

Dropout of Diploma in Engineering Education from Polytechnic Institutes in Bangladesh: Causes, Consequences, and Countermeasures

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Abstract

The dropout rate of students from Diploma in Engineering Education programs at Polytechnic Institutes in Bangladesh is a significant issue. Although from 2010 the rate of admission in TVET is satisfactory, the rate of dropout is also increasing proportionally. It is to be mentioned that Bangladesh is enjoying demographic dividend presently and it will enjoy more than 20 to 25 years. Moreover, the engagement of students at a lion's share, likewise developed countries of the world, is crucial to reap the highest benefit of demographic dividend. This study aims to explore the causes, consequences and potential countermeasures for this problem.

Data was collected through a mixed-methods approach, including surveys, focus group discussions, and interviews with students, teachers, and administrators. The findings indicate that financial constraints, poor academic performance, and lack of interest in diploma engineering were the main reasons for dropout. Additionally, insufficient guidance and support, inadequate facilities, and the absence of extracurricular activities also contributed to this problem.

The consequences of dropout include a waste of resources and negative impacts on the economy. When a student drops out of a polytechnic institute, it can result in several negative outcomes. These include financial hardship, adverse psychological effects, social criticism, a less innovative society, underperforming institutions and reduced national achievement. These consequences can have far-reaching implications for the student's personal and professional life, as well as their overall well-being.

This study suggests several countermeasures to address this issue, including financial assistance, academic support, counseling and guidance services, improved facilities, and increased extracurricular activities. Among these, some are already taken over by the government; some are proposed. The proposed strategies mainly focus on building awareness among all the parties concerned as well as building some advantages for students' careers in the future. It should be

noted that individual problems differ, and that's why a personalized approach might be necessary. Nevertheless, by adopting a comprehensive set of countermeasures, polytechnic institutes can better support their student's academic success and well-being.

This study highlights the complex nature of the dropout problem in Diploma in Engineering Education programs at Polytechnic Institutes in Bangladesh. A holistic approach that addresses both the academic and non-academic aspects of student life is necessary to mitigate this issue.

Keywords: Dropout, Polytechnic Institute, Diploma in Engineering, Bangladesh, Causes, Consequences, Countermeasures

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1.0 Introduction

1.1 Background

Bangladesh is a developing country with huge potential, enjoying demographic dividend now.¹To reap the highest benefit from its' human resource diploma graduates could play a vital role by rendering highly skilled Engineers and trained workforce. Nonetheless, higher dropout rates at almost all polytechnic institutes have become a significant concern for policymakers, educators, and employers alike. This high dropout is not only hindering the development of skilled engineers and human resources but also results in numerous wastes of resources and loss of potential income, and above all negative impact on our economy.

Dropout from polytechnic institute is a complex and multifaceted issue. There have been some studies conducted by BTEB before, but their results remain ambiguous due to the plethora of factors affecting it, such as academic, personal, social and financial ones. In addition to this, the lack of understanding the factors of dropout leads to failure of addressing effective strategies to reduce dropout from polytechnic institutes.

In Bangladesh, TVET is in early stage considering its' implementation in our education sector. We can say that it is crawling now. Dropout plays the vital role to hinder the spread of TVET in Bangladesh. Countries like China, Philippines, Australia, Canada, Germany has adopted TVET System rapidly. As a result, their Human Resource Development scenario is enviable now. In contrary to this, Bangladesh is facing several problems including dropout from TVET

¹ According to The Daily Star Bangladesh has a fairly young population with 34 percent aged 15 and younger and just five percent aged 65 and older. At present, more than 65 percent of our population is of working age, between 15 and 64.

When there is such a large percentage of young people in any nation, they are expected to contribute to the country's economy. This opportunity is known as the "demographic dividend" which refers to "the economic growth potential that can result from shifts in a population's age structure, mainly when the share of the working-age population is larger than the non-working-age share of the population," as defined by the United Nations Population Fund.

institutions. Unfortunately, when TVET is thriving in Developed countries, students were willing to admit in TVET sector increasingly then Bangladeshi students were neglecting the opportunity to graduate from TVET sector. So, dropout is negatively impacting on our TVET sector. For this reason, it is a burning issue to increase skilled manpower.

In 2008, the rate of admission in the technical education sector was less than 5 percent. By 2020, it was projected to be 20 percent by the government (Govt aims to increase enrolment in technical education to 30pc by 2030, 2022 Sep 06). Things were running smoothly for the year 2012, 2013 till 2016 as planned. But after that the enrollment rate is lower. However, the goal of reaching 20% by the year 2020 was not impossible. (Enrollment Analysis in TVET, August 2016). Even we can easily reach 50% by the year 2041 if there was no dropout problem or permissible amount of dropout problem (Salman, Technical Education Job Prospects, 2022 Oct 20).

Presently the rate of enrollment in technical education is about 17% of the total student (Salman, 2022 Oct 20). The alarming thing is that about 30% of the students fall behind need to catch up before taking their certificate (Mamun and Mahbub,2012). Consequently, our country is lagging behind in coping with 4IR in the job market and developing skilled manpower through TVET. So, the economic loss is immense.

Students' dropout occurs most frequently during the first year due to incapability to cope with science (math, physics, chemistry) and the unfamiliar environments of the new system and institution.

Right now, the only way to get rid of this loophole is to overcome the dropout problem at any cost. In this journey, there may be some initial investment but inconsequence, the reward will be immeasurable. One of the solutions could be to devise a system to choose the educational destination after High School according to their marks obtained in SSC examination. Besides this, scholarship opportunities could be broadened. Because most of the students from poorer class

families come to pick TVET. Moreover, laboratories should be richer. In the meantime, teachers should be provided with many more training opportunities to cope up with new trade and Technologies in the first world.

1.2 Dropout causes and consequences: Exploration from secondary literature

Dropout is a common topic in education arena of Bangladesh from the early stage of its history. Since the introduction of Covid-19 it has become a buzzword in intellectual discussion. In every stage of education, i.e., primary, secondary and tertiary level is infested with the problem of dropout. Being so vibrant problem research paper in this topic is so rare. Among these papers most of them are related to primary school or secondary school level. A few are on undergraduate level dropout. Unluckily there is no research paper on dropout from TVET sector in Bangladesh.

According to Create Bangladesh policy brief, despite an increase in primary school enrollment, over 50% of children in many low-income countries fail to complete the full cycle of education (Sabates, Hossain and Lewin, 2010).

In Bangladesh, primary school completion rates have remained at approximately 60% since 2000 (World Bank, 2009). Sabates and Lewin (2013) identified precursors for dropout such as school absenteeism, poor academic achievement, and grade repetition. This research focused on primary school.

Nazirul (2019) conducted a study on secondary education in Bangladesh, which found that chronic poverty, parental unwillingness, financial difficulties, poor school infrastructure, biased social practices, lack of quality education, geographic isolation, unequal access to education, and security issues for girls are significant causes of school dropout.

Diana (2016) found that at the tertiary level of education in Bangladesh, underperformance in exams, non-attendance of classes, and failure to achieve desired scores are major causes of

dropout. Financial constraints, family changes, and increased job responsibilities are factors affecting dropout.

Mamun and Mahbub (2012) conducted an investigation on polytechnic students' dropout in Bangladesh and found that political violence on campus, social issues such as discouragement of female students in diploma engineering, economic problems of parents, and personal problems such as not getting desired subjects are significant causes of dropout.

Harvey (2010) found that a key recommendation for reducing dropout rates in special education in the USA is to provide comprehensive career advice that focuses on career opportunities, pathways, and transitional goals.

So, we can find that some problems come on at every level of education. The causes of dropout are mostly because of parents' poor economic conditions, lack of quality education, social norms, and violence towards female students etc.

Things which are absent in the previous study are as follows: lack of quality education equipment in polytechnic institutions, students' incapability to cope with the syllabus, students failing to adjust to an unfamiliar environment, ragging in campus, comparatively excessive cost of being diploma engineer.

