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Thesis

A study on provisionary teacher's teaching performance of electrical engineering subjects in public polytechnic institutes in Bangladesh.

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DECLARATION

This project work is authentic and it is an outcome of the investigation carried out by **Md. Sharif Hossain** under the supervision of **Dr. Md. Abu Raihan**, in the Department of Technical and Vocational Education (TVE), Islamic University of Technology (IUT), the Organization of the Islamic Cooperation (OIC) Gazipur, Bangladesh. It is hereby declared that this thesis /report or any part of it has never been submitted elsewhere for the award of any Degree or Diploma. All literature and contributions cited are fully acknowledged.

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Professor.Dr. Md. Abu Raihan   **Md. Sharif Hossain**

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DEDICATED

This thesis is dedicated to my family for all their continued love and support. First and foremost to my beloved parents MD. FAIZ UDDIN and SHAMSUN NAHER also my beloved sister JARNA AKTER and cute mama HOMAIRA ZARIN HADIKA for all of their support and encouragement. You have successfully made me the person I am becoming.

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Md.Sharif Hossain

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ABBRABEATIONS

BTEB   : Bangladesh Technical Education Board

DTE   : Directorate of Technical Education

GPA   : Grade Point Average

HSC   : Higher Secondary Certificate

ICT   : Information and Communication Technology

ILO   : International Labour Organization

IT   : Information Technology

IUT   : Islamic University of Technology

MoE   : Ministry of Education

MSc.TE   : Master of Science in Technical Education

NSDC   : National Skills Development Council

NSDP   : National Skills Development Policy

NGO   : Non-Government Organization

OIC   : Organization of Islamic Cooperation

SSC   : Secondary School Certificate

STEP   : Skills and Training Enhancement Project

SPSS   : Statistical Packages for Social Science

TSC   : Technical Schools and College

TTC   : Teachers Training College

TTC   : Technical Training Center

TVET   : Technical and Vocational Education and Training

TVE   : Technical and Vocational Education

ABSTRACT

Adequate skills are required in preparing TVET graduates to fit in today's digital world. If the graduates to get a proper guideline then possible to fit in today's digital world. One day provisionary teachers will be experts in the future then graduates' students can get more effective information. Most teacher educators would agree that one of the primary goals of a teacher preparation program is to teach individuals how to become good teachers. What is open to debate is exactly what characteristics define good teachers. Although there is a vast literature on good teaching, few studies have compared the beliefs of individuals at various educational levels using a variety of investigative techniques. The purpose of this study was to identify provisionary Teachers Teaching performance in public polytechnic institutes in Bangladesh and to identify provisionary teachers using teaching aids in the classroom during class time. The researchers founded here the provisionary teachers teaching performances are excellent, very good, good, poor and very poor, and also observed them what is the level of using teaching aids in the classroom during class time. This is quantitative research. The study will delimit by only public Polytechnic institutes. The subject of the research was the teachers, students and the head of the department of electrical Technology. A total number of five (5) polytechnic were selected to collect the research data. The research adopted the methods to collect research data by using questionnaires from students and also observed the teachers during class time. The students and teachers were selected to carry out the research data. Then, the research data have been analyzed by the SPSS software 25.0. The results from the analysis shown that assess public polytechnic provisionary teacher's teaching performance to using teaching aids during teaching engineering subjects were significant at the difference of 0.05 significance level but it was found that the mean value obtained the public polytechnic provisionary teachers are using very good teaching aids during a teaching in the classroom. Also identified provisionary teachers teaching performance is very good.The researcher got that result by using the chi-square test. In the statement wise Chi-

square test, it was found the majority of teachers were facing difficulties to use the internet in the classroom during teaching engineering subject. The findings of the study may provide useful information to the authorities of TVET as well as to polytechnic institutes in order to improve provisionary teacher's performance and teachers' technical skills in the use of teaching aids. The study may also help to identify the problems and throw some light on how to overcome the problems related to implementing an integrated curriculum and other related institutional facilities.

CHAPTER - ONE

1.1 Introduction

The teacher those have less than one-year teaching experience in public polytechnic institutes in Bangladesh is meant by provisional teachers in the research. Development of a Nation depends on her education and the quality of education depends on resources, material, environment, and qualified teachers. The teacher can be rightly called a nation builder. Flourishing national development and a society truly prosperous with knowledge all begins from its teachers. Knowledge cannot be acquired if it is not sought and received through the help of the teachers. Teachers, therefore, have to play a cardinal role in the building up of the character of the next generation. It is a fact that a civilization cannot rise out of a skeleton of mere ideas and abstract concepts.

A nation whose greater proportion of the population is educated is halfway through to success and this is how important education is (Owusu Boakye 2014). They should stand firm on the centuries-old foundations of their cultural tradition and at the same time should establish standards of excellence in their academic performance. Because of this, teachers need to have a high level of commitment to their duties and responsibilities. But nowadays the teaching profession is facing problems related to teachers' job satisfaction (Ahmed 2015). Teacher professional learning is of increasing interest as one way to support the increasingly complex skills students need to learn in preparation for further education and work in the 21st century.

1.2 Statement of the problem

Every year we got a lot of Diploma Engineers but they are not perfectly skilled in their field. Good teacher teaching performance is very important to develop their skills. Corresponding to other developing countries of Asia Bangladesh also faces the real challenges of empowerment of downtrodden through capability development. The government of Bangladesh takes support from donor agencies to driving a skill of teachers teaching development programs in a different part of the country. Sophisticated forms of

teaching are needed to develop student competencies such as deep mastery of challenging content, critical thinking, complex problem-solving, effective communication and collaboration, and self-direction. In turn, effective professional development (PD) is needed to help teachers learn and refine the pedagogies required to teach these skills. In this review, we define effective professional development as structured professional learning that results in changes to teacher knowledge and practices, and improvements in student learning outcomes. Research suggests that there are academic benefits when students and teachers share the same race/ethnicity because such teachers can serve as role models, mentors, advocates, or cultural translators (Egalite, Kisida, et al. 2015). Teachers' effectiveness rises rapidly in the first year or two of their teaching careers but then quickly levels out. It is difficult to identify at the time of hiring those teachers who will prove more effective. As a result, better teachers can only be identified after some evidence on their actual job performance has accumulated (Staiger and Rockoff 2010).

Teachers are the building blocks of universities. (Rasheed, Aslam, et al. 2010). Most institutes, especially institutes in the rural and remote areas face shortages of qualified teachers. Most newly-recruited teachers have problems with living conditions (Dy, Holocaust, et al. 2013). What teacher-training institutions are preferred by public and private polytechnic in selecting newly-recruited teachers? In using the descriptive survey research design, the study asked respondents to rate factors according to the extent of importance in deciding which applicant to hire: personal attributes, educational background, professional attributes, and possible supporting papers (Mancao 2012). In particular, teachers' beliefs and practices of assessment can impact the way the curriculum is enacted in the classroom (Chew and Lee 2013).

The aim of this paper is to help reflect on the key importance of performance standards, considering the transparency and the minimization of subjectivity which are intended to exist on the evaluation of new teacher performance. Envisaging management evaluation from the point of view of professional development was taken into consideration the relationship between assessment and new teacher autonomy as well as the pondering,

apprenticeship and consequent change of each teacher. In accordance with this proposition, we were addressing an essential element for the absolutely necessary transparency in the teacher performance evaluation process, the teacher performance standards, in a supervisory context (de Almeida 2017).

Teachers have opportunities to update and upgrade their knowledge and skills (UNESCO, 2002). Ministry of Science and Technology has been renamed in April 2002. Ministry of Science and Information and Communication Technology BTRC (Bangladesh Telephone Regulatory Commission) was set up in January 2002.

Polytechnic institutes provide the skills persons who have technical knowledge about many areas. Polytechnic graduates have 60% theory and 40% practical knowledge in their required field. Through lectures more efficiently to students polytechnic teachers need to use ICT in their class that makes more understandable the content of discussion topic. The skilled workers and technicians play a key role in every sector of the economy of Bangladesh. So, the Government of Bangladesh has already emphasized the integration of ICT in all sectors of the country including education. To produce skilled technicians, there are mid-level technical and vocational training systems in the country. Like the present government, Many Governments have developed plans to intensify their investments regarding technology integration in education.

All polytechnic institutions, Islamic university of technology (IUT), Vocational Training Institutes (VTI) and Technical Training Centers (TTC) in Bangladesh are offering training the teachers in existing and new skills in line with emerging technologies and demands of the economy. To develop knowledge and skill for graduates, it would require assessable knowledge and continual disciplines (Abdullah-Al-Mamun and Science 2012). The teachers of the polytechnic institutes are conscious about the continuous development of technology in education which offers students an inventive approach to experiential learning.

