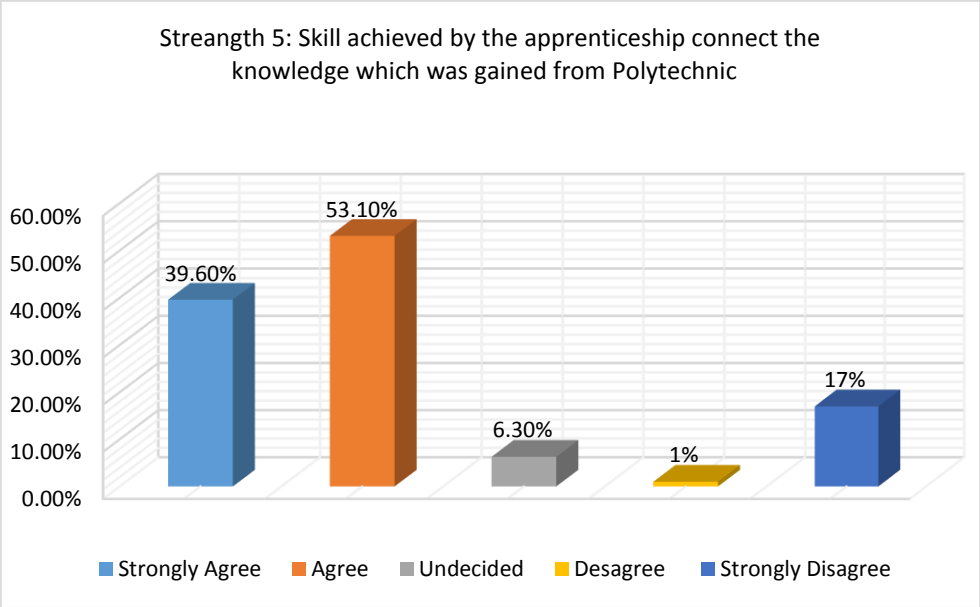

Figure 4.3. 5: Showing percentile of the respondents with bar chart for strength five

Statement 6, From statement six of the returned questionnaire, we found that 29.2% of the respondents were strongly agree, and 54.2% of the respondents were agree, 9.4% undecided , 2.1% disagree and 5.2% strongly disagree that the unfamiliar problems are clarified in the internship. The weighted average is 4.00 ($4.00 \geq 3.50$) which agrees that, there is the unfamiliar problems clarified in the internship. Chi-square test was conducted at df = 4 with significant value of 0.000 which is less than 0.05 level of significance and Chi-square observed $_{\chi}o2$ (91.40) were greater than Chi-square critical $_{\chi}c2$ (9.49), that is $_{\chi}o2$ (91.40) > $_{\chi}c2$ (9.49) which indicates that the null hypothesis (responses on this statement are not statistically significant) is rejected that means research hypothesis is accepted. Therefore, the researcher concluded that it was statistically significant to agree that there is the unfamiliar problems clarified in the internship.

Table 4.3. 9: Showing the opinion of the respondents for statement strength six

Strength6

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Strongly Disagree	5	5.2	5.2	5.2
	Disagree	2	2.1	2.1	7.3
	Undecided	9	9.4	9.4	16.7
	Agree	52	54.2	54.2	70.8
	Strongly Agree	28	29.2	29.2	100.0
	Total	96	100.0	100.0	

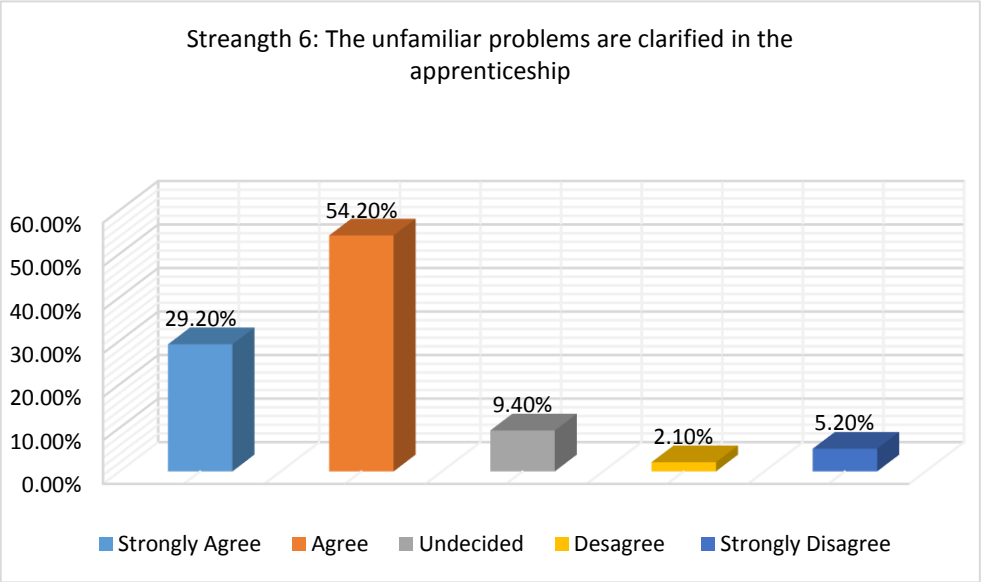

Figure 4.3. 6: Showing percentile of the respondents with bar chart for strength six

Statement 7, From statement seven of the returned questionnaire, we found that 47.9% of the respondents were strongly agree, and 44.8% of the respondents were agree, 6.3% undecided and 1% disagree that the internship program developed ideas and enhanced experiences. The weighted average is 4.40 (4.40 ≥ 3.50) which agrees that, there is the internship program developed ideas and enhanced experiences. Chi-square test was conducted at df = 3 with significant value of 0.000 which is less than 0.05 level of significance and Chi-square observed $_{\chi}o2$ (70.75) were greater than Chi-square critical $_{\chi}c2$ (7.82), that is $_{\chi}o2$ (70.75) > $_{\chi}c2$ (7.82) which indicates that the null hypothesis (responses on this statement are not statistically significant) is rejected that means research hypothesis is accepted. Therefore, the researcher

concluded that it was statistically significant to agree that there is internship program developed ideas and enhanced experiences.

Table 4.3. 10: Showing the opinion of the respondents for statement strength seven

Strength7

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Disagree	1	1.0	1.0	1.0
	Undecided	6	6.3	6.3	7.3
	Agree	43	44.8	44.8	52.1
	Strongly Agree	46	47.9	47.9	100.0
	Total	96	100.0	100.0	

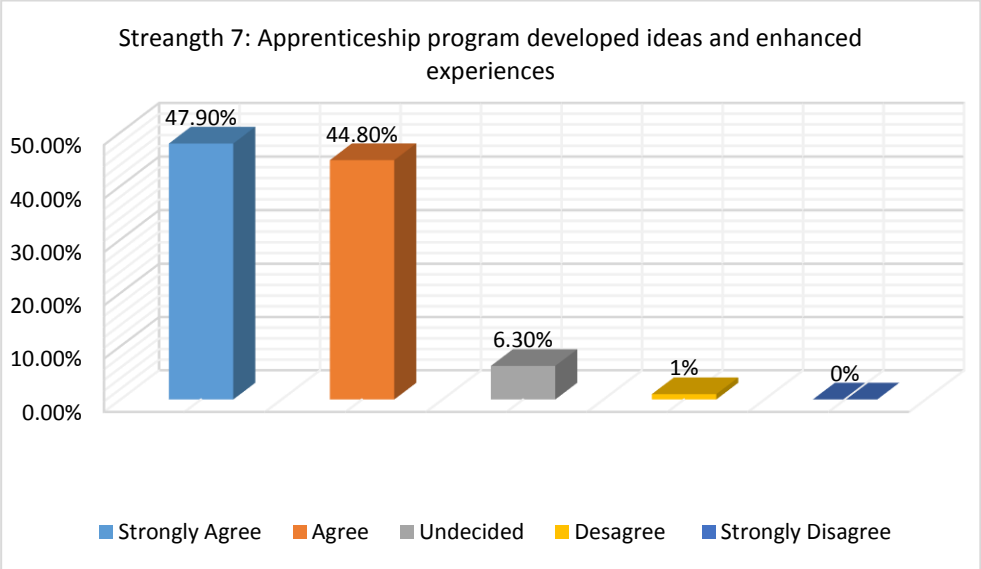

Figure 4.3. 7: Showing percentile of the respondents with bar chart for strength seven

Statement 8, From statement eight of the returned questionnaire, we found that 51% of the respondents were strongly agree, and 43.8% of the respondents were agree, 1% undecided and 4.2% strongly disagree that the internship helped to develop ability to communicate ideas professionally with people. The weighted average is 4.38 ($4.38 \geq 3.50$) which agrees that, there is the internship helped to develop ability to communicate ideas professionally with people. Chi-square test was conducted at df = 3 with significant value of 0.000 which is less than 0.05 level of significance and Chi-square observed $\chi o2$ (78.25) were greater than Chi-square critical $\chi c2$ (7.82), that is $\chi o2$ (78.25) > $\chi c2$ (7.82) which indicates that the null hypothesis (responses on this statement are not statistically significant) is rejected that means research hypothesis is

accepted. Therefore, the researcher concluded that it was statistically significant to agree that there is internship helped to develop ability to communicate ideas professionally with people.