Besides these economic impacts of dropout from diploma engineering is a forgotten topic when we are taking preparation of challenging 4IR-based upcoming job opportunities. Moreover, dropouts Technical and Vocational Education and Training sectors such as Technical School and College, Technical Training Center, Vocational Teachers Training Institute, Recognition of Prior Learning are not yet measured in any study. These sectors could play a vital role in our economy in the future. According to economists, Bangladesh is going to be an economic hub of South-Asia. Increased number of companies are looking forward to setting up industries in different economic zones of Bangladesh declared by the Government. These industries need a lot of skilled labor so

that they can offer us their products at a cheaper rate than companies abroad. Polytechnic institutes could be the greatest supplier sector of Bangladeshi job market. So, minimization of dropouts from these institutions is irreparable.

The National Center for Education Statistics (2018) reported that financial reasons were cited as a contributing factor by 50% of undergraduate students who dropped out of college in 2016. Financial challenges, such as difficulty affording tuition and other expenses, managing student loan debt, and balancing work and family responsibilities, can have a significant impact on a student's decision to drop out.

According to the College Board (2019), rising tuition and fees at colleges and universities can be a significant financial obstacle for students, leading to dropout. The increasing costs of tuition, textbooks, and other educational expenses can create financial strain, causing many students to struggle and ultimately drop out.

Dynarski (2015) suggests that insufficient financial aid, scholarships, or grants can contribute to college dropout rates. If students are unable to secure enough financial assistance to cover the full cost of attendance, they may struggle to afford necessary expenses, such as tuition and housing, which can result in their decision to drop out of college.

Research has shown that individuals with higher levels of education tend to earn higher wages compared to those with lower levels of education. Dropping out from a polytechnic program may result in lower earning potential as individuals may not be able to access higher-paying jobs or may be limited to lower-skilled positions (Baum et al., 2013).

Dropping out from a polytechnic program may discourage individuals from pursuing further education or training in the future. This can limit their opportunities for skill development and upgrading, which can impact their employability in the long run (OECD, 2017).

Dropping out from a polytechnic program may also have social and psychological consequences, such as lower self-esteem, decreased confidence, and increased stress or anxiety. These factors can affect individuals' overall well-being and may impact their ability to successfully enter or navigate the job market (Buchmann et al., 2018).

According to Rumberger (2011), dropout from a polytechnic institute can lead to reduced levels of education and skill development, resulting in limited employability in the competitive job market. Lack of specific technical skills, qualifications or certifications from a polytechnic institute may hinder the dropout's employment opportunities.

Without the qualifications and skills gained from completing a polytechnic program, dropouts may be limited to low-skilled jobs, which tend to have lower wages and fewer opportunities for career advancement. This can result in reduced job stability and lower overall socio-economic status. (Rumberger, 2011)

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Dropout from polytechnic education can result in individuals lacking the skills and qualifications needed to participate effectively in the labor market, which can lead to a less skilled workforce. This can impact the potential demographic dividend as a skilled and productive workforce is crucial for economic growth and development (Bongaarts, 2017; Bloom et al., 2003). According to the United Nations (2019) and Lee, Mason, and Lutz (2010), dropout from polytechnic education can lead to a reduced working-age population that is actively engaged in productive employment, resulting in the limitation of potential demographic dividend.

The consequences of dropout from polytechnic education include higher rates of unemployment or underemployment, leading to wasted human capital and reduced economic productivity, negatively impacting the potential demographic dividend (World Bank, 2012; Psacharopoulos, & Patrinos, 2004).

According to UNDP (2016) and Wodon et al. (2018), polytechnic education can provide opportunities for upward social mobility by equipping individuals with skills and qualifications for better-paying jobs. Dropout from polytechnic education can limit the opportunities for individuals to improve their socio-economic status and achieve upward mobility, which may hinder the potential demographic dividend.

According to the Asian Development Bank (2013) and World Economic Forum (2018), dropout from polytechnic education can lead to a shortage of skilled workers, reduced innovation, and decreased competitiveness in the economy, which can hinder the potential demographic dividend.

Career guidance and counseling services can assist polytechnic students in Bangladesh to explore career options, establish academic and career goals, and make informed decisions about their educational and career pathways. These services can improve students' motivation,

engagement, and sense of purpose, which can contribute to their persistence and completion of their studies (Hossain, 2018; Khan, 2016).

Financial aid, like scholarships or grants, can reduce financial barriers and support polytechnic students in Bangladesh. It can alleviate financial stress, enable students to cover educational expenses, and reduce the likelihood of dropping out due to financial constraints. (Ministry of Education, Bangladesh, 2018; Rahman et al., 2019).

Encouraging student participation in activities, clubs, sports, and community events in polytechnic institutes in Bangladesh can foster a sense of belonging and social connectedness among students, leading to increased persistence, identity development, and supportive relationships with peers and faculty (Islam et al., 2017; Ministry of Education, Bangladesh, 2018).

Implementing early warning systems that identify students at risk of dropping out and providing targeted interventions can help prevent dropout in polytechnic institutes in Bangladesh. Early warning systems may involve tracking students' attendance, grades, or engagement levels and intervening promptly with appropriate support services, such as academic advising, counseling, or referrals to other support programs (Ministry of Education, Bangladesh, 2018; Rahman et al., 2019).

It's important to note that the effectiveness of these countermeasures may depend on the specific context and characteristics of polytechnic institutes in Bangladesh, and a combination of strategies tailored to the unique needs and challenges of the students and institutions is likely to be most effective.

To build awareness about polytechnic education among students, industry experts, and elite members of the society in Bangladesh, various strategies can be employed such as organizing career fairs and campus visits, offering industry-specific training programs, establishing industry partnerships, engaging with government agencies, highlighting success stories of polytechnic

graduates, and using social media (Ahmed & Hossain, 2015; Bangladesh Technical Education Board, 2013; Hossain & Rabbani, 2016; Khatun, 2016; Rahman & Islam, 2016).

Overseas employment may reduce dropout rates from polytechnic institutes in Bangladesh by offering attractive career opportunities for graduates aligned with their skills and knowledge, as suggested by a study by Rahman and Hossain (2021). Their study provides insights into the potential benefits of creating advantages for going abroad as a countermeasure to reduce dropout rates and improve the prospects of polytechnic graduates in Bangladesh.

Islam and Hossain (2018) conducted a study on factors that influence dropout rates among polytechnic students in Bangladesh. The study identified several opportunities to reduce dropout rates, such as providing access to technology, career counseling and guidance, flexible learning opportunities, financial assistance, and mental health support. The authors suggest that implementing these opportunities can help address the various factors that contribute to student dropout rates and promote student success.

1.3 Objectives of the Study

The purpose of this study is to investigate the factors contributing to dropout and formulate potential strategies to reduce the dropout at a significant rate. What factors contribute to dropout from diploma engineering of Polytechnic Institute, and what strategies can be implemented to reduce dropout rates? This study will focus on students in different public and private Polytechnic institutes in Bangladesh. This study will analyze the relationship between academic, social, and socio-economic factors of dropout rates.

General Objectives:

Finding different causes of dropout, respective consequences and ways to minimize the impacts at a significant level.

Specific Objectives:

1. Find distinct academic, social, and financial causes of dropout of Diploma in Engineering students from polytechnic institutes in Bangladesh.
2. Identify diverse consequences of dropout from Polytechnic Institutes, family, society and country level.
3. Formulate ways of minimizing of consequences of dropout of Diploma in Engineering students from polytechnic institutes in Bangladesh.

1.4 Importance and Rationale of the Study

Unfortunately, any kind of data on dropout scenarios in TVET institutions is rare in Bangladesh. Since it is the beginning of 21st century and Bangladesh is trying to implement technical education just like the developed world gradually, Dropout has become a great headache in this case. TVET needs increasingly new enrollment at the same time zero dropout rate. There were a lot of reasons behind this. Firstly, necessary initiatives and steps to implementation of TVET are irreparable in order to reap the highest benefit of demographic dividend. In this regard, human resource development is the first priority. Already, China, South-Korea, Japan, Malaysia has implemented TVET successfully and got the benefit of Demographic dividend. Contrary to this, countries like Nigeria, Senegal, Benin, Madagascar were facing some challenges to implement TVET. Bangladesh is as well facing problems like this. Besides this, Bangladesh is enjoying demographic dividend presently. Bangladesh will enjoy more 20-25 years i.e., till 2045. That's why scholarly studies of dropout scenarios in TVET were quintessential.