There is a rapid growth in the body of research that examines differences in teachers' effectiveness and raising student achievement. Student-test-based measures of teacher

performance are receiving increasing attention because there are few complementary or alternative measures that can provide reliable and valid information on the effectiveness of a teacher's classroom practice. The approach most commonly in use is to evaluate effectiveness through direct observation of teachers in the act of teaching

(Control and Prevention 2012) .Student ratings are one of the most frequently used methods for evaluating teacher effectiveness in colleges and universities. One drawback is that the results obtained from student ratings are based upon general rating items. It is thus difficult to make specific recommendations to faculty members who wish to improve their ratings.The collection of student ratings is the best way but rather one way to evaluate instruction. Professionals in the field of teacher evaluation advocate a multiple-source and multiple-method approach to evaluate teaching effectiveness. The collection of student ratings should be combined with data collected from different sources using various methods such as peer review, teaching portfolios, classroom-observations, or self-evaluation Ory and Ryan (2001). Most of the classroom teachers are not competent, efficient and knowledgeable in classroom assessment procedures in order to make correct decisions about students' learning outcomes or achievements and also improve on teaching processes in the classroom. Career planning is the deliberate process through which someone becomes aware of his or her personal skills, interests, knowledge, motivations, and other characteristics; acquires information about opportunities and choices; identifies career-related goals; and establishes action plans to attain specific goals (Abdulkadir, Isiaka, et al. 2012).

1.3 Purpose of the study

The general objective of this study is to understand the level of public polytechnic teachers teaching performance (excellent, very good, good, poor, very poor) on the engineering subjects in polytechnic institutes in Bangladesh.

> ➢ To identify provisionary Teachers Teaching performance in public polytechnic institutes in Bangladesh.
> ➢ To identify provisionary teachers using teaching aids in the classroom during the teaching-learning process.

1.3.1 Research Question

1. What is the level of provisional teachers teaching performance according to electrical engineering subject?
2. What kind of problem faced by provisional teachers using teaching aids in teaching-learning in the classroom?

1.4 Significance of the study

The findings of this study may provide useful information to the authorities of technical and vocational education (TVE) as well as to the Diploma engineering Teachers of public polytechnic institutes in order to improve their performance and qualities. The study may also help to identify the problems to use teaching aids in the classroom and throw some light on how to overcome the problems or difficulties concerning the existing teaching-learning process on engineering subjects in public polytechnic institutes in Bangladesh. The study delimited by "the teachers teaching performance" in the public polytechnic institute in Bangladesh.

1.5 Scope of the Study

At present, Bangladesh needs skill human resources to support rapid industrial growth and earnings remittance. TVET is the only source in Bangladesh by which we can have economic developments. We need to make our manpower with having global competitiveness. We need to introduce courses to match industry needs and opportunities of the demographic dividend to be harnessed. In this regard, strategic planning is required to develop the TVET system. There are 160 million people live in the 147570 square kilometer area of Bangladesh. Among them, 4.52 million are found as Higher Secondary aged population (16-17 Years) in 2014 (BANBEIS Report-2014).

It has been found in the „Gross and Net 5 Enrollment Rate by Gender in Secondary Level of Education, 2014" of Bangladesh Education Statistics-2014, BANBEIS that the Gross Enrollment Rate and Net Enrollment Rate of secondary level education are 69.23% and 62.25% respectively. Similarly, it has also been found in the „Gross and Net Enrollment Rate in College and Madrasah (11&12 Class), 2014" of Bangladesh Education Statistics-2014, BANBEIS that the Gross Enrollment Rate and Net Enrollment of higher secondary level education are 46.61% and 33.16% respectively in the year 2014. In Pearson's opinion, higher education's ability to take advantage of social media for promoting professional development, broadening institutional reach, and increasing student success is nothing short of revolutionary. We anticipate that you'll find the information herein as enlightening as we did (Moran, Seaman, et al. 2011).

A large number of people of Secondary and Higher secondary Schooling groups are out of Schooling. Technical and Vocational Education and Training (TVET) is one and only educational mechanism to convert these populations to the employable workforce to contribute to developing the national economy of our country. The major targets of expanding TVET in our country as follows

• Skilled workers to satisfy the growing needs of industry;

• A high level means to facilitate the job for unemployed youth and widespread underemployment;

• Competencies need to find employment;

• Match the requirements of the private sector;

• Skills for the job market in line with labor market demands;

• Understand the attitudes expected in the industry area;

• Gain insights into the kind of career;

• Make informed decisions about further training and study;

• Become more employable;

• To be better equipped for business and employment opportunities;

• Aims to improve socio-economic conditions create jobs and alleviate poverty as a key element of any policy initiatives

• Promote industrial linkages in the skill training delivery to produce a young skilled workforce for the market needs;

1.5.1 Diploma Level
a. Diploma in Engineering Course (34 technologies) - Institutes Namely:

i. Govt. Polytechnic and Mono-technic Institutes;

ii. Private Polytechnic Institutes;

b. Diploma in Textile Engineering Course (3 technologies) - Institutes Namely:

i. Govt. Textile Institutes;

ii. Private Polytechnic & Textile Institutes;

c. Diploma in Agriculture Course - Institutes Namely:

i. Govt. Agricultural Training Institutes;

ii. Private Agricultural Training Institutes;

d. Diploma in Fisheries Course - Institutes Namely:

i. Govt. Fisheries Training Institute;

ii. Private Agricultural & Fisheries Training Institutes;

e. Diploma in Forestry Course - Institutes Namely:

i. Govt. Forestry Training Institute;

1.5.2 Others Professional Level Courses - Institutes Namely:
ii. Govt. Institutes;

iii. Private Institutes;

1.5.3 Informal and Non Formal Training
- ➢ 23 ministries are conducting skill training and a maximum of those graduates are not certified by BTEB.
- ➢ Only SSC (vocational) and other SSC status vocational courses conducted by some of those ministries are affiliated with BTEB. Rests are not affiliated with BTEB.
- ➢ Industry and Private organizations also conduct skill training not affiliated with BTEB.
- ➢ Some NGOs are conducting training not affiliated with BTEB. The initiative has taken for informal and CBT&A courses conducted by other agencies to bring under BTEB certification.

1.5.4 Enrollment in TVET under BTEB Certification
Technical and Vocational Education and Training (TVET) of „Outline Perspective Plan of Bangladesh 2010-2021-Making Vision 2021 A Reality" and the namely Education,

Training, and Skills Development for Human Capital Formation of „Perspective Plan of Bangladesh 2010-2021-Making Vision 2021 A Reality" as implementation outcomes that

➢ All new entrants in the 20-24 age group to the workforce are trained formally by 2021 for ensuring full-scale vocational training with adequate practical exposure to enhance their knowledge, skill, and creativity for enhancing productivity.

In addition, it is mentioned in namely 'Strategic Block V: Human Development' of 'Moving Ahead-National Strategy for Accelerated Poverty Reduction II (FY 2009-11), October 2008" and in the namely „Improving Knowledge Base: Education, Training and Research of "Steps Towards Change-National Strategy for Accelerated Poverty Reduction II (Revised) FY 2009-11, December 2009" that

➢ The proportion of participants in TVET needs to be increased to 20 percent of the students enrolled in the secondary stage by 2020.

"Vocational and Technical Education" of National Education Policy (NEP) emphasis given:

➢ To increase competent manpower in diverse sectors including Information and Communication Technology at a fast pace keeping in mind the national and international demands;

➢ To build up skilled manpower at a fast pace to create opportunities for economic development and to increase the dignity of labor;

➢ To create wide-ranging employment opportunities through the export of skilled manpower and to enhance foreign currency earnings.

Moreover, the National Skills Development Policy (NSDP)-2011 represents a key commitment to strengthening and further growth of skills development in Bangladesh

aligning with the targets of NSAPR-II. It is mentioned in the namely "Future Growth of the Sector" of NSDP-2011 that:

a. TVET students shall comprise 20% of all secondary students;

b. Total enrolment in TVET should increase by 50%;

c. Women"s enrolment should increase by 60%.

(Source, BANBEIS-Educational Database, 2016)

1.6 Limitation

Some basic limitations were observed during the data collection of the study. Firstly, the data was collected through self-reports from experts, therefore the possibility of self-response bias may sway the true associations between variables, which is very common in all survey research. To limit this potential bias, combinations of positive and negative items were used in the instrument to ensure that true responses are received.

Secondly, the participants in this study were not experts in English. To collect data from them, so they faced some problems to understand the questionnaire.

Thirdly, the researcher distributes the questionnaire physically. For this reason, the researcher needs to get permission from the administration to conduct a cross-sectional survey.   Finally, the data in this research was collected by the survey.