Table 4.3. 11: Showing the opinion of the respondents for statement strength eight

Strength8

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Strongly Disagree	4	4.2	4.2	4.2
	Undecided	1	1.0	1.0	5.2
	Agree	42	43.8	43.8	49.0
	Strongly Agree	49	51.0	51.0	100.0
	Total	96	100.0	100.0	

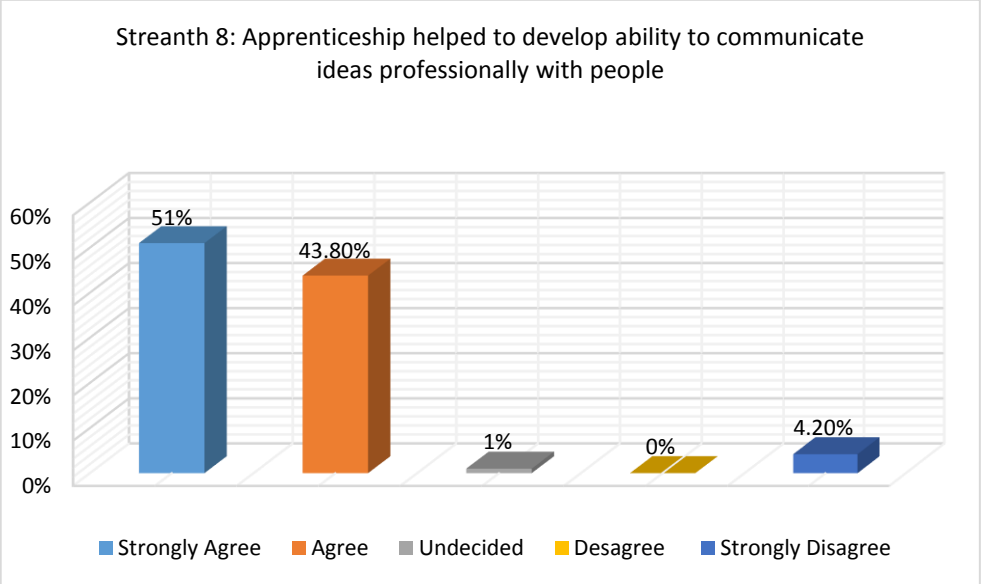

Figure 4.3. 8: Showing percentile of the respondents with bar chart for strength eight

Statement 9, From statement nine of the returned questionnaire, we found that 19.8% of the respondents were strongly agree, and 70.8% of the respondents were agree, 4.2% undecided, 4.2% disagree and 1% strongly disagree that internship enhanced creativity of the trainees. The weighted average is 4.04 (4.04 ≥ 3.50) which agrees that, there is the internship enhanced creativity of the trainees. Chi-square test was conducted at df = 4 with significant value of 0.000 which is less than 0.05 level of significance and Chi-square observed $_{\chi}$o2 (165.35) were greater than Chi-square critical $_{\chi}$c2 (9.49), that is $_{\chi}$o2 (165.35) > $_{\chi}$c2 (9.49) which indicates that the null hypothesis (responses on this statement are not statistically significant) is rejected that means research hypothesis is accepted. Therefore, the researcher concluded that it was statistically significant to agree that there is the internship enhanced creativity of the trainees.

Table 4.3. 12: Showing the opinion of the respondents for statement strength nine

Strength9

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Strongly Disagree	1	1.0	1.0	1.0
	Disagree	4	4.2	4.2	5.2
	Undecided	4	4.2	4.2	9.4
	Agree	68	70.8	70.8	80.2
	Strongly Agree	19	19.8	19.8	100.0
	Total	96	100.0	100.0	

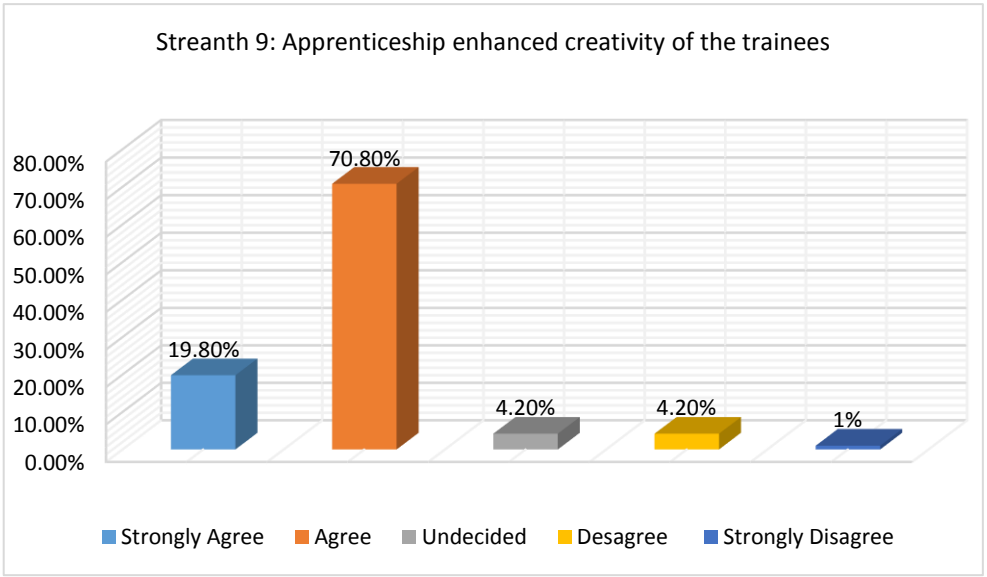

Figure 4.3. 9: Showing percentile of the respondents with bar chart for strength nine

Statement 10, From statement ten of the returned questionnaire, we found that 56.3% of the respondents were strongly agree, 35.4% of the respondents were agree, 7.3% undecided and 1% disagree that internship inspired problem solving skills. The weighted average is 4.47 (4.47 ≥ 3.50) which agrees that, there is internship inspired problem solving skills. Chi-square test was conducted at df = 3 with significant value of 0.000 which is less than 0.05 level of significance and Chi-square observed $_{\chi}o2$ (75.75) were greater than Chi-square critical $_{\chi}c2$ (7.82), that is $_{\chi}o2$ (75.75) > $_{\chi}c2$ (7.82) which indicates that the null hypothesis (responses on this statement are not statistically significant) is rejected that means research hypothesis is accepted. Therefore, the researcher concluded that it was statistically significant to agree that there is internship inspired problem solving skills.

Table 4.3. 13: Showing the opinion of the respondents for statement strength ten

Strength10

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Disagree	1	1.0	1.0	1.0
	Undecided	7	7.3	7.3	8.3
	Agree	34	35.4	35.4	43.8
	Strongly Agree	54	56.3	56.3	100.0
	Total	96	100.0	100.0	

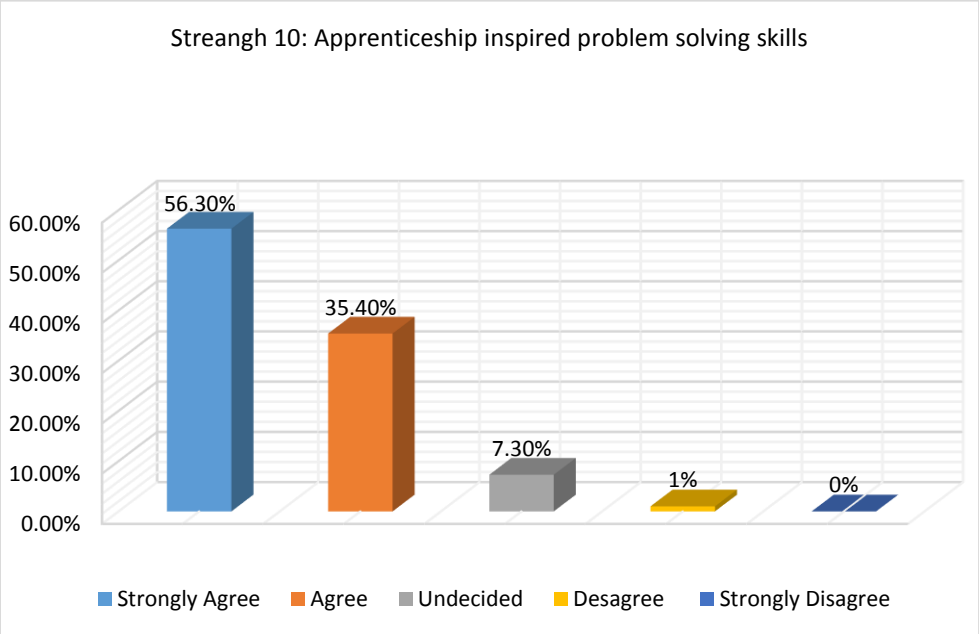

Figure 4.3. 10: Showing percentile of the respondents with bar chart for strength ten

4.4 Analysis of Objective 2

The table below indicate the data analysis of objective two and its interpretation.