1.5 Scope and Limitations of the Study

There were 50 Govt. and about 500 private polytechnic institutes i.e., in total more than 500 polytechnic institutes in Bangladesh. Since collecting information from this number of institutes is almost impossible, we collected information from the different polytechnic institutes

of eight Divisions, both private and public. Due to time constraints and other reason, we collected data from 10 public and 16 private polytechnic institutes of eight divisions. Moreover, as it is a hindrance to enhancing quality TVET in Bangladesh, educationists were willing to see a clear picture of dropout scenarios in all sectors of education especially TVET sector. In contrast, a lot of general people who were the stakeholders were not willing to provide their true reasons, as they feel shy or confused about clarification to share their true reasons. Not only this but also, they were unwilling to share any information at all.

1.6 Methodology of Study

Research Design

This study will be mostly a quantitative investigation, but qualitative research parts will be included in order to better understand the causes of dropout and the weighted impact of each cause and factors that lead to the drain TVET Sector as well as other sectors of education in Bangladesh. The impact of dropouts on our students' families and social life; not only our students but also our country's economic, social, political and environmental effects will be evaluated using both descriptive and statistical analysis in this study. When it comes to descriptive techniques, the participants' demographic characteristics will be analyzed using percentages and frequencies.

Type of Research

This research combines both quantitative and qualitative methods. While most indicators are quantitative in nature, some are qualitative.

As we collected and analyzed data with the help of numbers, statistical reports as well as close ended questions will be used to collect data, it is quantitative research.

Besides this, we have performed this research to understand previous thoughts or experience on dropout and we have reviewed existing literatures on this topic, our result is expressed in words. Moreover, as our research will help anybody to have an insight on dropout scenario in Polytechnic Institutions of Bangladesh. This could be defined as qualitative research.

Target population and sampling

The students of Diploma in Engineering courses of Polytechnic institutes, the teachers at Polytechnic Institutes, the Principals of respective institutes and Guardians will be considered as the population of the study. There is an innumerable population under this criterion. In Bangladesh, there are 50 government and more than 500 private polytechnic institutes. Among these 50-govt. polytechnic institute 4 is only for female and remaining 46 is dedicated for co-education. We will collect information from 10 government polytechnic institutes and 16 private polytechnic institutions from eight Divisions. From a total of 8 divisions, we chose 8 combined government polytechnics, and from the oldest 4 female polytechnics, we chose 2 government female polytechnics. Additionally, as there are more private polytechnics than government ones, we chose two from each of the eight divisions. Considering the budget and time frame it is almost impossible to reach every polytechnic institute countrywide. That's why we selected divisional polytechnic, which reflects the picture of the whole country. We took information from two female polytechnic from two divisions out of four dedicated female polytechnics. These two female polytechnics are older than the other two.

We used different sampling techniques such as Simple Random Sampling for students, Stratified Random Sampling for Teachers and respectable Principals of different institutes, and lastly, we will use Cluster Sampling Technic for guardians of students.

Source of Data and Methods of Data Collection

Most of the tools of our research are quantitative nonetheless, a great number of tools are qualitative. That's why we will use methods like Focus Group Discussion (FGD), Key Informant Interview (KII), and Questionnaire Survey (QS) etc. we will adopt KII for Principal of different polytechnic institutions, FGD with respectable teachers and QS for students and guardians.

As there are total 22 technologies for Diploma in Engineering under BTEB. We will select 4 departments from each polytechnic. These departments are different for each polytechnic. We will

select different departments from different polytechnics so that it covers 22 technologies to ensure the representation of all technology. From each department, we will consider 3 dropped out and 2 running students. Among 3 dropped out students, 2 is male and 1 is female as the ratio of admitted male and female students is almost 1:8. Among running students male and female representation will be the same i.e., one student from each gender.

From these institutions selection of students will following the below diagram:

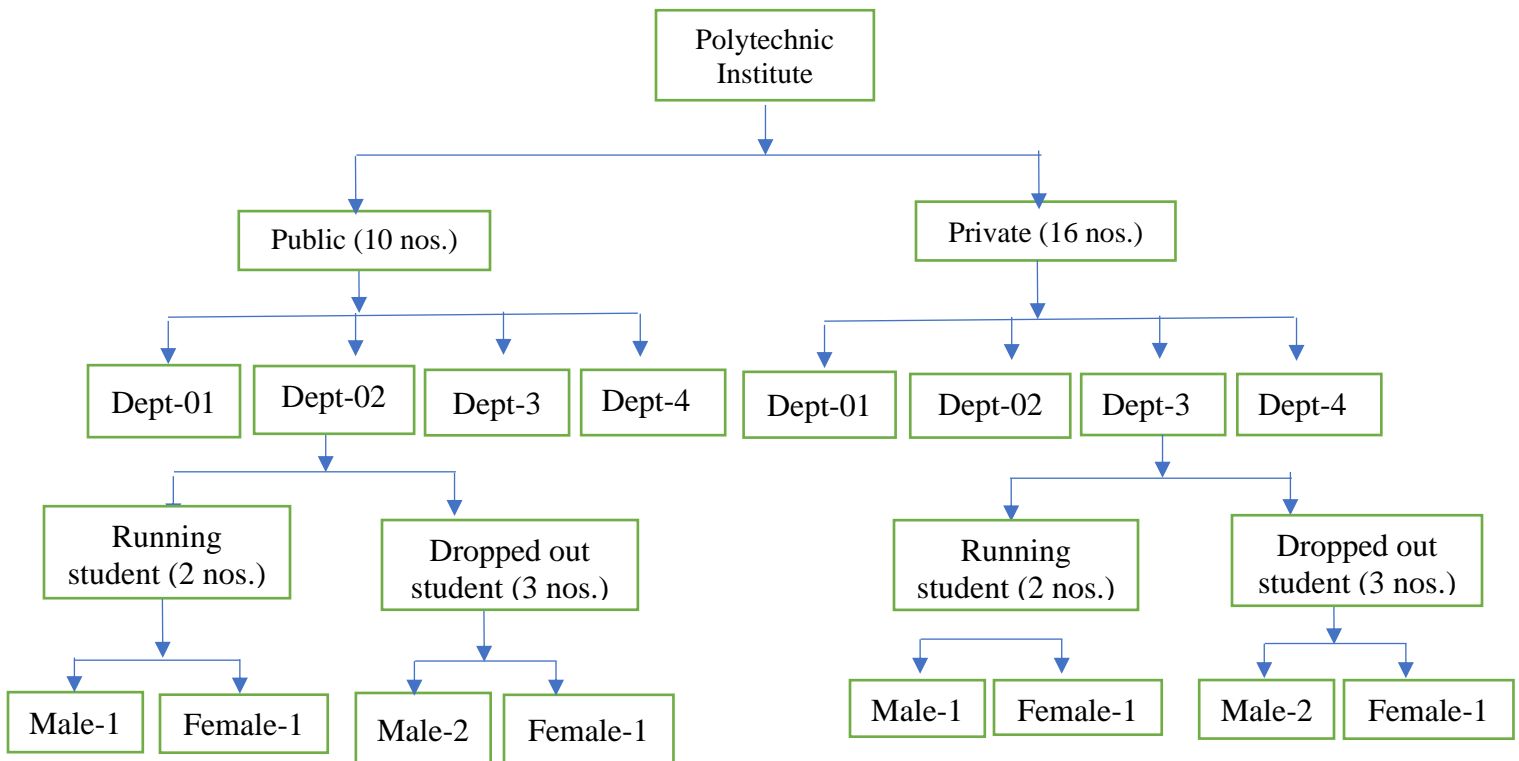


Figure 1: Sources of Data

Number of interviewed students from govt polytechnic= no. of student X no. of dept X no. of poly.

$$= (\text{dropout} + \text{running}) \text{ students} \times \text{no. of dept} \times \text{no. of poly} = (3+2) \times 4 \times 10 = 200 \text{ nos.}$$

Number of interviewed students from private polytechnic= no. of student X no. of dept X no. of poly.

$$= (\text{dropout} + \text{running}) \text{ students} \times \text{no. of dept} \times \text{no. of poly} = (3+2) \times 4 \times 16 = 320 \text{ nos.}$$

$$\text{Number of dropped out student} = 3 \times 4 \times 10 + 3 \times 4 \times 16 = 120 + 192 = 312$$

$$\text{Total interviewed students} = 200 + 320 = 520$$

Among all interviewed students' male participants= $(1+2) \times 4 \times 10 + (1+2) \times 4 \times 16 = 120 + 192 = 312$ nos.