1.7.0 Definition of the term

1.7.1 Provisionary Teacher

The teacher those have less than one-year teaching experience in public polytechnic institutes in Bangladesh is meant by provisional teachers in the research.

1.7.2 Provisionary teacher's performance

In these studies, provisionary teachers teaching performance means students can give feedback based on taking their class and also researchers can observe their class when they take engineering subjects taught their students.

1.7.3 Polytechnic Institute

It offers a Diploma in an engineering course with many specializations. The duration of the Diploma-in-Engineering course of Bangladesh Technical Education Board is four years (eight semesters). The first to the seventh semester of the total eight semesters is conducted by the associated institute and the industrial training is conducted in the 8th semester in industry and institute.

The duration of each semester is sixteen weeks. Each working week there are 36-42 periods. The length of each period is 50 minutes.Each period of the theoretical class is considered one credit hour and each three-period practical class are considered one credit hour. The time of one period is 50 minutes. Each credit hour hears 50 marks.

If a student fails in any subject due to a shortage of attendance or other reasons acceptable by the academic council he can take the opportunity for admission to the next academic year.The time duration for the final semester examination is two hours for one credit subject and three hours for two or more credit subjects.

1.7.4 Provisionary teacher's entry qualification

The researcher field is a pubic polytechnic institute in Bangladesh. Provisionary teachers are recruited by Bangladesh Public Service Commission (BPSC) under the Bangladesh Technical Education Broad (BTEB). Who recruited after the diploma engineering course their post is the junior instructor and who recruited after B.Sc. engineering course their post is the instructor.

1.7.5 Course structure for Electrical Technology

Here, the curriculum of 4 years diploma engineering course subject wise organized from 1st to 7th semester

ELECTRICAL TECHNOLOGY (67)
1st Semester

Sl. No	Subject code	Name of the subject	T	P	C	MARKS				
						Theory		Practical		Total
						Cont. assess	Final exam.	Cont. assess	Final exam.	
1	1011	Engineering. Drawing	0	6	2	-	-	50	50	100
2	1012	Engineering. Materials	2	3	3	20	80	25	25	150
3	5712	English-1	2	0	2	20	80	-	-	100
4	5812	Physical Education.& Life Skill Development	0	2	1	-	-	25	25	50
5	5911	Mathematics-1	3	3	4	30	120	50	-	200
6	5913	Chemistry	3	3	4	30	120	25	25	200
7	6711	Basic Electricity	3	3	4	30	120	25	25	200
		Total	13	22	20	130	520	200	150	1000

ELECTRICAL TECHNOLOGY (67)
2nd Semester

Sl. No	Subject code	Name of the subject	T	P	C	MARKS				Total
						Theory		Practical		
						Cont. assess	Final exam.	Cont. assess	Final exam.	
1	5722	English-2	2	2	3	20	80	50	-	150
2	5912	Physics-1	3	3	4	30	120	25	25	200
3	5921	Mathematics-2	3	3	4	30	120	50	-	200
4	6621	Computer Application-1	0	6	2	-	-	50	50	100
5	6721	Electrical Circuit-1	3	3	4	30	120	25	25	200
6	6722	Advanced Electricity	3	3	4	30	120	25	25	200
7	7011	Basic Workshop Practice	0	6	2	-	-	50	50	100
		Total	**14**	**26**	**23**	**140**	**560**	**275**	**175**	**1150**

ELECTRICAL TECHNOLOGY (67)
3rd Semester

Sl. No	Subject code	Name of the subject	T	P	C	MARKS				Total
						Theory		Practical		
						Cont. assess	Final exam.	Cont. assess	Final exam.	
1	6731	Electrical Circuit -2	3	3	4	30	120	25	25	200
2	6811	Basic Electronics	2	3	3	20	80	25	25	150
3	6632	Computer Application -2	0	6	2	-	-	50	50	100
4	5931	Mathematics-3	3	3	4	30	120	50	-	200
5	5922	Physic-2	3	3	4	30	120	25	25	200
6	5711	Bangla	2	2	3	20	80	50	-	150
7	5811	Social Science-1	2	0	2	20	80	-	-	100
		Total	**15**	**18**	**22**					**1100**

ELECTRICAL TECHNOLOGY (67)
4th semester

Sl. No	Subject code	Name of the subject	T	P	C	MARKS				Total
						Theory		**Practical**		
						Cont. assess	Final exam.	Cont. assess	Final exam.	
1	6741	Electrical. Appliances	2	6	4	20	80	50	50	200
2	6742	Elec. Installation, Planning & Estimating	2	6	4	20	80	50	50	200
3	6845	Adv. Electronics	3	3	4	30	120	25	25	200
4	5941	Applied Mathematics	3	3	4	30	120	25	25	200
5	6743	Electrical Engineering. Drawing	0	6	2	0	0	50	50	100
6	5841	Business organization & Communication	2	0	2	20	80	0	0	100
7	5821	Social Science-2	2	0	2	20	80	0	0	100
		Total	14	24	22					1100

ELECTRICAL TECHNOLOGY (67)
5th Semester

Sl. No	Subject code	Name of the subject	T	P	C	MARKS				Total
						Theory		**Practical**		
						Cont. assess	Final exam.	Cont. assess	Final exam.	
1	6751	Generation of Electrical. Energy	3	3	4	30	120	25	25	200
2	6752	DC Machine	3	3	4	30	120	25	25	200
3	6753	Electrical and Electronic Measurements-1	2	3	3	20	80	25	25	150
4	6855	Industrial Power Electronics	2	3	3	20	80	25	25	150
5	7043	Applied Mechanics	2	3	3	20	80	25	25	150
6	7046	Hydraulics & Hydraulic Machinery	3	3	4	30	120	25	25	200
7	5851	Book keeping and Accounting	2	0	2	20	80	0	0	100
		Total	17	18	23	170	680	150	150	1150

ELECTRICAL TECHNOLOGY (67)
6th Semester

Sl. No	Subject code	Name of the subject	T	P	C	MARKS				Total
						Theory		**Practical**		
						Cont. assess	Final exam.	Cont. assess	Final exam.	
1	6761	A.C Machine-1	3	3	4	30	120	25	25	200
2	6762	Electrical and Electronic Measurements -2	3	3	4	30	120	25	25	200
3	6763	Transmission and Distribution of Electrical Energy-1	3	3	4	30	120	25	25	200
4	6866	Digital Electronics & Microprocessors.	3	3	4	30	120	25	25	200
5	5840	Environmental Management	2	0	2	20	80	0	0	100
6	5852	Industrial Management	2	0	2	20	80	0	0	100
7	6867	Communication Engineering	3	3	4	30	120	25	25	200
		Total	19	15	24					1200

ELECTRICAL TECHNOLOGY (67)
7th Semester

Sl. No	Subject code	Name of the subject	T	P	C	MARKS				Total
						Theory		Practical		
						Cont. assess	Final exam.	Cont. assess	Final exam.	
1	6771	A.C Machine-2	3	3	4	30	120	25	25	200
2	6772	Electrical Engineering project	0	6	2	-	-	50	50	100
3	6773	Switch gear & Protection	3	3	4	30	120	25	25	200
4	6774	Transmission and Distribution of Electrical Energy-2	3	3	4	30	120	25	25	200
5	6877	Instrumentation and process control	3	3	4	30	120	25	25	200
6	66	Computer Programming Language	2	3	3	20	80	25	25	150
7	5853	Entrepreneurship	2	0	2	20	80	-	-	100
		Total	19	15	23					1150

CHAPTER-TWO

REVIEW OF RELATED LITERATURE

2.1 Introduction

This chapter outlines the review of related literature. No such document was found related to the present study. One pertinent research report and some article were found which have been reviewed below:

2.2 Determinants of provisionary teachers teaching performance

The development of student performance depends on many factors. Among others, it depends on social, political and economic systems, on the macro level; TVET Act, guidelines/directives, technical and vocational institution law/ regulations, teachers'/ trainers' qualification, curricula, organizational structure, educational science/ didactic related theories, on the meson level, and on various other factors such as the individual learning ability of the students (cognitive, no cognitive),individual learning activities, process characteristics of teaching and industrial training/attachment, classroom context, school/enterprise context, on the micro-level. (Dittmann, Mayer, et al. 2008).Teacher effectiveness is the impact that classroom factors, such as teaching methods, teacher expectations, classroom organization and the use of classroom resources, have on student's performance(Campbell 2005).

A better understanding of experiential learning would allow curriculum planners and implementers of teacher education programs to come up with ways to increase the teaching and learning experiences of teachers(Kumar and Khadir 2013). We know that teachers want each student to realize their potential, and Academy allows students to reach their goal by providing personalized material and feedback. The system depends on the teacher to set up their classroom, explain how students should use the system, monitor the dashboard, and act on feedback during class time. Outside of class, teachers set assignments and monitor student progress as well as interpreting each student's report in light of their goals and improvement. While students can use the system at home in their

own time, teachers are often needed to explain difficult concepts in class if the student encounters difficulty. Put simply, teachers are important to us because the Adapted my pilot programmed would not work without them. As such, teachers are vital to student success.