Objective 2: To find the **weakness** of electro-medical engineering internship programs in government polytechnic institutes in Bangladesh.

Table 4.4. 1: Showing analyze the weakness of electro-medical engineering internship programs.

S/N	Statement	5(SA)	4(A)	3(U)	2(D)	1(SD)	WA	χ^2	Sig. Value	Df
1	Practical skills are not explicitly achieved by the internship program	14 (14.6%)	31 (32.3%)	3 (3.1%)	31 (32.3%)	17 (17.7%)	2.94	29.83	.000	4
2	The knowledge and skill gained through the internship program have no implication in real life situation	10 (10.4%)	17 (17.7%)	18 (18.8%)	38 (39.6%)	13 (13.5%)	2.72	25.15	.000	4
3	Duration of internship program is very short	42 (43.8%)	47 (49%)	1 (1%)	6 (6.3%)	- -	4.30	71.08	.000	3
4	Sometime internship program is irrelevant with the subject-matter (electro-medical engineering)	22 (22.9%)	58 (60.4%)	11 (11.5%)	3 (3.1%)	2 (2.1%)	3.99	111.40	.000	4
5	Industry-institution linkage is very poor and so most of the time demand of the job markets cannot picked up in the internship program	51 (53.1%)	7 (7.3%)	6 (6.3%)	15 (15.6%)	17 (17.7%)	3.63	70.67	.000	4
6	Overall cost for taking internship is very high	26 (27.1%)	36 (37.5%)	5 (5.2%)	26 (27.1%)	3 (3.1%)	3.58	43.69	.000	4
7	Some high quality private medical college did not allow student for the internship program.	60 (62.5%)	32 (33.3%)	3 (3.1%)	- -	1 (1%)	4.56	97.08	.000	3
8	The knowledge & skill was provide on only limited machineries.	31 (32.3%)	54 (56.3%)	3 (3.1%)	6 (6.3%)	2 (2.1%)	4.10	108.48	.000	4
9	Proper sharing of knowledge and experience are not takes place in the internship program	6 (6.3%)	46 (47.9%)	11 (11.5%)	32 (33.3%)	1 (1%)	3.25	75.77	.000	4
10	The trainer motivation of internship program is relatively low in terms of teaching, assessment etc.	2 (26%)	35 (36.5%)	9 (9.4%)	13 (13.5%)	14 (14.6%)	3.46	23.58	.000	4

Table 4.4. 2: No of Valid/Missing Questions in Questionnaire objective 2 and Statistics

Statistics

		Weakness1	Weakness2	Weakness3	Weakness4	Weakness5	Weakness6	Weakness7	Weakness8	Weakness9	Weakness10
N	Valid	96	96	96	96	96	96	96	96	96	96
	Missing	0	0	0	0	0	0	0	0	0	0
Mean		2.94	2.72	4.30	3.99	3.63	3.58	4.56	4.10	3.25	3.46
Std. Deviation		1.398	1.211	.783	.814	1.643	1.237	.662	.888	1.026	1.391

Table 4.4. 3: Showing Chi-Square Test Statistics of objective two

Test Statistics

	Weakness1	Weakness2	Weakness3	Weakness4	Weakness5	Weakness6	Weakness7	Weakness8	Weakness9	Weakness10
Chi-Square	29.83	25.15	71.08	111.40	70.67	43.69	97.08	108.48	75.77	23.58
df	4	4	3	4	4	4	3	4	4	4
Asymp. Sig.	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000

Statement 1, we observed that 14.6% of the respondents were strongly agree, 32.3% of the respondents were agree, 3.1% undecided, 32.3% disagree and 17.7% strongly disagree that the practical skills are not explicitly achieved by the internship program. The weighted average is 2.94 ($2.94 \geq 2.50$) which undecided that there is the practical skills not explicitly achieved by the internship program. Chi-square test was conducted at df = 4 with significant value of 0.000 which is less than 0.05 level of significance and Chi-square observed $_{\chi}o2$ (29.83) were greater than Chi-square critical $_{\chi}c2$ (9.49), that is $_{\chi}o2$ (29.83) > $_{\chi}c2$ (9.49) which indicates that the null hypothesis (responses on this statement are not statistically significant) is rejected that means research hypothesis is accepted. Therefore, the researcher concluded that it was statistically significant to agree that there is practical skills not explicitly achieved by the internship program.

Table 4.4. 4: Showing the opinion of the respondents for statement weakness one

Weakness1

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Strongly Disagree	17	17.7	17.7	17.7
	Disagree	31	32.3	32.3	50.0
	Undecided	3	3.1	3.1	53.1
	Agree	31	32.3	32.3	85.4
	Strongly Agree	14	14.6	14.6	100.0
	Total	96	100.0	100.0	

We were observed that by the bar chart 14.6% of the respondents were strongly agree, and 32.3% of the respondents were agree that practical skills are not explicitly achieved by the internship program in the Bangladesh, 3.1% undecided , 32.3% disagree and 17.7% strongly disagree that practical skills are not explicitly achieved by the internship program. So researcher have got the information maximum respondents disagree that practical skills appropriately and significantly gained by the internship training/program.

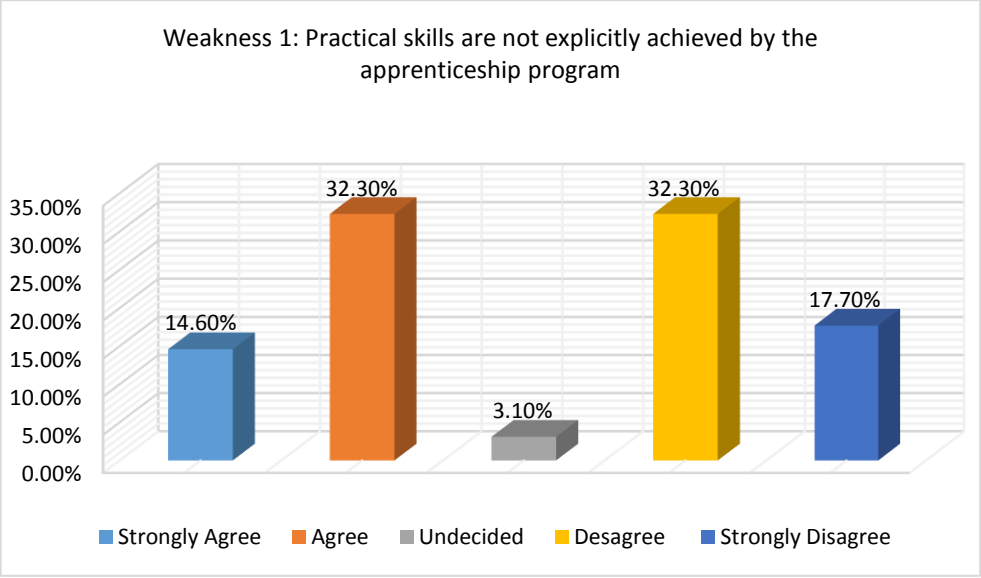

Figure 4.4. 1: Showing percentile of the respondents with bar chart for weakness one

Statement 2, we observed that 10.4% of the respondents were strongly agree, and 17.7% of the respondents were agree, 18.8% undecided, 39.6% disagree and 13.5% strongly disagree that the knowledge and skill gained through the internship program have no implication in real life situation. The weighted average is 2.94 (2.72 ≥ 2.50) which undecided that, there is the knowledge and skill gained through the internship program have no implication in real life situation. Chi-square test was conducted at df = 4 with significant value of 0.000 which is less than 0.05 level of significance and Chi-square observed $_{\chi}o2$ (25.15) were greater than Chi-square critical $_{\chi}c2$ (9.49), that is $_{\chi}o2$ (25.15) > $_{\chi}c2$ (9.49) which indicates that the null hypothesis (responses on this statement are not statistically significant) is rejected that means research hypothesis is accepted. Therefore, the researcher concluded that it was statistically significant to agree that there is the knowledge and skill gained through the internship program have no implication in real life situation.

Table 4.4. 5: Showing the opinion of the respondents for statement weakness two

Weakness2

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Strongly Disagree	13	13.5	13.5	13.5
	Disagree	38	39.6	39.6	53.1
	Undecided	18	18.8	18.8	71.9
	Agree	17	17.7	17.7	89.6
	Strongly Agree	10	10.4	10.4	100.0
	Total	96	100.0	100.0	

We were observed that by the bar chart 10.4% of the respondents were strongly agree, and 17.7% of the respondents were agree, 18.8% undecided , 39.6% disagree and 13.5% strongly disagree that practical skills are not explicitly achieved by the internship program. So researcher have got the information maximum respondents disagree that the knowledge and skill gained through the internship program have no implication in real life situation.