Female participants= $(1+1) \times 4 \times 10 + (1+1) \times 4 \times 16 = 80 + 128 = 208$ nos.

No. of interviewed Guardians= no. of dropped out students = 312

Number of interviewed teachers= number of dept. $\times 2 \times$ number of polytechnics = $4 \times 2 \times 26 = 208$

Number of interviewed Principal= number of Polytechnics = 26

Considering four categories total number of respondents = Students + Guardians + Teachers + Principals = $520 + 312 + 208 + 26 = 1066$

We will adopt the Questionnaire Survey for Students and guardians. Then we used Focus Group discussion with the teacher. FGD was conducted with teachers of 26 polytechnic; in total 212 number of teachers have participated. Finally, we conducted Key Informant Interview approach with Principal sir of different institutions.

Tools of Data Collection

Questionnaires' & Interview Guideline.

Method of Data Analysis and Presentation

Following the collection of all of the information, the responses will be subjected to critical analysis using the MS Excel and SPSS software. Students' perceptions of dropouts, obstacles they confront during their studentship, and general recommendations will be recorded and analyzed, as well as their experiences with dropouts. Using the above-mentioned software, we will do observe Frequency, Factor Analysis, Descriptive Analysis, Reliability Analysis etc. Using the statistical analysis result, useful recommendations and conclusion will be This proposal will, in general, address concerns that the students would like to see addressed more effectively.

Conceptual framework

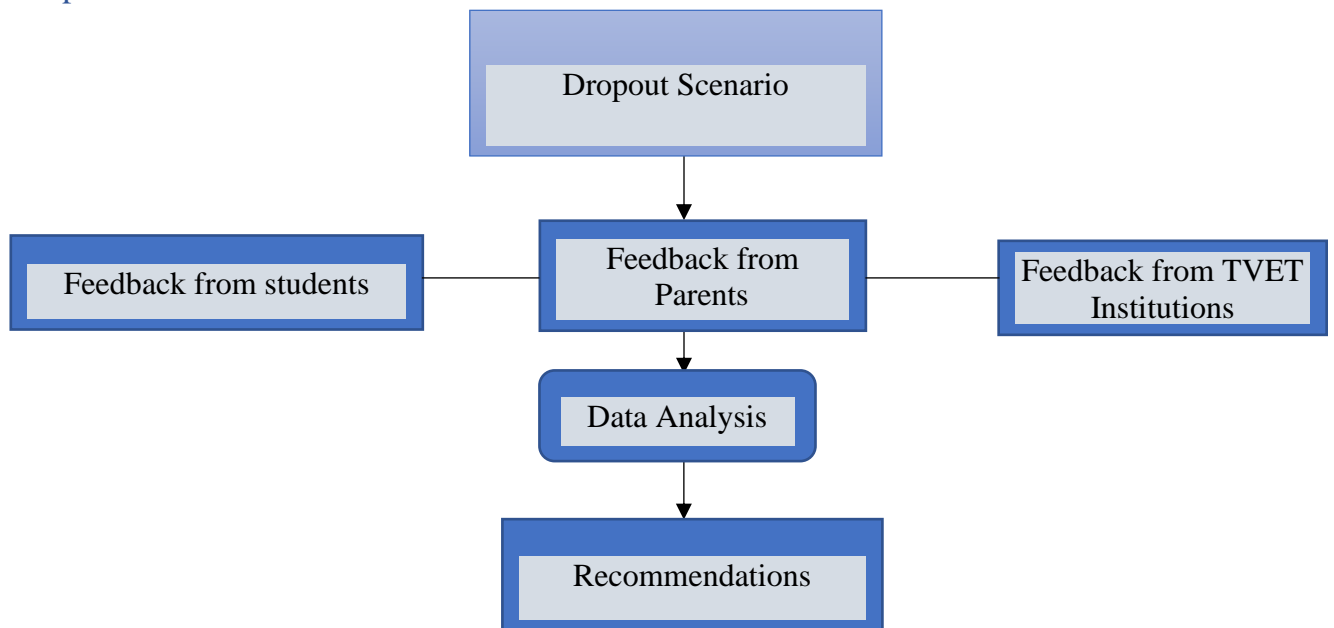


Figure 2: Conceptual Framework

Results and Discussion

2.0 Causes of Drop-out

Dropout from polytechnic institutes is a critical issue in Bangladesh, and it can be caused by a variety of factors. These factors can be classified into three broad categories: academic, social, and financial. Academic factors include difficulties in certain subjects, inadequate teaching quality, and a lack of resources such as laboratory facilities. Social factors include societal norms, misconceptions, and a lack of awareness about the benefits of a diploma in engineering among parents and guardians. Financial factors include the high cost of education, limited access to financial aid or scholarships, and less scope of part-time job. It is essential to understand these underlying causes to develop effective interventions and strategies to reduce dropout rates and promote educational attainment.

2.1 Academic Causes

According to a study conducted by Hasan et al. (2018) on the causes of dropout from polytechnic institutes in Bangladesh, academic factors such as poor academic performance, difficulty in understanding lessons, lack of interest in the subject matter, and inadequate preparation for the academic demands of polytechnic education were identified as the primary reasons for student dropout. The study also found that the lack of supportive learning environments, limited access to academic resources, inadequate teaching quality, and insufficient teaching facilities were contributing factors to academic failure and subsequent dropout. Additionally, the study highlighted the importance of student motivation, engagement, and academic self-efficacy in promoting academic success and reducing dropout rates in polytechnic education. This study has found some academic causes like high ratio between teacher and student, some difficult subjects, poor teaching strategy as well as inadequate lab settings, etc.

2.1.1 Teacher-Student Ratio

Most of the public polytechnic institutes have more students than their teachers and other facilities. Almost all govt polytechnics are in crying need of teachers. So, the classroom is crowded with students, or sometimes students are not interested in attending classes as he or she needs to be treated properly by the class teacher. According to Gil, Lanzat and Gonzalez (2012) the student/teacher ratio may affect the process of teaching and learning. Our Questionnaire survey with students and a Focus Group Discussion with teachers also suggest this. According to figure 3 and figure 4, most classes have an attendance of either 20 or 30 or 40 or 50 students. As we have interviewed 16 private polytechnics, the number 20 (number of students) appears (as they have less intake) otherwise it would be more than 30 because public polytechnics have higher intake rate.