2.3 Previous Research Findings on Factors Affecting Provetionary Teachers Performance

Numerous studies have examined the factors that influence academic performance in primary and secondary education as well as at the tertiary level, with the purpose of enhancing learning at these stages and reducing drop-out rates. Understanding different parameters that contribute to low or high achievement is a frequent topic.

Personal characteristics have been recognized by a number of studies as one the factors affecting academic performance, these include sex, age, ability, parenthood, housing expenditures, social background, time spent on studies, time spent on paid work and motivation (Okello 2016).

Furthermore, Thamavithya, n.d., identified other personal issues influencing academic achievement; (a) Financial difficulties, (b) physical illness, health problems, injury, (c) use of alcohol or other substance abuse, (d) pressure, stress, tension, anxiety, (e) loneliness, lack of emotional control, (f) can't find meaning for anything, no motivation and (g) conflicts with social obligations/ activities. Social related factors have also been recognized by a number of studies to have a notable effect on academic performance (Haolader, Hakim, et al. 2017).

Despite conventional wisdom that school inputs make little difference in student learning, a growing body of research suggests that schools can make a difference, and a substantial portion of that difference is attributable to teachers. Students who are assigned to several ineffective teachers in a row have significantly lower achievement and gains in

achievement than those who are assigned to several highly effective teachers in sequence (Darling-Hammond 2000).

2.4 General Academic Ability and Intelligence of Teachers

General academic ability and Intelligence While studies as long ago as the 1940s have found positive correlations between teaching performance and measures of teachers' intelligence (usually measured by IQ) or general academic ability. Most relationships are small and statistically insignificant. Two reviews of such studies concluded that there is little or no relationship between teachers' measured intelligence and their students' achievement(Marzano, Waters, et al. 2009). Explanations for the lack of a strong relationship between measures of IQ and teacher effectiveness have included the lack of variability among teachers in this measure and its tenuous relationship to actual performance (Vernon, 1965; Murnane, 1985). However, other studies have suggested that teachers' verbal ability is related to student achievement (e.g., Bowles & Levin, 1968; Coleman et al., 1966; Hanushek, 1971), and that this relationship may be differentially strong for teachers of different types of students (Summers & Wolfe, 1975). Verbal ability, it is hypothesized, maybe a more sensitive measure of teachers' abilities to convey ideas in clear and convincing ways.

2.5 Subject Matter Knowledge of Provisionary Teachers

Subject Matter Knowledge Subject matter knowledge is another variable that one might think could be related to teacher effectiveness. While there is some support for this assumption, the findings are not as strong and consistent as one might suppose. Studies of teachers' scores on the subject matter tests of the National Teacher Examinations (NTE) have found no consistent relationship between this measure of subject matter knowledge and teacher performance as measured by student outcomes or supervisory ratings. Most studies show small, statistically insignificant relationships, both positive and negative.

The relationship between subject-matter knowledge and effective teaching, however, is not straightforward. That is, one cannot say that those with the most subject-matter knowledge are necessarily the best teachers. Reviews of the research commonly reveal an uneven relationship between teacher subject-matter knowledge and student achievement. It makes sense that knowledge of the material to be taught as essential to good teaching, but also that returns to subject matter expertise would grow smaller beyond some minimal essential level which exceeds the demands of the curriculum being taught. Taken as a whole, the preceding discussion highlights the importance of recruiting and retaining teachers who are experienced, have proven track records of enhancing student achievement, and are well-grounded in subject-matter content. However, this is not the only action a district can and should take. In addition to effective hiring and detainment practices, our findings suggest that districts should have an explicit goal regarding the continuous improvement of pedagogical skills among teachers in the district. The purpose of this study was to extend the research on the use of communication aids (types of visual aids used by persons to communicate information to one another) and strategies for using communication aids during cooperative teaching. (Patterson, Dansereau, et al. 1992). More recently, researchers have sought to isolate teachers' contribution to student performance and assess how much of their overall contribution can be associated with measurable teacher characteristics, such as experience and degree level. (Goldhaber 2002).

2.6 Teacher degree and experience levels

Teachers' education (degree) and experience levels are probably the most widely studied teacher attributes, both because they are easy to measure and because they are, in the vast majority of school systems, the sole determinants of teachers' salaries. However, there appears to be only weak evidence that these characteristics consistently and positively influence student learning.

There is little evidence that experience beyond the first couple of years in the classroom makes one a better teacher. And teacher experience implicitly captures the effects of the prevalent graduation requirements and labor market conditions at the time when teachers

were hired. Furthermore, as I describe below, the effect of degrees appears to hinge on the subjects that are taught and whether the degrees are specific to those subjects.

2.7 Knowledge of Teaching and Learning

Knowledge of Teaching and Learning Studies has found a somewhat stronger and more consistently positive influence of education coursework on teachers' effectiveness. Ashton and Crocker (1987) found significant positive relationships between education coursework and teacher performance in four of seven studies they reviewed—a larger share than those showing subject matter relationships. Evertson, Hawley, and Zlotnik (1985) reported a consistent positive effect of teachers' formal education training on supervisory ratings and student learning, with 11 of 13 studies showing greater effectiveness for fully prepared and certified vs. uncertified or provisionally certified teachers. (Darling-Hammond 2000). What kinds of knowledge and training should needed new recruits provisionary teachers? The key to answering these questions is knowing how much influence teachers have over student achievement and what specific teacher attributes lead to higher student achievement(Goldhaber 2002). For instance, does holding a master's degree make one a better teacher? Did they earn high GPAs in college? Did they major in the subject they are teaching? How much does experience matter? Do traditional, university-based teacher-preparation programs produce the best teachers, or are alternatively certified teachers just as good?

2.8 Teaching aids affect to provisionary teachers

The teaching aids are designed for effective and easier learning of concepts and to have a positive effect on students. These include aids such as pictures, dynamic videos, diagrams, and mind maps. "Visual aids are any devices that can be used to make the learning

experience more real, more accurate, and more active."(Manthra Prathoshni, Vishnu Priya, et al. 2018). Teaching aids using in teaching-learning prose to show that many provisionary teachers believe that teaching aids are very useful for learning and have a preference for certain teaching methods such as concept mapping, picture cards, and video classes which they think are helpful in boosting their teaching performances. Since they amplify difficult portions of the topic, it makes the subject interesting for them and, hence, helps in their academics. If provisionary teachers

CHAPTER-THREE

RESEARCH METHODOLOGY

3.1 Introduction

This study was identifying provisional Teachers Teaching performance in public polytechnic institutes in Bangladesh. Such as in a classroom environment, institutional context. This study also aimed to identify the provisionary teachers using teaching aids in the class during teaching-learning proses. This chapter describes the methods used for data collection, analysis, and interpretation. A quantitative method was used in this research examination. It includes a design of the study, area of the study, population, sample, and work schedule.

3.2 Design of the study

The study was taken on the department of "Electrical Technology" of five public Polytechnic institutes in Bangladesh. The list was like as

(1) Dhaka Polytechnic Institute, (DPI)

(2) Bogra Polytechnic Institute, (BPI)

(3) Dinajpur Polytechnic Institute, (DPI)

 (4) Norshigndi Polytechnic Institute (NPI) and

 (5) Mymenshing polytechnic institute. (MPI)

The list of public polytechnic institute .schooling24.blogspot.com

 The survey design was used for this study which is considered appropriate for this research work because of its focus to find out the response from respondents by the use of the questionnaire. Survey design is used in a situation where the study focuses on people by the use of the questionnaire to determine their attitudes, perception, understanding, culture, facts, and behaviors.

3.3 Population of the Study

The study was conducted on the provisionary teachers of public polytechnic institutes and also students of electrical technology. Department of "Electrical Technology" teachers are involved in institutional information especially Chief instructor, instructor, junior instructor, Head/Principal those who are closely involved with the teaching of students of respective departments and institutions.

3.4 Sampling

To make a consistent sampling process researcher was considered five government polytechnic institutes in Bangladesh. Conducting the research to a quantitative method it was followed the purposive sampling population as a sample of the research. Specifically, the department of "Electrical Technology" trade 125 students from those five public polytechnic institutes have been selected to collect the research data. Purposive sampling is used throughout the study.

3.5 Purposive Sampling

A purposive sample is a non-probability sample that is selected based on the characteristics of a population and the objective of the study. Purposive sampling is different from convenience sampling and is also known as judgmental, selective, or subjective sampling.