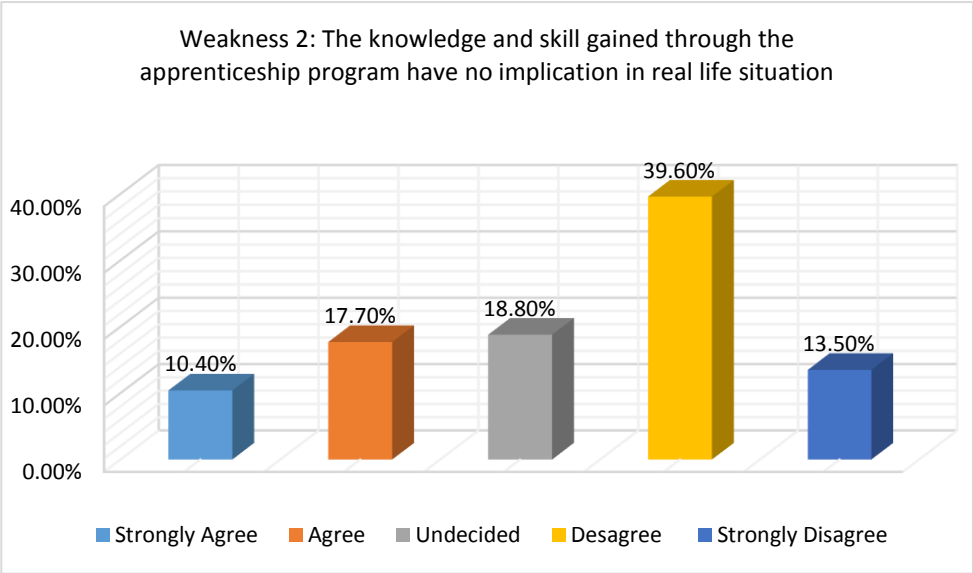

Figure 4.4. 2: Showing percentile of the respondents with bar chart for weakness two

Statement 3, we observed that 43.8% of the respondents were strongly agree, and 49% of the respondents were agree, 1% undecided, 6.3% disagree that the duration of internship program is very short. The weighted average is 4.30 ($4.30 \geq 3.50$) which agrees that, there is the duration of internship program is very short. Chi-square test was conducted at df = 3 with significant value of 0.000 which is less than 0.05 level of significance and Chi-square observed $_{\chi}o2$ (71.08) were greater than Chi-square critical $_{\chi}c2$ (7.82), that is $_{\chi}o2$ (71.08) > $_{\chi}c2$ (7.82) which indicates that the null hypothesis (responses on this statement are not statistically significant) is rejected that means research hypothesis is accepted. Therefore, the researcher concluded that it was statistically significant to agree that there is the duration of internship program is very short.

Table 4.4. 6: Showing the opinion of the respondents for statement weakness three

Weakness3

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Disagree	6	6.3	6.3	6.3
	Undecided	1	1.0	1.0	7.3
	Agree	47	49.0	49.0	56.3
	Strongly Agree	42	43.8	43.8	100.0
	Total	96	100.0	100.0	

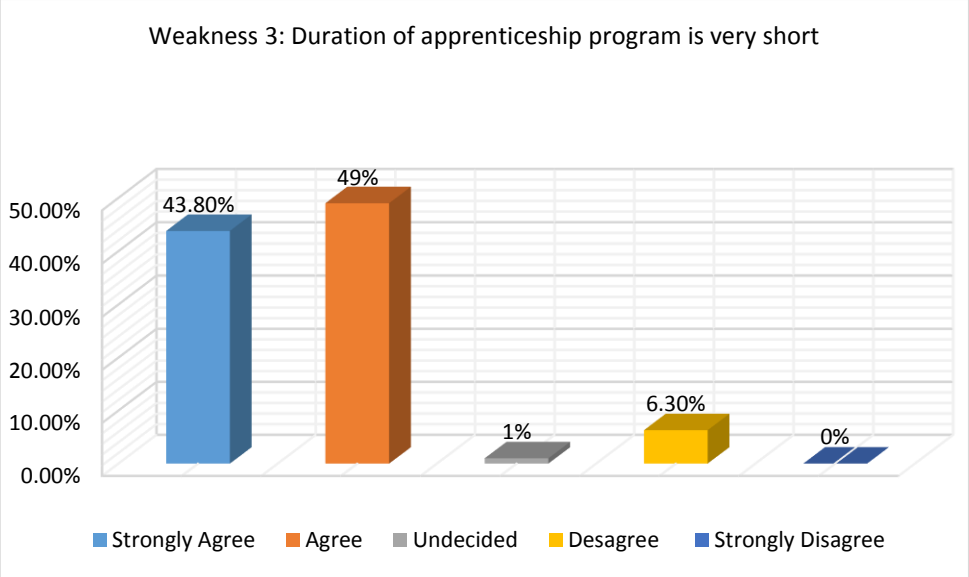

Figure 4.4. 3: Showing percentile of the respondents with bar chart for weakness three

Statement 4,we observed that 22.9% of the respondents were strongly agree, and 60.4% of the respondents were agree, 11.5% undecided, 3.1% disagree and 2.1% strongly disagree that sometime internship program is irrelevant with the subject-matter (electro-medical engineering).

The weighted average is 3.99 (3.99≥ 3.50) which agrees that, there is sometime internship program irrelevant with the subject-matter (electro-medical engineering). Chi-square test was conducted at df = 4 with significant value of 0.000 which is less than 0.05 level of significance and Chi-square observed $_{\chi}o2$ (111.40) were greater than Chi-square critical $_{\chi}c2$ (9.49), that is $_{\chi}o2$ (111.40) > $_{\chi}c2$ (9.49) which indicates that the null hypothesis (responses on this statement are not statistically significant) is rejected that means research hypothesis is accepted. Therefore, the researcher concluded that it was statistically significant to agree that there is sometime internship program is irrelevant with the subject-matter (electro-medical engineering).

Table 4.4. 7: Showing the opinion of the respondents for statement weakness four

Weakness4

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Strongly Disagree	2	2.1	2.1	2.1
	Disagree	3	3.1	3.1	5.2
	Undecided	11	11.5	11.5	16.7
	Agree	58	60.4	60.4	77.1
	Strongly Agree	22	22.9	22.9	100.0
	Total	96	100.0	100.0	

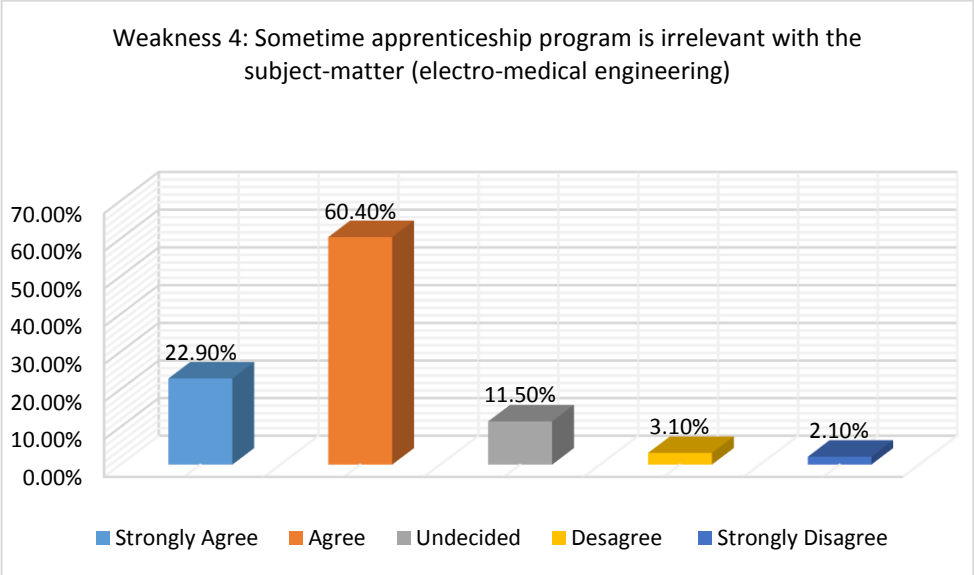

Figure 4.4. 4: Showing percentile of the respondents with bar chart for weakness four

Statement 5, we observed that 53.1% of the respondents were strongly agree, and 7.3% of the respondents were agree, 6.3% undecided, 15.6% disagree and 17.7% strongly disagree that industry-institution linkage is very poor and so most of the time demand of the job markets cannot picked up in the internship program. The weighted average is 3.63 ($3.63 \geq 3.50$) which agrees that, there is the industry-institution linkage very poor and so most of the time demand of the job markets cannot picked up in the internship program. Chi-square test was conducted at df = 4 with significant value of 0.000 which is less than 0.05 level of significance and Chi-square observed $\chi o2$ (70.67) were greater than Chi-square critical $\chi c2$ (9.49), that is $\chi o2$ (70.67) > $\chi c2$ (9.49) which indicates that the null hypothesis (responses on this statement are not statistically significant) is rejected that means research hypothesis is accepted. Therefore, the researcher concluded that it was statistically significant to agree that there is industry-institution linkage very poor and so most of the time demand of the job markets cannot picked up in the internship program.