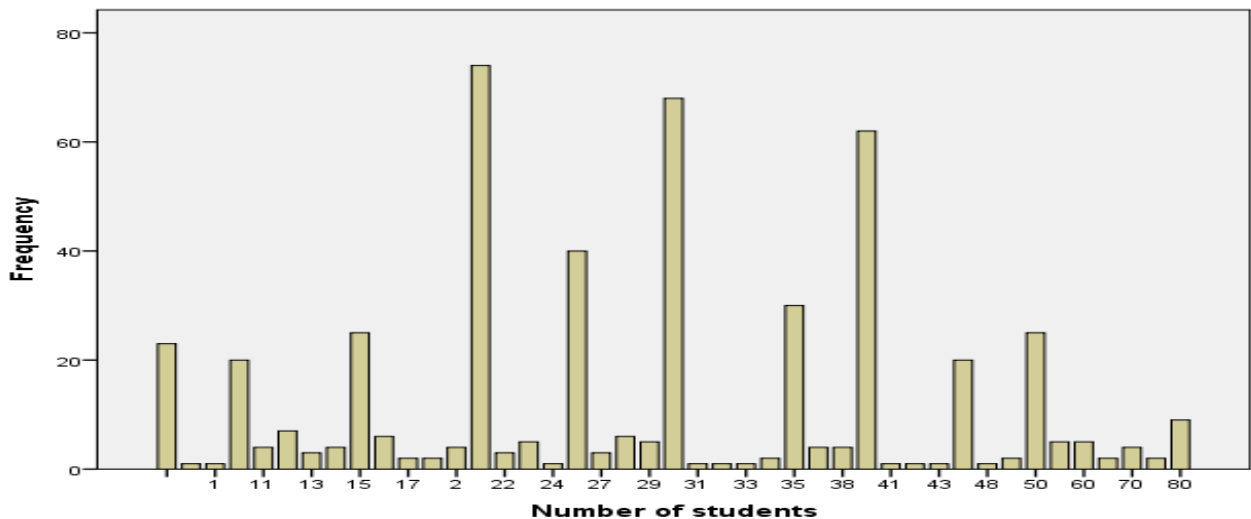


Figure 3: Teacher-Student ratio in theory class

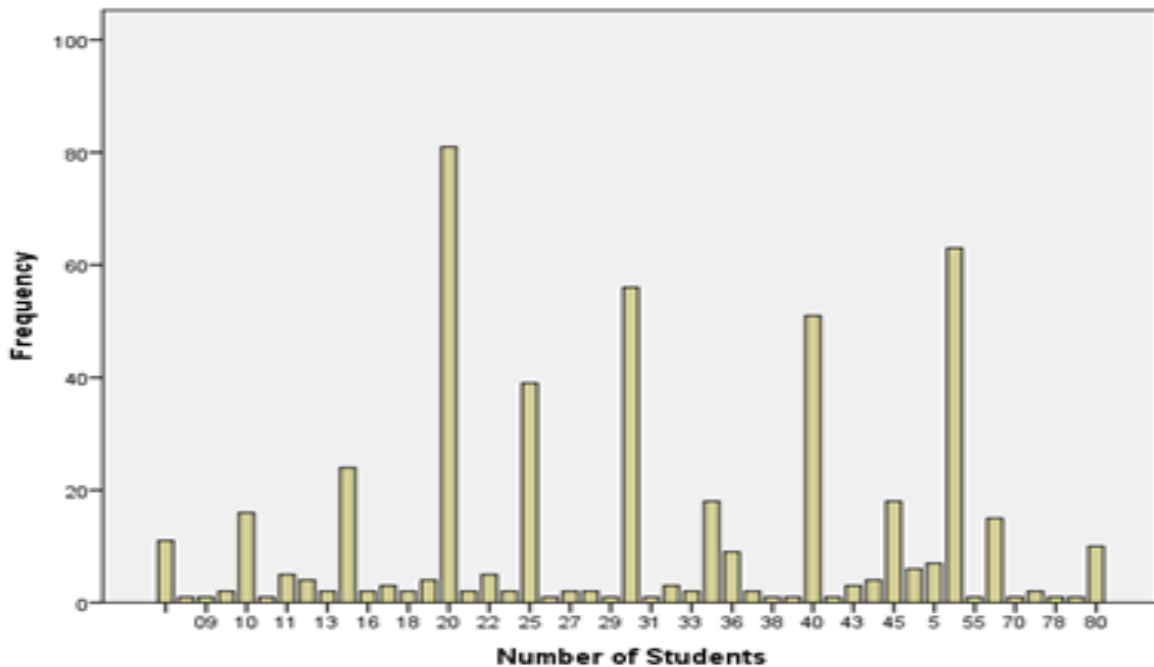


Figure 4: Teacher-Student ratio in practical class

2.1.2 Subjects Weightage

According to Claybourn (2023), poor academic performance and academic pressure contribute to college dropouts. Here, we are also facing the same problem. Math, Physics, Chemistry, English, and some tech subjects like Basic Electronics and Programming Essentials are impregnable to students.

2.1.3 Teacher's Standard and Quality of Delivery

According to Hoque and Mahanta (2021), teachers' performance and quality can have an impact on students' retention and academic success. According to our study, 40% of the respondents believed that the teacher's delivery was either average, poor, or very poor. According to Figure 5, around 28.57% of students and 34.29% of respondents believe that teachers' lessons are delivered in an effective manner. However, this viewpoint can be the result of students'

reluctance to criticize their teachers. So, it can be said that teacher's performance is a significant factor of dropout in polytechnic institutes of Bangladesh.

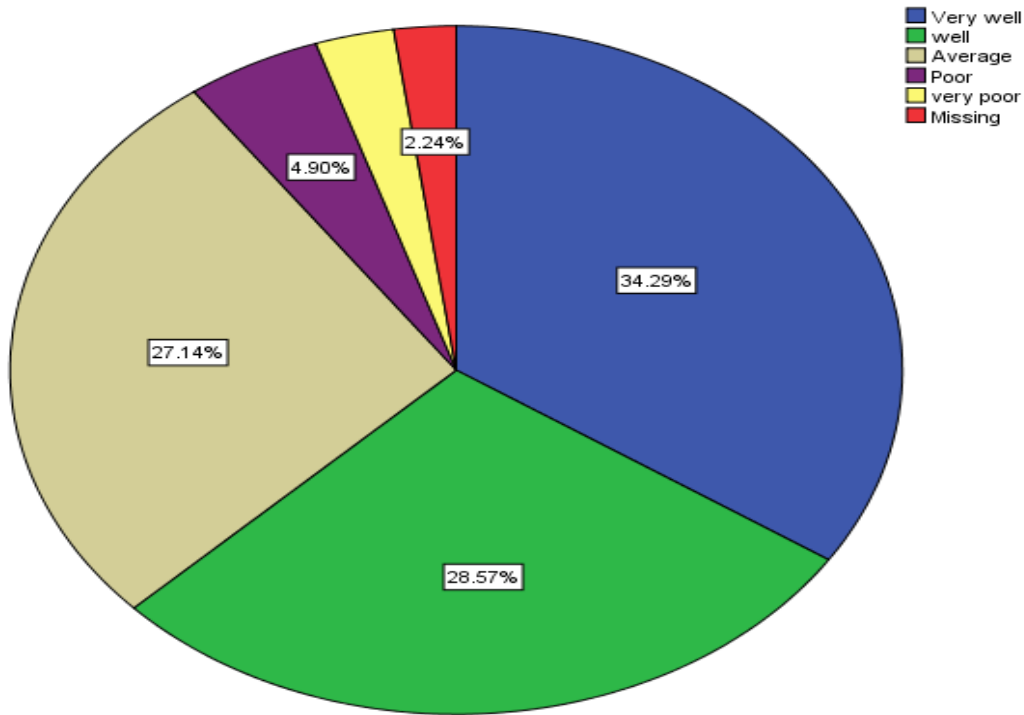


Figure 5: Teachers' Delivery Quality

2.1.4 Lab facilities

Lack of adequate facilities in labs and workshop of polytechnic institutes influence students to drop out from Polytechnic institute. According to Mamun, Hasan and Amin, the condition of lab and equipment may be one of the factors that influence student dropout rates in polytechnic institutes. Our QS suggests that 37% of our students think that they don't have enough lab and equipment. Another 17% thinks that they have moderately equipped labs and equipment. Not only students survey but also FGD with the teachers (Table 1) and KII with principals suggest that condition of lab and equipment is not satisfactory. Principals and teachers' have opined that polytechnics' lab facilities are improving day by day. Thus, from respondent's responses and secondary literature, we state our opinion that modern equipment and lab facilities should be

improved as early as possible. This will impact reducing dropout. Students can apply concepts and strengthen learning through exploration during lab sessions. Information retention and comprehension have been demonstrated to improve with this active learning strategy (Prince, 2004). Students who recall information well may feel more confident and be less inclined to leave school because of difficulties in the classroom.