3.6 Table of Sampling

Polytechnic institute	Number	Electrical Department	Number of Students and Teachers	Sampling Technique
Public polytechnic institute	29 out of 51	29 out of 5	5*25 =125	Purposive Sampling

Name of the public polytechnic institute in Bangladesh.	Population (Number of students in the Electrical Technology)	Sample	Sampling Technique
Dhaka Polytechnic institute		25	Purposive Sampling
Bogra Polytechnic Institute		25	
Rangpur Polytechnic Institute		25	
Narshingdi Polytechnic Institute		25	
Mymensingh Polytechnic Institute		25	
		Total=125	

3.6 Data collection procedures

The data collection procedures are given below:

I. A list of the institutes and mobile number of institutes were collected by the researcher himself through www.moe.gov.bd website and TVE Department(IUT) office room.

II. I requested the Head of the institute and relative trade teachers as per their schedule and willingness. Then the researcher went to the actual field and distributed questionnaires to them for data collection.

III. Among 125 students sample researcher himself were collect the data from different public polytechnic institutes.

IV. Among 10 Provisionary teachers sample researcher, himself were collect the data to observe their class.

V. Among the all delivered questionnaires, 100% were returned rate, so the researcher himself fulfilled that targeted 125 samples.

VI. Sample respondents were realized and understood the questionnaire's statement and gave their opinion as a rate of Likert scale. Researchers help to them for realizing the demand for the questionnaire.

VII. After compiling all data gathered and received then the researcher gone through for data interpretation and analysis.

3.7 Table of five (5) point Likert scale

Likert scale	Points
Excellent (E)	5
very good (VG)	2
Good (G)	3
Poor (P)	2
Very poor (VP)	1

3.8 Detailed Description of Questionnaires

A total of one hundred twenty-five (125) respondents were sampled and questionnaires were distributed to them. A total of one hundred twenty-five (125) (100%) questionnaires were returned with no missing questions. Also observed ten (10) provisionary teachers class in the teaching-learning process time.

3.9 Tools and Technique Data Analysis

Descriptive statistical values such as mean, standard deviation, variance, and percentage, and the weighted average will be used for the analysis of data. Collected data will be analyzed using statistical package for social science (SPSS) software (25). Open-ended items in the questionnaire are textual, that's why those questionnaires should be analyzed through qualitative method Quantitative method of data analysis was used, where mean, standard deviation, variance, and percentage, and the weighted average was used for the analysis of data. Standard deviation and the weighted average were used to find out the significance of the differences of data obtained together and questionnaires were also analyzed by weighted average (WA) meanwhile SPSS version 25 software was used for analyzing and interpreting the data obtained. In finding out whether the opinions of the respondents were statistically significant or not Chi-square test was used, the significant

value was compared with the critical value at 0.05 level of significance and degree of freedom was calculated as well but the criteria for five Likert scale was interpreted in the table below;

3.10 Table of The five-point rating scale

Excellent	Very good	Good	Poor	Very Poor
5	4	3	2	1

The weighted average (WA) is interpreted as:

□ $5 \geq WA > 4.5$ is "Excellent"

□ $4.5 \geq WA > 3.5$ is "Very good".

□ $3.5 \geq WA > 2.5$ is "Good"

□ $2.5 \geq WA > 1.5$ is "Moderate" and

□ $1.5 \geq WA > 0$ is "Poor".

The table collected from "Methods, Evaluation and Research in Education" book.

3.11 Ethical consideration

Before starting any data collection, the researcher was seeking required permission from the selected five public polytechnic institutions authority or administrative body. To make the process systematic an invitation letter signed by the supervisor, Department of Technical and Vocational Education, Islamic University of Technology (IUT), had been forwarded to the appropriate authorities of the participating institutions. Each and every participant was given a questionnaire and the required time was given to fill the questionnaire voluntarily. All the participants" information was used and kept confidential with serious care.

CHAPTER FOUR

ANALYSIS AND INTERPRETATION OF DATA

4.1 Introduction

In this chapter data obtained from the respondents through questionnaires have been tabulated in forms of frequencies and percentages. In this section, statistical procedures are presented that were used to analyze both the continuous and categorical data collected from five public polytechnic institutes teachers of Bangladesh. Each table is interpreted base on the feedback received from the respondents.

4.2.1 Frequency distribution

Statistics

		INSTITUTION	SEMESTER	GENDER
N	Valid	125	125	125
	Missing	0	0	0

The number of participants 125. A categorical variable is Institutes, Semester and Gender. There was not messing any participants' because all over participants were attentive to all the questions or items.

4.2.2 GENDER

GENDER					
		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	MALE	90	72.0	72.0	72.0
	FEMALE	35	28.0	28.0	100.0
	Total	125	100.0	100.0	
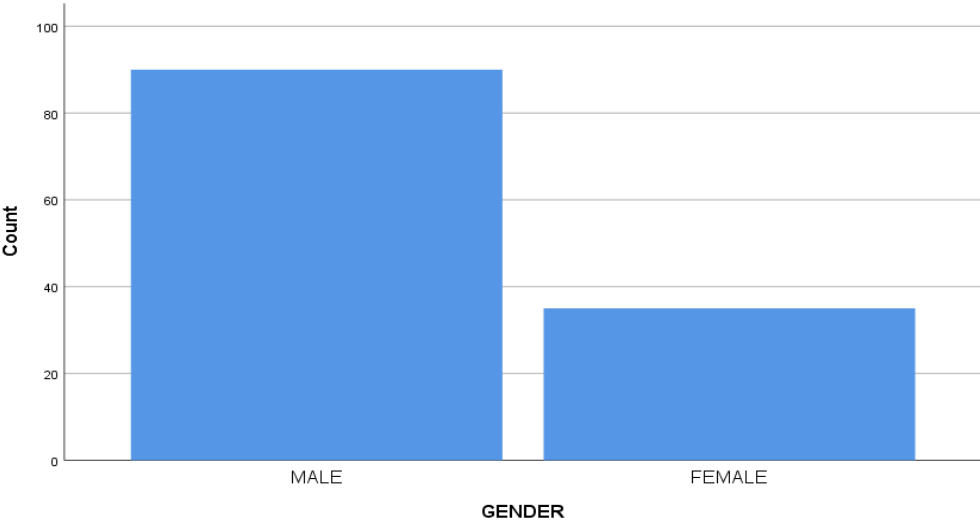
About 90% of our responders are male and about 32% of our respondents are female.

4.2.3 Institution

		Frequency	Percent	Valid Percent	Cumulative Percent
INSTITUTION					
Valid	DPI	25	20.0	20.0	20.0
	BPI	25	20.0	20.0	40.0
	RPI	25	20.0	20.0	60.0
	NPI	25	20.0	20.0	80.0
	MPI	25	20.0	20.0	100.0
	Total	125	100.0	100.0	

The researcher has divided the institute into five categories and collected data from that institute.

20% of students are from Dhaka polytechnic institute (DPI),20% of students are from Bogra polytechnic institute (BPI), 20% of students are from Rangpur polytechnic institute (RPI), 20% of students are from Norshingdi polytechnic institute(NPI) and Mymenshing polytechnic institute(MPI).

4.3   Descriptive Statistics

	N	Minimum	Maximum	Sum	Mean	Std. Deviation	Skewness		Kurtosis	
	Statistic	Statistic	Statistic	Statistic	Statistic	Statistic	Statistic	Std. Error	Statistic	Std. Error
T_SBS	125	4.00	14.00	1181.00	9.4480	2.28408	-.353	.217	-.412	.430
TSPS	125	7.00	18.00	1660.00	13.2800	2.38476	-.291	.217	-.210	.430
TSAP	125	3.00	10.00	839.00	6.7120	1.60551	-.267	.217	-.319	.430
TSES	125	3.00	9.00	823.00	6.5840	1.44905	-.097	.217	-.617	.430
TSOS	125	9.00	25.00	2430.00	19.4400	2.94958	-.502	.217	.109	.430
TSTA	125	6.00	22.00	1794.00	14.3520	3.40838	-.138	.217	-.116	.430
Valid N (listwise)	125									

The minimum value in the above table indicates the minimum score of every category, the maximum value indicates the maximum score of every category. The sum value indicates the total score of every category. And the mean value indicates the average score of every category. The standard deviation value indicates the standard deviation score of every category.