Table 4.4. 8: Showing the opinion of the respondents for statement weakness five

Weakness5

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Strongly Disagree	17	17.7	17.7	17.7
	Disagree	15	15.6	15.6	33.3
	Undecided	6	6.3	6.3	39.6
	Agree	7	7.3	7.3	46.9
	Strongly Agree	51	53.1	53.1	100.0
	Total	96	100.0	100.0	

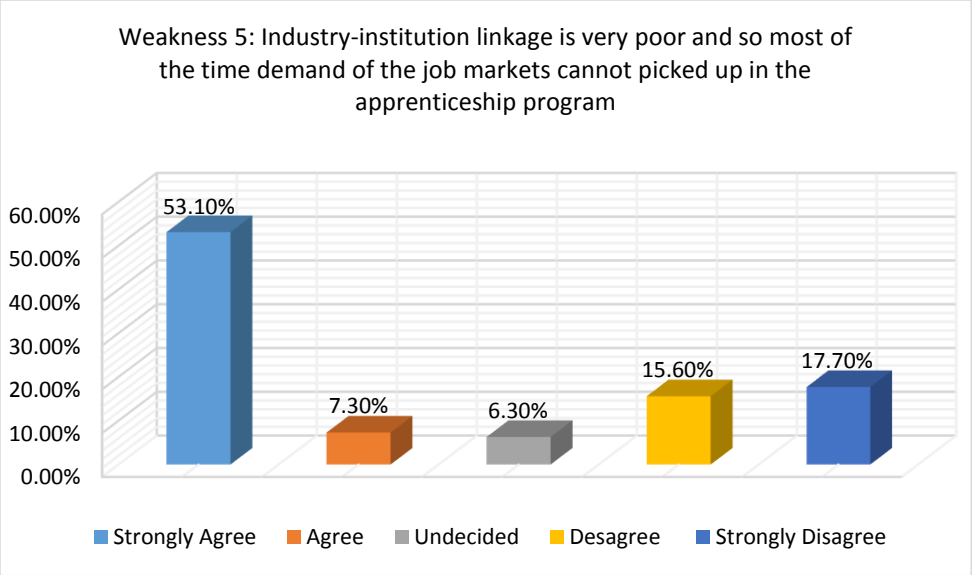

Figure 4.4. 5: Showing percentile of the respondents with bar chart for weakness five

Statement 6, we observed that 27.1% of the respondents were strongly agree, and 37.5% of the respondents were agree, 5.2% undecided, 27.1% disagree and 3.1% strongly disagree that overall cost for taking internship is very high. The weighted average is 3.58 ($3.58 \geq 3.50$) which agrees that, there is overall cost for taking internship very high. Chi-square test was conducted at df = 4 with significant value of 0.000 which is less than 0.05 level of significance and Chi-square observed $_{\chi}o2$ (43.69) were greater than Chi-square critical $_{\chi}c2$ (9.49), that is $_{\chi}o2$ (43.69) > $_{\chi}c2$ (9.49) which indicates that the null hypothesis (responses on this statement are not statistically significant) is rejected that means research hypothesis is accepted. Therefore, the researcher concluded that it was statistically significant to agree that there is overall cost for taking internship very high.

Table 4.4. 9: Showing the opinion of the respondents for statement weakness six

Weakness6

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Strongly Disagree	3	3.1	3.1	3.1
	Disagree	26	27.1	27.1	30.2
	Undecided	5	5.2	5.2	35.4
	Agree	36	37.5	37.5	72.9
	Strongly Agree	26	27.1	27.1	100.0
	Total	96	100.0	100.0	

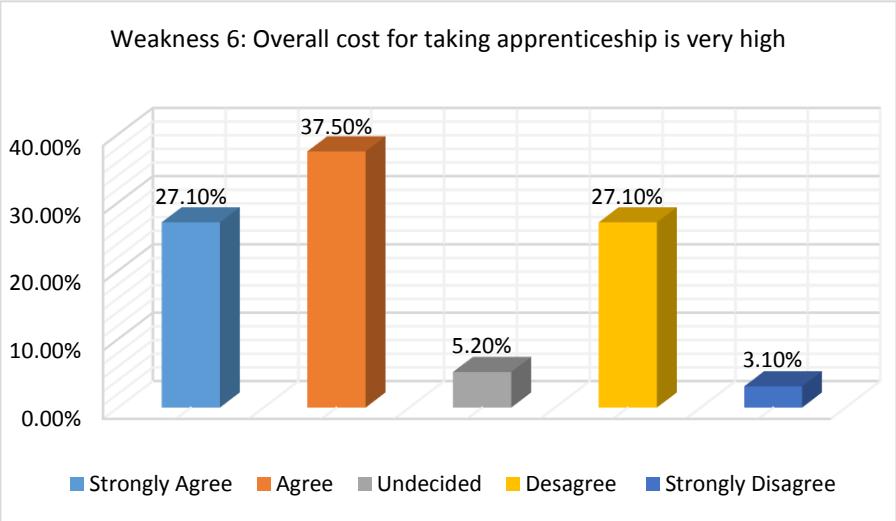

Figure 4.4. 6: Showing percentile of the respondents with bar chart for weakness six

Statement 7, we observed that 62.5% of the respondents were strongly agree, and 33.3% of the respondents were agree, 3.1% undecided and 1% strongly disagree that some high quality private medical college did not allow student for the internship program. The weighted average is 4.56 (4.56 ≥ 4.50) which strongly agrees that, there is some high quality private medical college did not allow student for the internship program. Chi-square test was conducted at df = 3 with significant value of 0.000 which is less than 0.05 level of significance and Chi-square observed $_{\chi}$o2 (97.08) were greater than Chi-square critical $_{\chi}$c2 (7.82), that is $_{\chi}$o2 (97.08) > $_{\chi}$c2 (7.82) which indicates that the null hypothesis (responses on this statement are not statistically significant) is rejected that means research hypothesis is accepted. Therefore, the researcher concluded that it was statistically significant to agree that there is some high quality private medical college did not allow student for the internship program.

Table 4.4. 10: Showing the opinion of the respondents for statement weakness seven

Weakness7

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Strongly Disagree	1	1.0	1.0	1.0
	Undecided	3	3.1	3.1	4.2
	Agree	32	33.3	33.3	37.5
	Strongly Agree	60	62.5	62.5	100.0
	Total	96	100.0	100.0	

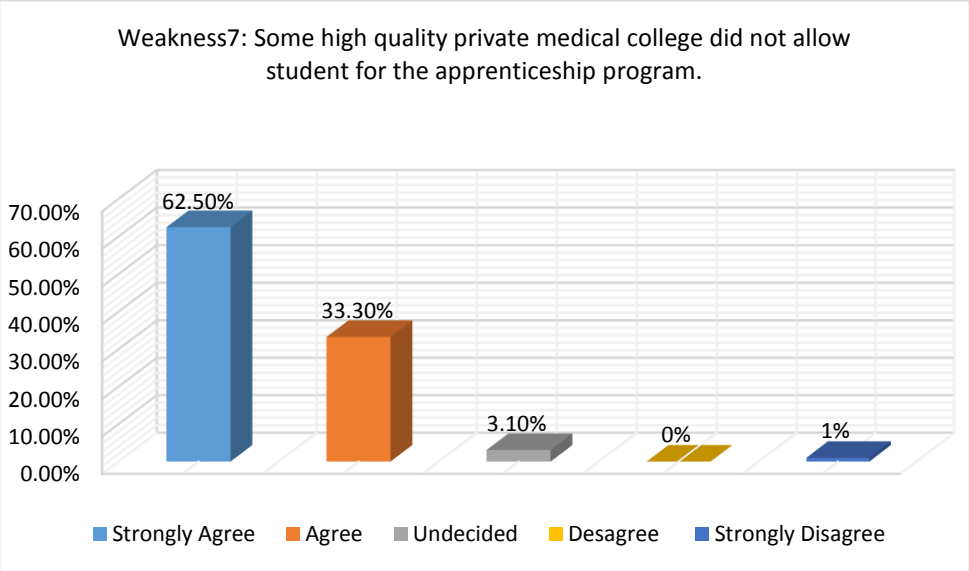

Figure 4.4. 7: Showing percentile of the respondents with bar chart for weakness seven

Statement 8, we observed that 32.3% of the respondents were strongly agree, and 56.3% of the respondents were agree, 3.1% undecided, 6.3% disagree and 2.1% strongly disagree that the knowledge & skill was provide on only limited machineries. The weighted average is 4.10 (4.10 ≥ 3.50) which agrees that, there is the knowledge & skill was provide on only limited machineries. Chi-square test was conducted at df = 4 with significant value of 0.000 which is less than 0.05 level of significance and Chi-square observed $_{\chi}o2$ (108.48) were greater than Chi-square critical $_{\chi}c2$ (9.49), that is $_{\chi}o2$ (108.48) > $_{\chi}c2$ (9.49) which indicates that the null hypothesis (responses on this statement are not statistically significant) is rejected that means research hypothesis is accepted. Therefore, the researcher concluded that it was statistically significant to agree that there is the knowledge & skill was provide on only limited machineries.