Table 1: condition of Lab and equipment

Opinions	Frequencies	Percentages
Highly equipped	27	12.7
Adequately equipped	52	24.5
Moderately equipped	73	34.4
Not enough lab and equipment	56	26.4
No lab and equipment	1	0.5

2.2 Social Causes

Some predisposing factors of society like lack of awareness from guardian level, scarcity of knowledge about the pros and cons of studying diploma in Engineering, misconception on diploma in engineering students, are the root-social causes of dropout from polytechnic institutes. Besides these, economic constraints of family, poor living conditions, gender bias are also contributing factors of social causes of dropout.

2.2.1 Guardian's Knowledge about Diploma in Engineering Graduate

An article by The Guardian (2020, September 19) claims that students lack the self-confidence to finish their degrees, have reduced expectations from their families, and have less financial assistance. The study suggests that these students should be provided with more care and guidance to overcome these barriers from family. Similarly, our study findings suggest that most

of the guardians (about 45%) are less known about the nitty-gritty of polytechnic education systems as well as their advantages and disadvantages. This is one of the important reasons for dropout from polytechnic institute of Bangladesh.

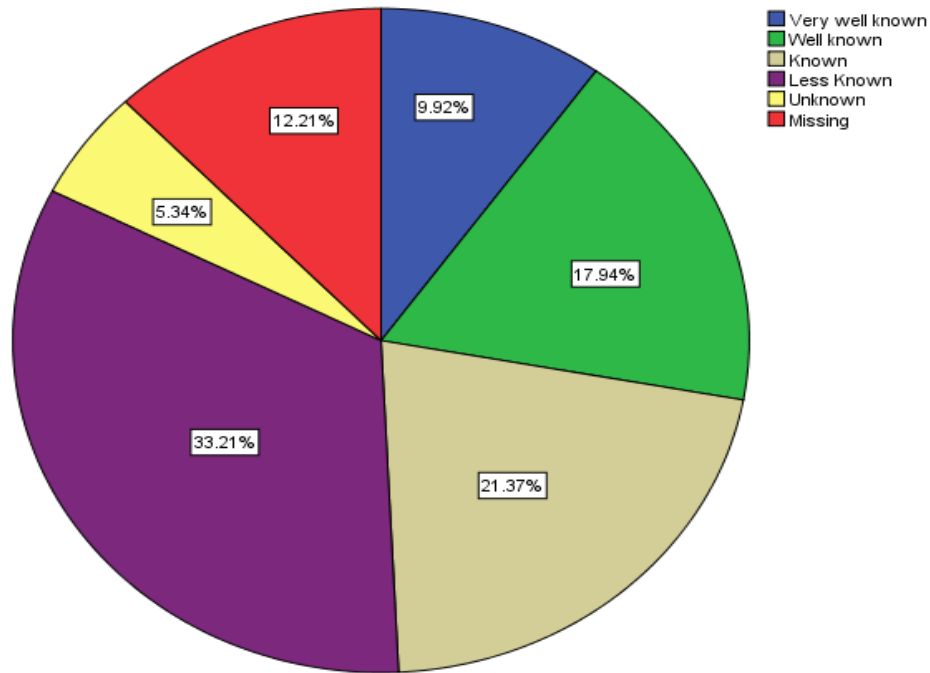


Figure 6: Guardian's Knowledge about Diploma in Engineering

2.2.2 Social Awareness about Diploma Graduate

Our society does not recognize diploma engineers properly as well as there is no honorable place for skilled workers. As a result, nobody wants his child to be a skilled person in any sector until they are bound to be a skilled worker. This is also true for diploma engineers; people usually don't treat them as skilled professionals. According to a study by Amin (2017), one of the causes of dropout is a lack of social awareness and recognition of diploma graduates as skilled professionals. Society possesses average or negative ideas about diploma engineers' performance and skill according to KII with principals and student's survey

Thus, from our observation, it is to be said that if we can eradicate social prejudice about diplomas in Engineering would make them aware of the benefits of Diploma graduates then the guardians will be interested to admit their boys or girls to polytechnic, as well as their retention of study, will be easier.

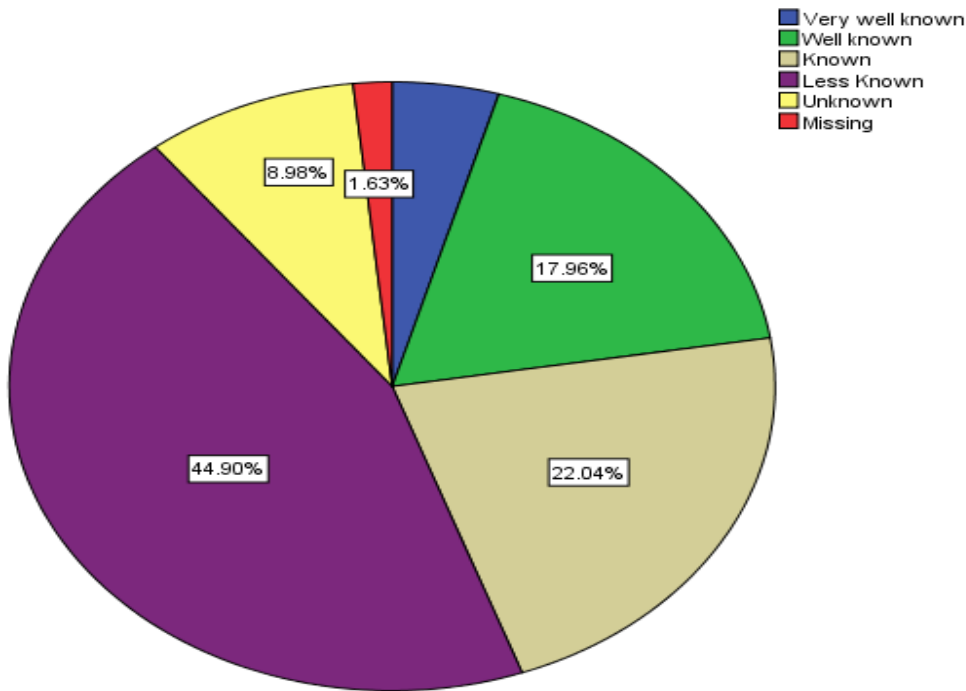


Figure 7: Social Awareness about Diploma in Engineering

2.2.3 Social Norms

Our society has some unwritten rules or expectations which guide individuals' decision to drop out of different settings of education as well as Diploma in Engineering education system. For example, most of the guardians or people of society prefer early marriage or work over education. They have this notion because of societal expectations around gender roles, traditional cultural behaviors, or economic pressure. This has a huge impact on the dropout of girls from polytechnic institutes. Many educated families prefer to marry girls with general education instead of girls who are admitted to polytechnic institutes.

In our study, we found from that about 46% of parents are less interested in admitting their child especially girls' to admit in polytechnic institute and about 12% parents are not interested at all to admit their girls' to admit in polytechnic institute. Besides, marriage has a worse effect on continuing Diploma in Engineering education. According to our survey, marriage while study has a detrimental impact on 50% of girls' education.