4.4 Analysis of Data and Findings Related to Research Objective 1

4.4.1 Beginning stage (What the teachers did at the beginning of the semester)

Descriptive Statistics

	E	VG	G	P	VP	S.VALUE	W.A	Std. Deviation	Chi-Square	df	remark
Supplied course outline and plan at the beginning of the semester	f 9 6.7 %	33 24.6 %	43 32.1 %	24 17.9 %	16 11.9 %	0.000	2.96	1.125	29.040ª	4	Good
Specified the objective of every new topic	5 3.7 %	31 23.1 %	66 49.3 %	19 14.2 %	4 3.0%	0.000	3.11	.825	103.760ª	4	Good
To check entry-behavior of the students or prerequisite	21 15.7 %	41 30.6 %	34 25.4 %	22 16.4 %	7 5.2%	0.000	3.38	1.126	27.440ª	4	Good

Statement 1: Supplied course outline and plan at the beginning of the semester.Regarding the above statement, 6.7% Excellent, 24.4% very good, 32.1% good, 17.9% poor and 11.9% very poor.The total mean score of 3.15 which is between 2.5 to 3.50 that the respondents said "Good" and the significant .000 value which is less than alpha value.05($p<0.05$). This indicates that there is significance and the opinion of the respondents rejected. Which concludes that there is a supplied course outline and plan at the beginning of the semester is good.

Statement 2: Specified the objective of every new topic Regarding to the above statement,3.7% excellent,23.1%very good,49.3%good,14.2%poor and 3.0% very poor. The total mean score of 3.15 which is between 2.5 to 3.50 that the respondents said "Good" and the significant .000 value which is less than be alpha value.05($p<0.05$). Which indicates that there is significance and the opinion of the respondent's rejected. So specified the objective of every new topic is good.

Statement 3: To check entry-behavior of the students or prerequisite Regarding to the above statement, 15.7% excellent,30.6%very good,25.4%good,16.4%poor and 5.2% very poor. Total means a score of 3.15 which is between 2.5 to 3.50 that the respondents said "Good" and the significant .000 value which is less than be alpha value.05(p<0.05). Which indicates that there is significance and the opinion of the respondent's rejected. Which conclude that to check entry behavior of the students or prerequisite is very good.

4.2.2 Presentation stage (What the teachers did during his deliberation)

Table 1 Descriptive Statistics

	E	VG	G	P	VP	S.VALUE	W.A	Std. Deviation	Chi-Square	df	remark
Organization and presented the lecture in a logical sequence (simple to complex, known to unknown, theory to practice)	14 10.4%	44 32.8%	42 31.3%	22 16.4%	3 2.2%	0.000	3.35	.978	50.560ª	4	Good
Delivered and communicated the information and concept	13 9.7%	43 32.1%	43 32.1%	21 15.7%	5 3.7%	0.000	3.30	1.002	48.320ª	4	Very good
Responded to student questions clearly and thoroughly	13 9.7%	43 32.1%	43 32.1%	22 16.4%	4 3.0%	0.000	3.31	.987	49.680ª	4	Good
The overall presentation	10 7.5%	44 32.8%	50 37.3%	17 12.7%	4 3.0%	0.000	3.31	.919	68.640ª	4	good

Statement 4: Organization and presented the lecture in a logical sequence (simple to complex, known to unknown, theory to practice).Regarding to the above statement,10.4% excellent,32.8% very good,31.3% good,16.4% poor and 2.2% very poor. The total mean score of 3.32 which is between 2.5 to 3.50 that the respondents said "Good" and the significant .000 value which is less than alpha value.05($p<0.05$). Which indicates that there is significance and the opinion of the respondent's rejected. So specified the objective of every new topic is very good.

Statement 5: Delivered and communicated the information and concept. Regarding the above statement,9.7% excellent,32.1% very good,32.1% good,15.7% poor and3.7% very poor. The total mean score of 3.32 which is between 2.5 to 3.50 that the respondents said "Good" and the significant .000 value which is less than alpha value.05($p<0.05$). Which indicates that there is significance and the opinion of the respondent's rejected. So delivered and communicated the information and concept is very good and also good.

Statement 6: Responded to student questions clearly and thoroughly. Regarding to the above statement,9.7% excellent,32.1% very good,32.1% good,16.4% poor and 3.0% very poor. The total mean score of 3.32 which is between 2.5 to 3.50 that the respondents said "Good" and the significant .000 value which is less than alpha value.05($p<0.05$). This indicates that there is significance and the opinion of the respondent's rejected. So responded to student questions clearly and thoroughly is very good and also good.

Statement7: The overall presentation.Regarding to the above statement,7.5% excellent,32.8% very good, 37.3% good ,12.7% poor and 3.0% very poor. The total mean score of 3.32 which is between 2.5 to 3.50 that the respondents said "Good" and the significant .000 value which is less than alpha value.05($p<0.05$). Which indicates that there is significance and the opinion of the respondent's rejected. So the overall presentation is very good to respond from the responder.

4.4.3 Application stage (in what ways the teacher made the relation between theory and practice)

Descriptive Statistics

	E	VG	G	P	VP	S.VALUE	W.A	Std. Deviation	Chi-Square	df	Remark
Encouraged students to participate in classes	20 / 14.9%	42 / 31.3%	40 / 29.9%	15 / 12.0%	8 / 6.0%	0.000	3.41	1.093	37.120a	4	Very good
Cited examples of real life to correlate text book knowledge with the real life application	21 / 15.7%	31 / 23.1%	43 / 32.1%	25 / 18.7%	5 / 4.0%	0.000	3.30	1.094	31.040a	4	Good

Statement 8: Encouraged students to participate in classes. Regarding to the above statement,14.9% excellent ,31.3% very good,29.9% good,12.0% poor and 6.0% very poor. The total mean score of 3.36 which is between 2.5 to 3.50 that the respondents said "Good" and the significant .000 value which is less than alpha value.05($p<0.05$). Which indicates that there is significance and the opinion of the respondent's rejected. So an encouraged student to participate in classes is very good to respond from the responder.

Statement 9: Cited examples of real-life to correlate textbook knowledge with the real-life application .Regarding to the above statement,15.7% excellent ,23.1% very good,32.1% good,18.7% poor and 4.0% very poor. The total mean score of 3.36 which is between 2.5 to 3.50 that the respondents said "Good" and the significant .000 value which is less than alpha value.05($p<0.05$). Which indicates that there is significance and the opinion of the respondent's rejected. So a Cited example of real-life to correlate textbook knowledge with the real-life application is good.

4.2.4 Evaluation stage (how the teacher judged the students learning)

Descriptive Statistics

	E	VG	G	P	VP	S.VALUE	W.A	Std. Deviation	Chi-Square	df	Remark
Feedback to enhance the students learning	16 / 11.9%	38 / 28.4%	48 / 35.8%	15 / 12.2%	8 / 6.0%	0.000	3.31	1.050	46.720[a]	4	Good
The quizzes and questions reflected the course contents/outcomes	5 / 3.7%	51 / 38.1%	46 / 34.3%	19 / 14.2%	4 / 3.0%	0.000	3.27	.883	79.760[a]	4	Good

Statement 10: Feedback to enhance the students learning Regarding to the above statement, 11.9% excellent., 28.4% very good, 35.8% good, 12.2% poor and 6.0% very poor. The total mean score of 3.29 which is between 2.5 to 3.50 that the respondents said "Good" and the significant .000 value which is less than alpha value.05(p<0.05). This indicates that there is significance and the opinion of the respondent's rejected. So Feedback to enhance the students learning is good.

Statement 11: The quizzes and questions reflected the course contents/outcomes

Regarding to the above statement,3.7% excellent,38.1% very good,34.3% good,14.2% poor and 3.0% very poor. The total mean score of 3.29 which is between 2.5 to 3.50 that the respondents said "Good" and the significant .000 value which is less than alpha value.05(p<0.05). Which indicates that there is significance and the opinion of the respondent's rejected. So the quizzes and questions reflected the course contents/outcomes are very good.

Descriptive Statistics

Statement	E	VG	G	P	VP	S.VALUE	W.A	Std. Deviation	Chi-square	df
The teacher was well prepared and knowledgeable for the course	15 11.2%	35 26.1%	44 32.2%	21 15.7%	10 7.5%	0.000	3.19	1.105	32.080[a]	4
Supplied necessary resources/course materials that were adequate and updated	16 11.9%	26 19.4%	50 37.3%	24 17.9%	9 6.7%	0.000	3.13	1.092	38.560[a]	4
Time management was appropriate(lecture starting and closing time)	7 5.2%	53 39.6%	34 25.4	25 18.7%	6 4.5%	0.000	3.24	.995	62.000[a]	4
Teaching methods (lecturing, demonstration, group discussion, student involvement etc.) were effective and useful	12 9.0%	33 24.6%	59 44.0%	16 11.9%	5 3.7%	0.000	3.25	.939	74.800[a]	4
Classroom management (teacher-student relationship etc.) was successful	13 9.7%	51 38.1%	40 29.9%	17 12.7%	4 3.0%	0.000	3.42	.960	62.000[a]	4
Achieved course objectives	18 13.4%	40 29.9%	28 20.9%	29 21.6%	10 7.5%	0.000	3.22	1.189	20.960[a]	4

Statement 12: The teacher was well prepared and knowledgeable for the course

Regarding to the above statement,11.2% excellent,26.1% very good,32.2% good,15.7% poor and 7.5% very poor. The total mean score of 3.24 which is between 2.5 to 3.50 that the respondents said "Good" and the significant .000 value which is less than alpha value.05($p<0.05$). Which indicates that there is significance and the opinion of the respondent's rejected. So the teacher was well prepared and knowledgeable about the course is good.