Table 4.4. 11: Showing the opinion of the respondents for statement weakness eight

Weakness8

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Strongly Disagree	2	2.1	2.1	2.1
	Disagree	6	6.3	6.3	8.3
	Undecided	3	3.1	3.1	11.5
	Agree	54	56.3	56.3	67.7
	Strongly Agree	31	32.3	32.3	100.0
	Total	96	100.0	100.0	

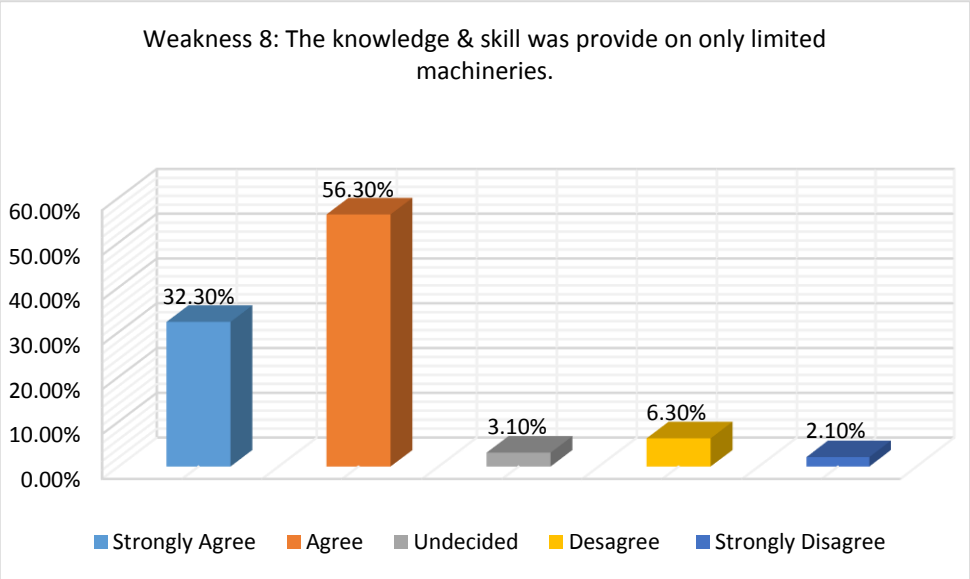

Figure 4.4. 8: Showing percentile of the respondents with bar chart for weakness eight

Statement 9, we observed that 6.3% of the respondents were strongly agree, and 47.9% of the respondents were agree, 11.5% undecided, 33.3% disagree and 1% strongly disagree that proper sharing of knowledge and experience are not takes place in the internship program. The weighted average is 3.25 (3.25 ≥ 2.50) which undecided that, there is proper sharing of knowledge and experience not takes place in the internship program. Chi-square test was conducted at df = 4 with significant value of 0.000 which is less than 0.05 level of significance and Chi-square observed $_{\chi}o2$ (75.77) were greater than Chi-square critical $_{\chi}c2$ (9.49), that is $_{\chi}o2$ (75.77) > $_{\chi}c2$ (9.49) which indicates that the null hypothesis (responses on this statement are

not statistically significant) is rejected that means research hypothesis is accepted. Therefore, the researcher concluded that it was statistically significant to agree that there is proper sharing of knowledge and experience not takes place in the internship program.

Table 4.4. 12: Showing the opinion of the respondents for statement weakness nine

Weakness9

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Strongly Disagree	1	1.0	1.0	1.0
	Disagree	32	33.3	33.3	34.4
	Undecided	11	11.5	11.5	45.8
	Agree	46	47.9	47.9	93.8
	Strongly Agree	6	6.3	6.3	100.0
	Total	96	100.0	100.0	

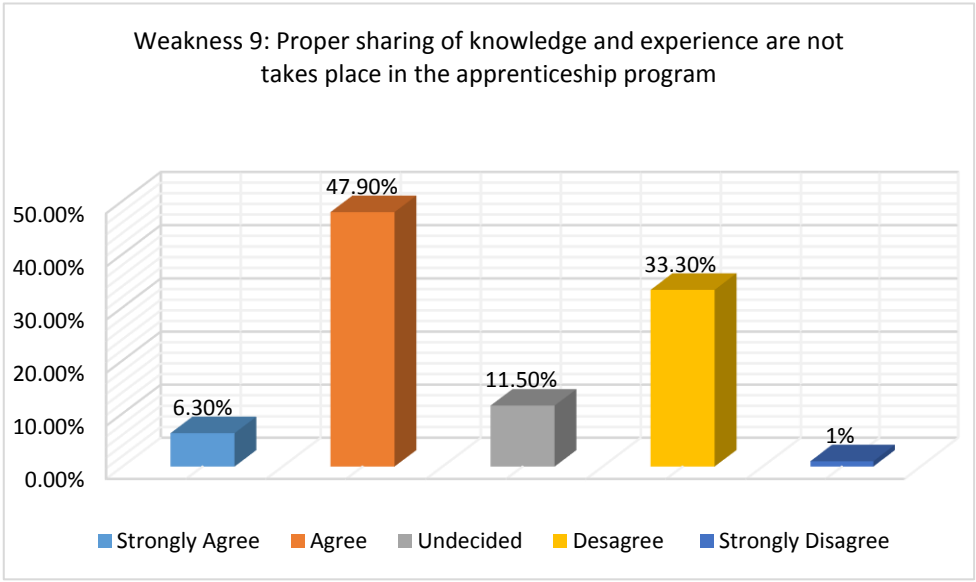

Figure 4.4. 9: Showing percentile of the respondents with bar chart for weakness nine

Statement 10, we observed that **2**6% of the respondents were strongly agree, and 36.5% of the respondents were agree, 9.4% undecided, 13.5% disagree and 14.6% strongly disagree that the trainer motivation of internship program is relatively low in terms of teaching, assessment etc. The weighted average is 3.46 ($3.46 \geq 2.50$) which undecided that, there is the trainer motivation of internship program relatively low in terms of teaching, assessment etc. Chi-square test was

conducted at df = 4 with significant value of 0.000 which is less than 0.05 level of significance and Chi-square observed $_{\chi}$o2 (23.58) were greater than Chi-square critical $_{\chi}$c2 (9.49), that is $_{\chi}$o2 (23.58) > $_{\chi}$c2 (9.49) which indicates that the null hypothesis (responses on this statement are not statistically significant) is rejected that means research hypothesis is accepted. Therefore, the researcher concluded that it was statistically significant and undecided that there is the trainer motivation of internship program relatively low in terms of teaching, assessment etc.

Table 4.4. 13: Showing the opinion of the respondents for statement weakness ten

Weakness10

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Strongly Disagree	14	14.6	14.6	14.6
	Disagree	13	13.5	13.5	28.1
	Undecided	9	9.4	9.4	37.5
	Agree	35	36.5	36.5	74.0
	Strongly Agree	25	26.0	26.0	100.0
	Total	96	100.0	100.0	

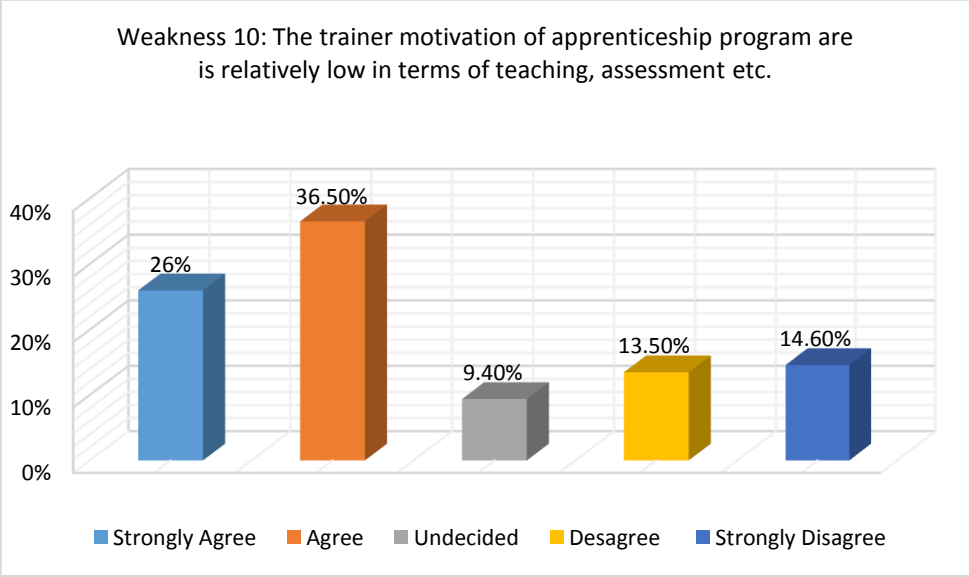

Figure 4.4. 10: Showing percentile of the respondents with bar chart for weakness ten

4.5 Objective 3: To suggest how to improve the TVET internship programs in government polytechnic institutes in Bangladesh.

Total number of respondents, N = 96.