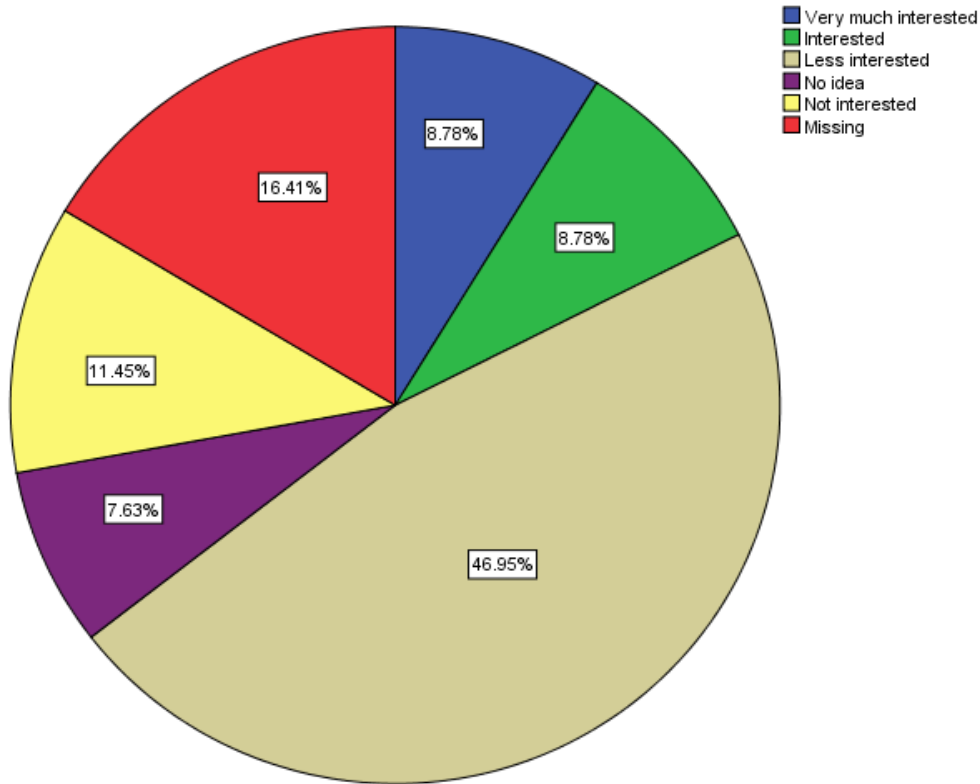


Figure 8: Parent's Interest to Admit Girls' in Polytechnic Institute

It's important to note that social norms can vary across different cultures, communities, and contexts, and their impact on dropout rates can be complex and multifaceted. However, research suggests that social norms can be a significant underlying factor contributing to dropout rates in various educational settings.

2.3 Financial Causes

Financial challenges can be a significant cause of dropout from polytechnic institutes. Many students face financial barriers that can make it difficult for them to continue their education and may result in them dropping out of college. High costs of tuition fees, textbooks, and other educational expenses, lack of sufficient financial aid or scholarships, limited access to well-paying part-time work, and high cost of living are some examples of financial challenges that can be a cause of dropout from polytechnic institutes.

2.3.1 Accommodation Cost

The cost of living, including housing, transportation, and other daily expenses, can be a financial cause of college dropout. Students who face high living costs in the areas where their colleges or universities are located may struggle to afford these expenses, which can impact their ability to continue their education and result in dropout. (Ma, Jennifer, 2016; Baum, Sandy, 2016) Similarly, our study also suggests that 26.3% of the students think their accommodation cost is very high. Another 29% think it is high whereas only 32.4% of students consider it as average cost.

Table 2: Accommodation cost of polytechnic students

Opinions	Frequencies	Percentages
Very high	129	26.3
High	142	29.0
Average	159	32.4
Low	40	8.2
Very Low	11	2.2

Most of the students of the Diploma in Engineering belong to middle-class or lower middle-class families. So, accommodation costs of about five to six thousand seem high for them. But the total cost of a Diploma in Engineering is comparatively lower than general education.

2.3.2 Guardians' Financial Capacity

Most of the students have a loan burden either for their family expenses or for their studying expenses. On the other hand, they got a very low stipend with which they can barely support their stationary costs. Due to these cost burdens where family's support is not significant students tend to drop out of polytechnic institutes. We have found 30% of students are from moderately solvent family, 20% of the students are from family who somehow meet their ends by every member earning and 14% students expense their studies and other expenses by his own earning. Along with this, survey with guardians suggests that only 20% of guardians think their financial condition is moderately solvent, whereas 40% of them think that they meet their ends with all the members income of the family.

Table 3: Financial Condition of students' Family

Opinions	Frequencies	Percentages
Solvent	16	6.1
Moderately Solvent	58	22.1
Solvent By Earning of All the Members	107	40.8
Self-solvent (Students' own income)	19	7.3
In solvent	32	12.2

In these circumstances it is very difficult for our students to meet-up tuition costs, stationary costs and other educational fees from time to time. Thus, they fail to continue their study in polytechnic institutes.

2.3.3 Limited Part-time Job Opportunity

Except Dhaka city, there is scarcity of part-time work in other divisions of Bangladesh. It is rarer in district town of Bangladesh. Most of the polytechnic institutes of Bangladesh are situated in district towns or divisional cities where it isn't easy to find part-time work to support their educational expenses with self-income.

Previous studies also suggest that students who are unable to find suitable employment may face financial challenges that can lead to dropout. (Stephen L. DesJardins, 2006)

Our survey with students finds that part-time work opportunity is very low or low (Figure 9).

Part-time jobs being difficult to manage, students find it costlier to stay out of the home and to continue their study.

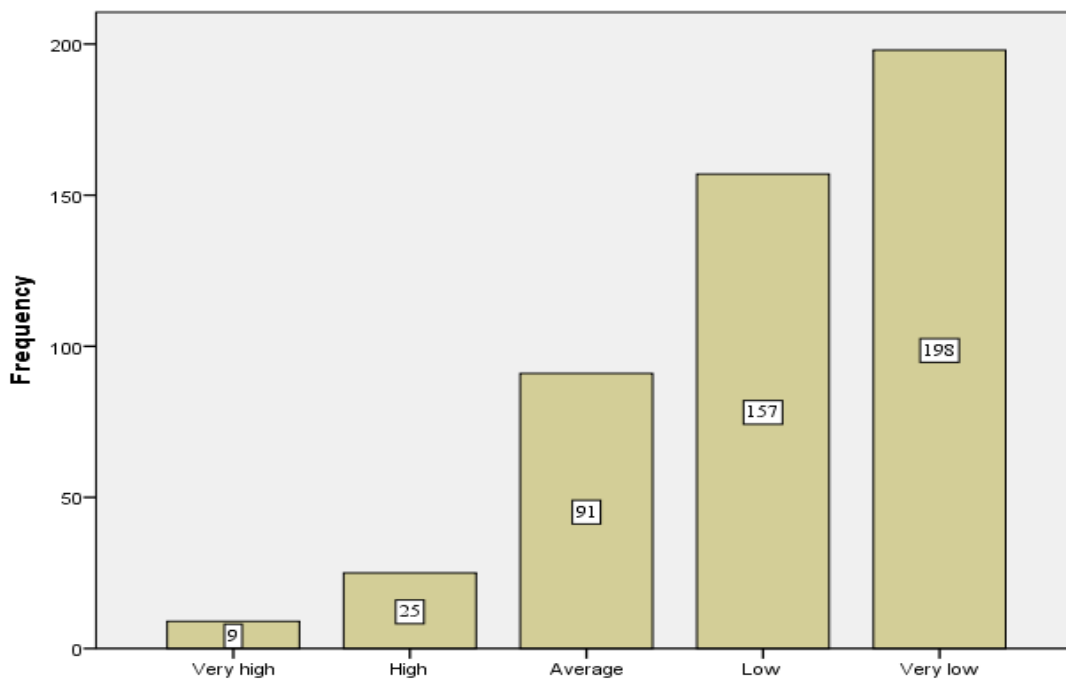


Figure 9: Availability of Part-time Job

Summary of Causes

Various reasons are responsible for the dropout from polytechnic institutes in Bangladesh, including academic, social and financial insolvency. In addition to difficulty coping with the

curriculum, the high teacher-student ratio, the lack of awareness among guardians and prominent members of society about the need for a Diploma in Engineering, and the inability to bear the expenses of education, the lack of family support, the lack of preparation for the polytechnic system, and the poor quality of teaching all contribute to the dropout of polytechnic institutes. Other factors that may contribute to dropout include the pedagogical standard of teachers and limited opportunities for practical learning. Understanding the causes of dropout from polytechnic institutes can help educators and policymakers to develop strategies to address them and support students in completing their courses.