Statement 13: Supplied necessary resources/course materials that were adequate and updated .Regarding to the above statement,11.9% excellent,19.4% very good,37.3% good,17.7% poor and 6.7% very poor. The total mean score of 3.24 which is between 2.5 to 3.50 that the respondents said "Good" and the significant .000 value which is less than alpha value.05($p<0.05$). This indicates that there is `significance and the opinion of the respondent's rejected. So Supplied necessary resources/course materials that were adequate and updated are good.

Statement 14: Time management was appropriate (lecture starting and closing time).Regarding to the above statement 5.2% excellent,39.6% very good,25.4% good,18.7% poor and 4.5% very poor. Total mean a score of 3.24 which is between 2.5 to 3.50 that the respondents said "Good" and the significant .000 value which is less than alpha value.05($p<0.05$). Which indicates that there is significance and the opinion of the respondent's rejected. So Time management was appropriate (lecture starting and closing time) is very good.

Statement 15: Teaching methods (lecturing, demonstration, group discussion, student involvement, etc.) were effective and useful.Regarding to the above statement 9.0% excellent,24.6% very good,44.0% good,11.9% poor and 3.7% very poor. The total mean a score of 3.24 which is between 2.5 to 3.50 that the respondents said "Good" and the significant .000 value which is less than alpha value.05($p<0.05$). Which indicates that there is significance and the opinion of the respondent's rejected. So teaching methods (lecturing, demonstration, group discussion, student involvement, etc.) were effective and useful is very good.

Statement 16: Classroom management (teacher-student relationship etc.) was successful .Regarding to the above statement 9.7% excellent,38.1% very good,29.9% good,12.7% poor and 3.0% very poor. Total mean a score of 3.24 which is between 2.5 to 3.50 that the respondents said "Good" and the significant .000 value which is less than alpha value.05($p<0.05$). Which indicates that there is significance and the opinion of the respondent's rejected. So Classroom management (teacher-student relationship etc.) was successfully done and students responded is very good.

Statement 17: Achieved course objectives .Regarding to the above statement 13.4% excellent, 29.9% very good,20.9% good,21.6% poor and 705 very poor. The total mean a

score of 3.24 which is between 2.5 to 3.50 that the respondents said "Good" and the significant .000 value which is less than alpha value.05(p<0.05). Which indicates that there is significance and the opinion of the respondent's rejected. So an Achieved course objective is very good.

4.5 Analysis of Data and Findings Related to Research Objective 2

Descriptive Statistics

	E	VG	G	P	VP	S.VALUE	Mean	Std. Deviation	Chi-square	df	Remark
Quality of teaching aids	14 / 10.4%	35 / 26.1%	33 / 24.6%	34 / 25.4%	9 / 7.2%	0.000	3.09	1.136	24.880ª	4	Good
Attitude of institute to modernize the teaching aids	18 / 13.4	37 / 27.6	28 / 20.9	26 / 19.4	16 / 11.9	0.000	3.12	1.261	11.360ª	4	Good
Availability of teaching aids for each classes in institutes in engineering subjects	12 / 9.0%	21 / 15.7%	38 / 28.4%	41 / 30.6%	13 / 9.7%	0.000	2.82	1.129	30.160ª	4	Good
Administrative support to enhance teaching-learning (TL)	9 / 6.7%	21 / 15.7%	40 / 29.9%	38 / 28.4%	17 / 12.7	0.000	2.74	1.115	29.200ª	4	Good
Internet in the classroom for teaching-learning (TL)	6 / 4.5%	25 / 18.7%	22 / 16.4%	55 / 41.0%	17 / 12.7%	0.000	2.58	1.101	53.360ª	4	Poor

Statement 18: Quality of teaching aids .Regarding to the above statement,10.4% excellent,26.1% very good,24.6% good,25.4% poor and 7.2% very poor. Total mean a score of 2.87 which is between 2.5 to 3.50 that the respondents said "Good" and the significant .000 value which is less than alpha value.05(p<0.05). Which indicates that there is significance and the opinion of the respondent's rejected. So the Quality of teaching aids is very good.

Statement 19: Attitude of the institute to modernize the teaching aids.Regarding to the above statement,13.4% excellent,27.6% very good,20.9% good,19.4% poor and 11.9% very poor. The total mean a score of 2.87 which is between 2.5 to 3.50 that the respondents said "Good" and the significant .000 value which is less than alpha value.05(p<0.05). Which indicates that there is significance and the opinion of the respondent's rejected. So the attitude of the institute to modernize the teaching aids is very good.

Statement 20: Availability of teaching aids for each class in institutes in engineering subjects.Regarding to the above statement,9.0% excellent, 15.7very good, 28.4 % good,30.6% poor and 9.7% very poor. Total mean a score of 2.87 which is between 2.5 to 3.50 that the respondents said "Good" and the significant .000 value which is less than alpha value.05(p<0.05). This indicates that there is significance and the opinion of the respondent's rejected. So the availability of teaching aids for each class in institutes in engineering subjects is poor.

Statement 21: Administrative support to enhance teaching-learning (TL).Regarding to the above statement,6.7% excellent, 15.7% very good, 29.9% good, 28.4 % poor and 12.7% very poor. Total mean a score of 2.87 which is between 2.5 to 3.50 that the respondents said "Good" and the significant .000 value which is less than alpha value.05(p<0.05). Which indicates that there is significance and the opinion of the respondent's rejected. So administrative support to enhance teaching-learning (TL) is good.

Statement 22: Internet in the classroom for teaching-learning (TL).Regarding to the above statement,4.5% excellent, 18.7% very good, 16.4% good, 41.0 % poor and 12.7% very poor. Total mean a score of 2.87 which is between 2.5 to 3.50 that the respondents said "Good" and the significant .000 value which is less than alpha value.05(p<0.05). Which indicates that there is significance and the opinion of the respondent's rejected. So the Internet in the classroom for teaching-learning (TL) is poor.

CHAPTER FIVE

SUMMARY, FINDINGS, CONCLUSION AND RECOMMENDATIONS

5.1 Summary

The purpose of the study was to "A study on provisionary Teacher's teaching performance of electrical engineering subjects in public polytechnic institutes in Bangladesh". The study was carried out on the basis of the following objectives;

> ➢ To identify provisional Teachers Teaching performance in public polytechnic institutes in Bangladesh.
> ➢ To identify provisional teachers using teaching aids in teaching learning in the classroom.

The population target was the teachers and students of public polytechnic institutes of Bangladesh who were currently teaching in class and learn in class in the respective institutes. Teachers were chosen from the Department of "Electrical Technology". Also, students were chosen from different semesters in the department of "Electrical technology".These were included male teachers and students were included both male and female. In Bangladesh, there are 51 polytechnic institutes operating diplomas in the engineering programs. However, the study was delaminated into five public polytechnic institutes for the convenience of data collection of this study. A mimeograph was designed to collect student's opinion results from five public polytechnic institutes. The total sample size according to the data collected totaled up to 125 students were selected for data analysis and a sample of respective institutes. As a part of the study data collected from five public polytechnic institute's teachers and students were indicated by the respective institutes and out of five institutes researcher went to the five institutes by himself. Out of the 22 statement wise questionnaires, 22 of them had collected and received, 100 percent targeted data were collected. From the collected copy of the questionnaires, the returned data were generated, analyzed using statistical packages for social science (SPSS)

software version 25.0. To find the provisionary teachers teaching performance, several of the information was drawn through using the teacher's sample of frequency distribution, percentage and weighted average and the chi-square test were designed. For the statement wise opinion respondent, responses on a five-point rating scale i.e. Excellent to very poor. Percentage, weighted average, and chi-square tests were conducted on the responses of each statement of the questionnaire to check whether a response on the statement varies between teachers or not. The data were highly analyzed with a higher weighted average and chi-square test.

All the separate tables and graphs have been automatically generated by the different parts of the questionnaire data analysis. Purpose of decision making, collected data statistically analyzed through mean, standard deviation, percentage and significance level used as the level of significant $\alpha = 0.05$. The result of the study may be helpful to develop the provisionary teacher's teaching performance in public polytechnic institutes in Bangladesh.