Table 4.5. 1 Respondents' suggestions/opinion

Sl	Opinion/ Statement	No of respondent	Percent of respondents	Key suggestions
1	It is important to improve students' motivation to participate in the internship program	45	43.3%	
2	The trainees would be motivated if the internship training institute provides them part-time jobs after completion their training	90	86.4%	**
3	The time duration of Internship program should be extended up to six months from three months	75	72%	**
4	The hospital should be equipped with modern workshop with Electro-medical equipment	50	48%	
5	It is needed to increase stipend or allowance for the interns	65	62.4%	
6	In internship program some "Electro-medical equipment repairing practice" should be included for enhancing the practical skill of the interns	80	76.8%	**
7	The training environment should be pleasant and comfortable for training on Electro-medical engineering	40	38.4%	
8	There is very limited linkage with private-medical and TVET institutions	65	62.4%	
9	The medical equipment are not adequate to provide training nicely	75	72%	**
10	More priority should be given to practical aspects than theory	67	64.32%	
11	There is a lack of skilled trainer in internship program in the field of Electro-medical engineering	73	70.08%	**
12	The obsoleted electro-medical equipment should be kept in a museum so that the interns would get the idea on Old equipment	48	46.08%	

** Key-suggestions revealed by Open-ended answers.

CHAPTER 5

Summary, Finding, Conclusion and Recommendation

5.1 Introduction

This chapter deals with the summary, finding, conclusion and recommendations.

5.2 Summary

The purpose of this study was to find out the strengths and weakness of internship programs in TVET of government polytechnics institutes in Bangladesh.

The study was carried out on the basis of the following objectives;

- To find out strength of electro-medical engineering internship programs in government polytechnic institutes in Bangladesh.
- To find out weakness of electro-medical engineering internship programs in government polytechnic institutes in Bangladesh.
- To suggest how to improve the TVET internship programs in government polytechnic institutes in Bangladesh.

A questionnaire was designed which consist of five point scale type of statements where the respondents had to select the best match their opinion. The questionnaire developed by the researcher based on the literature reviewed and suggested by supervisor. The valid for the questionnaire was approved by an expert and it was designed in an easy and simple format for better understanding. Weighted average and Chi-square tests were conducted and used to analyze and interpret the data using SPPS software. The population of the study was selected from internship electro-medical engineering programs of government polytechnics institutes in Bangladesh, which consists of students for the convenience of the data collections of the study. The research was conducted using 80% of the population. Thus, the sample of the research was 96. Then 100% percent rate of questionnaires were fully returned , and the required data were generated and analyzed using Statistical Packages for Social Science (SPPS) software version 24 from the collected copies of the questionnaires where all parts of the data were interpreted. At the level of significance, 0.05 using Chi-square test, collected data statistically analyzed, percentage and weighted average were also calculated. The research find out major **strengths** of internship program such as: attainment of practical skills that are useful to real life situation; the internship program helped the trainees to get acquainted with functions of scientific machineries, which in turn build the capacity of trainees for their future world of work; the

internship program also helps in bridging the gap between knowledge acquired in the institutions and the industrial tasks; and finally, it provides opportunity for trainees to enhance their problem solving skills and develop the ability to communicate ideas professionally and enhance. The research find out major **weakness** of internship program such as: Short duration of the entire program; though internship program was found to provide adequate knowledge and skill to the trainees, these limited to few machineries only; some of the reputable medical colleges were not accepting students for internship program. The respondents gave their opinions about improvement of the TVET internship programs in government polytechnic institutes in Bangladesh. According to the respondents comments the research revealed some **suggestions** of the internship program such as: the time duration of internship program should be extended, the trainees would be motivated if the internship training institute provides them part-time jobs after completion their training lack of skilled trainer in internship program of Electro-medical sector, lack of students' motivation to participate in practical class, the medical institutions should improve their medical instruments for training, and poor linkage between hospitals and TVET institutions. So based on the analysis and interpretation findings and conclusions were drawn. Then based on the findings and conclusion recommendations are made.

5.3 Findings

From the data analyzed, the findings include the following as stated below:

1. From table 4.3.1 the analysis and interpretation of collected data was found that, the responses on this statement was statistically significant to say that majority with overall weighted mean of 4.30 , of the respondents were agree that the strength of Electro-medical engineering internship program. The results from the analysis show that all the respondents gave their opinion about strength in electro-medical engineering internship programs in government polytechnic institutes in Bangladesh. That side researcher identified a lot of strength such strength include that the internship helped the trainees to acquainted with the functions of scientific machineries; it was found that the responses on this statement was statistically significant to say that majority some of the respondents strongly agree. Another strengths include most of respondents agree that the practical skills were appropriately and significantly gained by the internship training/program, the knowledge and skill gained by the internship program is useful for real life situation, internship program build the capacities of the trainees for their

future world of work, skill achieved by the internship connect the knowledge which was gained from polytechnic, the unfamiliar problems are clarified in the internship, internship program developed ideas and enhanced experiences, internship helped to develop ability to communicate ideas professionally with people, internship enhanced creativity of the trainees, internship inspired problem solving skills. So the from findings it indicated that the responses on this statements were statistically significant for the strength in an internship program. The research find out major **strengths** of internship program such as:

- ✓ the internship program helped the trainees to get acquainted with functions of scientific machineries,
- ✓ The knowledge and skill gained by the internship program is useful for real life situation
- ✓ Internship inspired problem solving skills
- ✓ Internship program developed ideas and enhanced experiences

2. From table 4.4.1 the analysis and interpretation of collected data was found that, the responses on this statement was statistically significant to say that majority with overall weighted mean of 3.70 , of the respondents were agree that the weaknesses of Electro-medical engineering internship program. The results from the analysis show that all the respondents gave their opinion about weaknesses in electro-medical engineering internship programs in government polytechnic institutes in Bangladesh. That side researcher identified a lot of weakness such strength include that some high quality private medical college did not allow student for the internship program; it was found that the responses on this statement was statistically significant to say that majority some of the respondents strongly agree. Another weakness include most of respondents agree that the duration of internship program is very short, sometime internship program is irrelevant with the subject-matter (electro-medical engineering), industry-institution linkage is very poor and so most of the time demand of the job markets cannot picked up in the internship program, and overall cost for taking internship is very high. The weakness statement that practical skills are not explicitly achieved by the internship program found that the responses on the statement was statistically significant to say that majority of the respondents was undecided with the statement. The knowledge and skill gained through the internship program have no implication in real life situation found that the responses on the statement was statistically significant

to say that majority of the respondents were undecided with the statement. Proper sharing of knowledge and experience are not takes place in the internship program, and the trainer motivation of internship program is relatively low in terms of teaching, assessment etc statements found that the responses on the statements were statistically significant to say that majority of the respondents were undecided with the statements. The research find out major **weakness** of internship program such as:

- ✓ Duration of internship program is very short
- ✓ Some high quality private medical college did not allow student for the internship program
- ✓ The knowledge & skill was provide on only limited machineries

3. The third objective was to make recommendations for actions needed for better improving of internship program. Most of the respondents gave their opinion that they need to be exposed to job facilities in the training center. Most of the recommended that the internship program time and duration needs to be extended, and there is the lack of skilled trainer in internship program of Electro-medical sector. Respondents considered it is important to improve students' motivation to participate in practical class.

   The respondents opinion that:

   - ✓ Lack of modern workshop
   - ✓ Weak linkage between good private hospitals and institutions
   - ✓ Lack of medical instrument
   - ✓ Weak linkage between industry and institutions
   - ✓ Lack of suitable environment to activities of Electro-medical sector in internship program
   - ✓ Lack of the Electro-medical equipment repairing practices for skill development
   - ✓ Lack of guide, responsibility and punctuality
   - ✓ Lack of priority for practical aspect of the program.
   - ✓ Lack of the practical skills about the scientific machines.

5.4 Discussion of Findings

Through the sample selected which comprised of students and analyzed data related to the study the strengths and weakness of Internship programs in TVET: Government Polytechnics Institutes in Bangladesh, The findings include the following as stated below:

5.4.1: Findings on the strength of electro-medical engineering internship programs

The results from the analysis show that the responses on this statement was statistically significant to say that majority of the some respondents strongly agree and some respondents agree that to identified strengths in electro-medical engineering of the Internship program. This findings is related to the findings of the exploratory research done in internship at Greek universities by Mihail, D.M. (2006), has shown that internships had the greatest impact on academic and enterprise skills. According to the ratings given by the students, the most important benefits were accrued in the areas of skills such as Specialist knowledge, Information technology, Time management, Communication skills, Ability to prioritize tasks, Teamwork. Thus clearly evident from the results that the industrial internship programme is effective in gaining skills such as personal skills and enterprise skills of the students. This findings is related to the findings of Baird, (1996); Kuh, (2008); Paris & Adams, (1994) on bridge classroom learning with professional practice. This finding is also related to the finding of Tovey (2001) on enhancing understanding of personal characteristics. Raymond, McNabb & Matthaei, (1993) said that internship increase exposure to ethical matters. Sattler, (2011) found that internship increase opportunity for career exploration. Maskooki, Rama Raghunandan, (1998), Perry (1989), Swift & Kent (1999) claimed that, internship increase marketability based on job-related skill development. Knouse and Fontenot (2008), Maskooki, Rama and Raghunandan (1998) found that internship enhance understanding of realistic expectations in the workplace.

5.4.2: Findings on the weakness of electro-medical engineering internship programs

The results from the analysis show that the responses on this statement was statistically significant to say that majority of the some respondents strongly agree, some respondents agree and some respondents undecided that to identified weakness in electro-medical engineering of the internship programs. The weakness statement that practical skills are not explicitly achieved by the internship program found that the responses on the statement was statistically significant to say that majority of the respondents was undecided with the statement. The knowledge and skill gained through the internship program have no implication in real life situation found that the responses on the statement was statistically significant to say that majority of the respondents was undecided with the statement. Proper sharing of knowledge and experience are not takes place in the internship program, and the trainer motivation of internship program is relatively low in terms of teaching, assessment etc. It was found that the responses on the statements were statistically significant to say that majority of the respondents were undecided

with the statements. This finding is related to the findings of Sattler (2011), found that cultural differences (e.g., international students), insufficient funding to carry out internship experiences, difficulty balancing the number of internship opportunities available with the number of students who are interested as major weakness of the internship. Schmutte (1986), mentioned lack of interest on behalf of an involved stakeholder as a weakness to internship. This findings is also related to the findings of an exploratory study of Internship at Greek universities (M.Mihali, 2006) which also revealed that brief length of internship as a weakness and it suggested that internship period ranging from six to twelve month would benefit both students and employing firms. The suggestions for improvement given by students who completed internship programme at Host company are, need for proper training schedule to cover all the departments in the company, overall training than specialized training, Projects allocation, need to give more chances to apply theoretical based learning to industrial activities, Factory visits and supplier/customer visits, Freedom to work independently, Proper evaluation should be done by HR and need more participation for team work activities. However findings suggest that students' perception for internship programme of Host Company is average and need further improvement in order to get more benefits for the students, university and organization as a whole.

5.4.3 Findings on the suggest how to improve the TVET internship programs

The third objective was to make recommendations for actions needed for better improving of internship program. According to the respondents comments the research revealed some **suggestions** of the internship program such as: the time duration of internship program should be extended, the trainees would be motivated if the internship training institute provides them part-time jobs after completion their training lack of skilled trainer in internship program of Electro-medical sector, lack of students' motivation to participate in practical class, the medical institutions should improve their medical instruments for training, and poor linkage between hospitals and TVET institutions. This findings is related to the findings of the exploratory research done in internship at Greek universities by Mihail, D.M. (2006), which also suggests that there should be a proper training schedule to cover the all departments in the organization. Also this study revealed that students have low opportunity for training in each department in the organization. Further to above positive feedback is given for real job experience providing, transport, meal and good allowance providing. Also University Teknology PETRONAS's internship at Malaysia highlights the importance of a well-structured internship programme and therefore, a well-structured internship programme will ensure greater opportunities for the

interns to gain the much needed working experience in the limited time given to them. Also it suggests that both industry and academic work together to develop a comprehensive industrial internship programme that will provide relevant practical experience and knowledge to the students.

5.5 Conclusion

The aims of the study were identifying the strengths and weakness of Internship programs in TVET of Government Polytechnics Institutes in Bangladesh. In general, we may conclude that the interns perceive the internship attachment as significantly able to give them the expected benefits. However, the internship is regarded as successfully providing avenue for enhancing the interns practical knowledge and skill. The interns generally felt that the present internship period is not sufficient for them to learn and gain the expected knowledge from the internship program. Internship program are merely there for students to have a feel of the real life working environment. There is very limited time for students to really get practical working experience. Therefore a formally designed program with adequate timing will ensure that, students get value for the internship program. They will be able to learn a lot of skills within the limited time available for internship program. This factor may possibly contribute towards the gaps in their perception as described in the preceding section. Further study needs to be conducted to investigate more on these findings.

5.6 Recommendations

The finding of research and conclusions at "**the strengths and weakness of Internship programs in TVET: Government Polytechnics Institutes in Bangladesh,"** the following recommendations can be made, that:

1. More resources or budget should be allocated on TVET institutions for the learners of Internship programs.
2. Government should encourage acquisition of practical skills by equipping the laboratories and workshops with modern machines and equipment, and ensure adequate utilization of the material by the students
3. Authority may have to ensure that interns are given job opportunities in the training centers
4. Government may have to ensure that stipend are increased.

5. Authority may have to ensured that only skilled-trainers are involved in handling practical class in internship program of Electro-medical sector
6. Government should encourage the overall training system should be improved
7. Authority may have to ensure that the suitable environment to activities of Electro-medical sector in internship program.
8. Government may have to ensure that there is linkage between good private hospitals and institutions.
9. There should have facilities of the Electro-medical equipment repairing practices for skill development.
10. Authority may have to ensure that the obsoleted electro-medical equipment should be kept in a museum so that the interns would get the idea on Old equipment

5.7 Further Study

Due to some limitations only three Polytechnics were taken as sample. Further study in this topic is necessary, to include more Polytechnic institutes. There is the need to extend this research on a larger sample size and also carry out similar research in another country. It will be good to investigate the problem through direct observations, inventory of field, face-to-face interview or other data collection methods to avoid biasness.

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APPRENDIX

ISLAMIC UNIVERSITY OF TECHNOLOGY

Department of Technical and Vocational Education

Board Bazar Gazipur 1704, Dhaka - Bangladesh.

QUESTIONNAIRE

Dear respondents,

Please be informed that I am graduate student currently pursuing Master of Science in Technical Education with specialization in Electrical and Electronic Engineering at Islamic University of Technology (IUT), Dhaka - Bangladesh. As part of the requirement for the award of the aforementioned degree, I am conducting a research on **a study to identify the strengths and weakness of Internship programs in TVET: Government Polytechnics Institutes in Bangladesh.** I will appreciate if you could spare some time and respond to the following sections of the questionnaire. All personal information will be kept strictly confidential.

Section I: Respondent's Details

Name of Institution:…….

Age:……Gender:……...

Program of Study:……

Specialization:……

…….

Place of Internship:…..

…..……

……

Duration:……

Section II

Objective 1: To find out the strength of electro-medical engineering internship programs in government polytechnic institutes in Bangladesh.

Please check (√) based on your opinion on the following statements using the defined scales:
(SA = Strongly Agree, A = Agree, U = Undecided, D = Disagree, SD= Strongly Disagree)

S/NO	STATEMENTS	SA(5)	A(4)	U(3)	D(2)	SD(1)
1	Practical skills were appropriately and significantly gained by the internship training/program					
2	The knowledge and skill gained by the internship program is useful for real life situation					
3	Internship helped the trainees to acquainted with the functions of scientific machineries					
4	Internship program build the capacities of the trainees for their future world of work					
5	Skill achieved by the internship connect the knowledge which was gained from Polytechnic					
6	The unfamiliar problems are clarified in the internship					
7	Internship program developed ideas and enhanced experiences					

8	Internship helped to develop ability to communicate ideas professionally with people					
9	Internship enhanced creativity of the trainees					
10	Internship inspired problem solving skills					

<u>Objective 2:</u> To find out the weakness of electro-medical engineering internship programs in government polytechnic institutes in Bangladesh.

Scale of answers ranges between: **(SA = Strongly Agree, A = Agree, U = Undecided, D = Disagree, SD= Strongly Disagree)**

S/NO	STATEMENTS	SA(5)	A(4)	U(3)	D(2)	SD(1)
1	Practical skills are not explicitly achieved by the internship program					
2	The knowledge and skill gained through the internship program have no implication in real life situation					
3	Duration of internship program is very short					
4	Sometime internship program is irrelevant with the subject-matter (electro-medical engineering)					
5	Industry-institution linkage is very poor and so most of the time demand of the job markets cannot picked up in the internship program					
6	Overall cost for taking internship is very high					
7	Some high quality private medical college did not allow student for the internship program.					
8	The knowledge & skill was provide on only limited machineries.					
9	Proper sharing of knowledge and experience are not takes place in the internship program					
10	The trainer motivation of internship program is relatively low in terms of teaching, assessment etc.					

<u>Objective 3:</u> To suggest how to improve the TVET internship programs in government polytechnic institutes in Bangladesh.

Q1. Write one/two Strengths of the internship program:

-
-

Q2. Write one/two Weakness of the internship program:

-
-

Q3. Please suggest how to improve the internship program:

-
-
-

Q4. Give 2 or 3 recommendations to the TVET Institutions for improving internship program:

-
-
-

Q5. Write 2 or 3 recommendations to the Hospital authorities for improving internship program:

-
-

Thank you for your sincere response.

Researcher

Nazmin Mahmuda Lina
Student No: 153601

Research Supervisor

Dr. Md. Abu Raihan
Associate Professor, TVE Dept., IUT