5.2 FINDINGS

The results from the analysis show that the provisionary teachers teaching performance are "Good". analyzed the data related to the objectives to assess the provisionary teachers teaching performance level during in the classes excellent, very good , good, poor and very poor and also identify the provisionary teachers used in teaching aids in the classroom in public polytechnic institutes in Bangladesh, the findings include the following as stated below The study also indicated that the performance of public polytechnic's provisionary teachers correlates significantly throughout the student's achievement course of study, in case of public polytechnic

I. Objective 1: The results from shown at height weighted average, WA is 2.96 that the majority of the responses good that the provisionary teacher's teaching performance well. The first objective has five stages, the first stage is the beginning stage so that stage the teacher's performance well. The second stage is

the presentation stage so that stage also teachers performance good. The third stage is the application stage here also the teacher's performance is very good. Forth and five-stage are the Evaluation stage and overall stages both are good. The majority of the response is good.

II.   Objective2: The results got after analysis data the majority of response good. The at height weighted average, WA is 2.87 that the majority of the responses good that the provisionary teacher' using teaching aids is good. So the teaching-learning process in engineering subjects to using teaching aids is very good. The table also shown second height weighted average, WA is 3.12 that majority of the responses good that rate of encouragement of using teaching aids in teaching-learning in the institute is good and also shown lowest weighted average, WA is 2.19 that majority of the responses poor that the mansion that internet connection is poor in public polytechnic institutes.

5.3 Discussions on findings

1. The results from the table shown at the weighted average. WA is 2.96 that the majority of the response good that the provisionary teachers can be supplied course outline and plan at the beginning of the semester so it's good for achieved student's goals effectively. The table1 shown at the weighted average, WA is 3.11 that majority of the response good that means specified the objective of every new topic is successfully done by the provisionary teachers in the public polytechnic institute in Bangladesh. The results from the table2 shown at weighted, WA is 3.38 that means the majority response is good. To check the entry-behavior of the students or prerequisites properly. So the beginning stages of the classroom provisionary teacher's performance are good.

The results from the table3 shown at the weighted average, WA is 3.32 that majority response is good that means the presentation stage the provisionary teacher's performance is good and not excellent that the presentation stage. The results from the table4 shown at the weighted average, WA is 3.36 that the majority of the response is good that application

stages provisionary teachers' performance is good. The results from the table shown at the weighted average, WA is 3.29 that the majority of the response is good which means evaluation stages performance is good of provisionary teachers of the public polytechnic institute in Bangladesh. The results from the table at weighted average, WA is 3.24 that the majority of response is good so that the overall teachers' factor, class management, and motivational factors are good of provisionary teachers of the public polytechnic institute in Bangladesh.

2. The result from the table shown at weighted average, WA 2.87 that the majority of the response is good that means the provisionary teachers using teaching aids in the classroom good. But here one statement internet in the classroom for teaching-learning process that the majority response is poor. The results from the table shown at the weighted average, WA 3.12 that the majority of the response is good so the statement of attitude of the institute to modernize the teaching aids for teaching-learning presses.

5.4 Conclusions

The title a study on the provisionary teacher's teaching performance of electrical engineering subjects in public polytechnic institutes in Bangladesh. The aim of the study was to identify provisionary teachers teaching performance in public polytechnic institute is good.

The first objective of the provisionary teacher's teaching performance level is good that's a very good sign to get the good quality of students from public polytechnic institutes in Bangladesh. The second objective was to identify the provisionary teachers using teaching aids to teach their students. The results are shown from the analysis data there is not a significant difference. The provisionary teachers teaching performance in using teaching aids are good.

5.5 Recommendations and Further Study

This study investigated public polytechnic teacher's attitudes towards using teaching aids in the classroom in a diploma in the engineering program, however, due to time and resource constraints, the department of the "Electrical Technology" trade of five investigated public polytechnic institutes 125 students were taken as the sample. It would be better if the five institutions could be increased by more provisionary teachers in order to generalize the results. Other observations are:

1. From the data collection percentage, it was deeply observed that teachers and students are five public polytechnic institutions were in favor of teaching aids. In this regard, there should address an issue of the need for a facility of teaching aids and different training available and easier for the provisionary teachers in a classroom environment and also inside and outside of institutes.

2. The government, policymaker and the relevant authorities should find a means to motivate and counsel all provisionary teachers on the need to have an equal chance to do well in the teaching-learning process and teaching aids as institutions. Because provisionary teachers are the media to introduce and motivate the students using teaching aids in the classroom in which the researcher's respective study.

3. Ministry of Education and the Government should organize capacity building development, training and workshops periodically in area of teaching, emphasis on using teaching to the development of provisionary teachers in public polytechnic institutes in Bangladesh. Furthermore, provisionary teachers' performance on using teaching aids and class performance depends on many factors such as teacher's prior-knowledge, teaching-learning environment, quality and interest in particular of the subject, lab facilities in institutes, etc. It is often reported that the five public polytechnic institutes have relatively inferior classroom set-up and less experienced and practically not-trained and lower performance teachers. The Government and respective authorities should try to improve these beastly or incompatible situations.

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APPENDIX I

Dear Respondent,

REQUEST FOR COMPLETION OF QUESTIONNAIRE. As a student of Master of Science in Technical Education with specialization in **Electrical andElectronics Engineering** of the Islamic University of Technology (IUT). I conducted a research in the area of public polytechnic teacher's performance titled by **"A study on provisionary Teacher's teaching performance of electrical engineering subjects in public polytechnic institutes in Bangladesh".** Field of data collection for the study in government polytechnic institutes in Bangladesh with the objective of provisionary teacher's teaching performance level and identification the difficulties faced by teachers to using teaching aids in classroom in the teaching learning. Your response will be used only for this study purposes and your name identify will always be kept confidential.

Terminologies Used

TVE: Technical and Vocational Education

TVET: Technical and Vocational Education and Training

Section A: General Information

Please choose the best answer matched with to you and draw a mark on the letter (A, B, C, D or E)

1. Name (optional): ………………………………….

2. Institute: ………………………………………….

3. Your present designation

A. Students

Semester (1st, 2nd, 3rd, 4th, 5th, 6th, 7th, 8th)

4. Department

A. Electrical Technology

5. Gender?

A. Male

B. Female

6. Email: …………………………………… Cell: …………………………

APPENDIX II

Section B: Research Questions

1. Excellent (E)

2. Very good (VG)

3. Good (G)

4. Poor (P)

5. Very Poor (VP)

To identify provisionary recruited Teachers Teaching performance in public Polytechnic institutes in Bangladesh.

Statement	E	VG	G	P	VP
Beginning Stage(what the teacher did at the beginning of a class and the semester)					
1 Supplied course outline and plan at the beginning of the semester					
2 Specified the objective of every new topic					
3 To check entry-behavior of the students or prerequisite					
Presentation Stage (what the teacher did during his deliberation)					

4 Organization and presented the lecture in a logical sequence (simple to complex, known to unknown, theory to practice)					
5 Delivered and communicated the information and concept					
6 Responded to student questions clearly and thoroughly					
7 The overall presentation					
Application stage(in what ways the teacher made relation between theory and practice)					
8 Encouraged students to participate in classes					
9 Cited examples of real life to correlate text book knowledge with the real life application					

Evaluation Stage (how the teacher judged the students' learning)	E	VG	G	P	VP
10 Feedback to enhance the students learning					

11 The quizzes and questions reflected the course contents/outcomes					
Overall(Teacher factor, classroom management and motivational factors)					
12 The teacher was well prepared and knowledgeable for the course					
13 Supplied necessary resources/course materials that were adequate and updated					
14 Time management was appropriate(lecture starting and closing time)					
15 Teaching methods (lecturing, demonstration, group discussion, student involvement etc.) were effective and useful					
16 Classroom management (teacher-student relationship etc.) was successful					
17 Achieved course objectives					

Your opinion about teacher's teaching performance in public polytechnic institute in Bangladesh.(Use an extra sheet if you have a lot to share)

………………………………………………………………………………………………

………………………………………………………………………………………………

………………………………………………………………………………………………

………………………………………………………………………………………………

………………………………………………………………………………………………

To identify difficulties faced by provisionary teachers using teaching aids in the classroom.

[Excellent(E), Very good(VG),Good(G),Poor(P),Very Poor(VP)]

Items	E	VG	G	P	VP
1 Quality of teaching aids					
2 Attitude of institute to modernize the teaching aids					
3 Availability of teaching aids for each classes in institutes in engineering subjects					
4 Administrative support to enhance teaching-learning (TL)					
5 Internet in the classroom for teaching-learning (TL)					

Any more difficulties you face in teaching for the engineering subject in your institutes

……………………………………………………………………………………………

……………………………………………………………………………………………

……………………………………………………………………………………………

Thanks for your maximum cooperation Kinds Regards,

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