3.0 Consequences of Dropout

Dropping out of polytechnic institutes can have various consequences, both immediate and long-term, that can impact an individual's life in different ways. Any individual's family, social, or national life can be affected by the consequences. Dropout could also affect the institution where he or she studied. Anybody who drops out of the Diploma in Engineering course generally becomes psychologically down. It appears as an economic and psychological storm to his family members since they have to rethink new career paths for their pupils, society asks them a lot questions, gives unlikely suggestions which are sometimes annoying or disgraceful. The society may perceive that polytechnic institute courses are difficult to comprehend or that the teachers are not good enough to make students understand their studies. Moreover, the individual lost the opportunity to earn comparatively higher in future as a lot of high-income job needs at least Diploma in Engineering degree. He or she will have limited job opportunities available for them. In addition to this, the concerned society lost a potential skill worker as a dropout student might engage in a job that has low-income potential or requires comparatively less skill. On top of that, a Diploma in Engineering education is often associated with fostering innovation, creativity, and critical thinking, which are vital for societal progress and development. Dropout from polytechnic institutes can limit individuals' opportunities for learning and acquiring new knowledge and skills, which can result in reduced innovation and creativity in society. This can hinder the development of new ideas, technologies, and solutions to address societal challenges, which may impact societal progress and advancement. Not only will societal progress hinder but also nation's Human Resource Development process will be slowed down. As a result, Demographic Dividend of Bangladesh will be in vain.

3.1 Consequences on Family

Dropping out from a polytechnic can cause financial difficulties and negative impacts on parents' mental health. Educational institutions and policymakers should address the underlying reasons for dropout rates, including financial difficulties, lack of motivation or interest, mental health issues, and family or personal circumstances. By identifying and addressing these issues, students can complete their education and achieve their career goals while supporting their families' well-being which will be helpful to reduce dropout.

3.1.1 Financial Hardship of Family

When individuals drop out of a polytechnic or technical school, they may face reduced earning potential and limited job opportunities, which can lead to financial difficulties.

According to a study by Rumberger, Lauen, and Francis (2017), individuals who do not complete postsecondary education, including technical schools, tend to earn lower wages compared to those who complete their education. This can result in financial challenges, including difficulty in meeting basic needs, paying bills, and supporting oneself or one's family.

Our study also suggests that the financial hardship of the family increases. 41% of students think that financial hardship increases whereas 13% of them thinks financial hardship increases but moderately. Our FGD and KII also support this finding. During FGD and KII with teachers and principals, some teachers suggested that financial hardship may decrease because a dropout student may engage in job immediately and support family. But it is not true because a dropout student will have to engage in odd jobs or jobs that require less skill level. It will not bring a greater impact on family income in the long run. Dropout may bring happiness in the short term but not in the long term.

3.1.2 Parents Mental Condition

There is limited research specifically examining the direct impact of a student's dropout from a polytechnic institute on their parents' mental condition. However, it is possible that parents may experience stress, disappointment, and emotional distress as a result of their child dropping out from an educational program, including a polytechnic institute.

Parents often have high expectations for their children's education and success, and when their child drops out from a polytechnic institute, it may cause feelings of disappointment, frustration, and worry about their child's future prospects. This can lead to increased stress levels and emotional strain on parents, potentially resulting in negative impacts on their mental health.

Research on the consequences of school dropout in general, including high school dropout, has shown that parents of dropouts may experience increased psychological distress, including symptoms of depression, anxiety, and reduced overall well-being (Ingul, Klöckner, and Silverman, 2012). Parents may also experience feelings of guilt or self-blame, wondering if they could have done more to prevent their child from dropping out.

We have found that 70% of the parents become very fed-up after their boy's or girl's dropping out from the polytechnic institute.

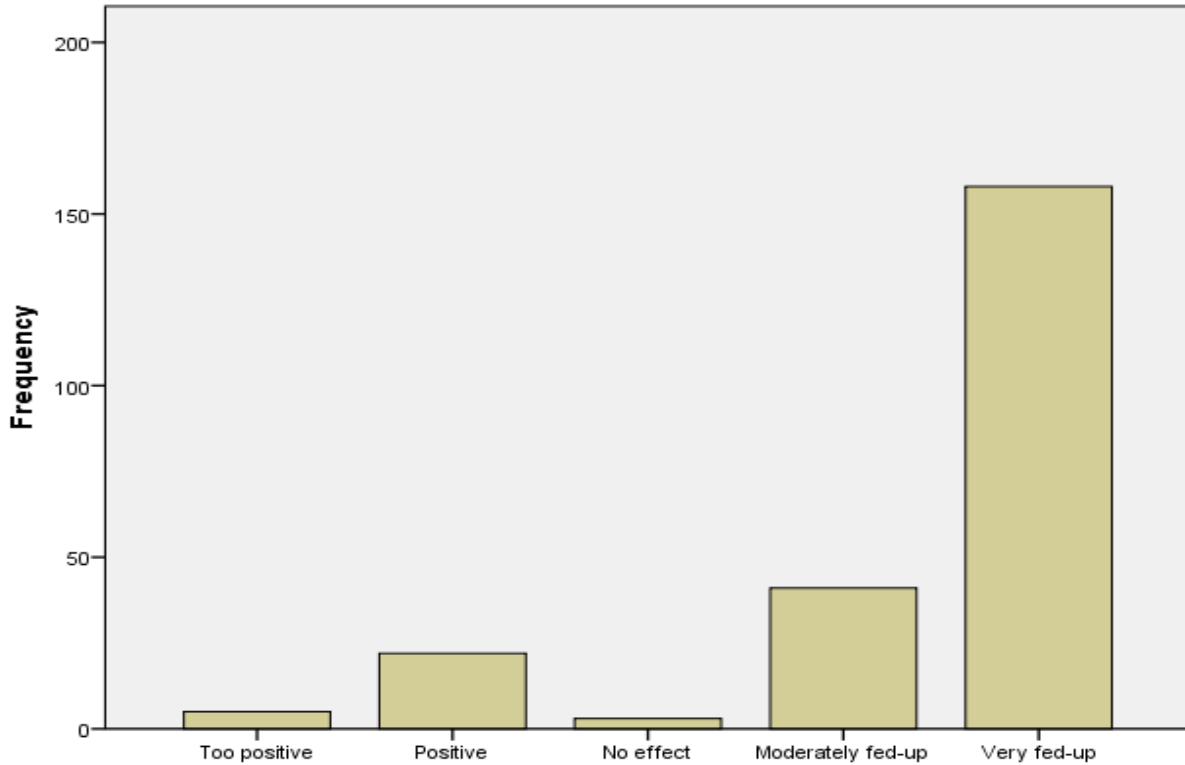


Figure 10: Parents Mental Condition after Dropout of His/her Children

In some communities or cultures, education is highly valued, and parents may attach a significant amount of social status to their child's educational achievements. When a child drops out from a polytechnic institute, it may result in a perceived loss of social status or prestige for the parents, which can impact their self-esteem and emotional well-being.

It's important to note that the consequences of a child dropping out from a polytechnic institute on parents and families can be complex and multifaceted and may vary depending on individual circumstances. Supportive measures such as access to counseling, financial resources, and community support can help parents cope with the consequences of their child's dropout and navigate through potential challenges.

3.2 Consequences on Society

Dropping out from a polytechnic institute can have various consequences on the workforce and society, including reduced employability, lower earning potential, increased reliance on low-skilled jobs, societal costs, loss of human capital, reduced innovation capacity, diminished competitiveness, economic loss, and social challenges. The consequences may vary depending on individual circumstances and societal factors, but completing a polytechnic program can generally enhance employability and increase earning potential, positively impacting the workforce and socio-economic well-being. Dropout from polytechnic institutes can also lead to a loss of skilled workers, reduced innovation potential, and limited contribution to technology and industry, potentially negatively impacting the overall innovation and competitiveness of a society.

3.2.1 Workforce of the Society

According to Rumberger (2011), the consequences of dropout from a polytechnic institute on the workforce of society can be multi-faceted and may vary depending on various factors such as the economy, labor market conditions, and the individual circumstances of the dropout. Some potential consequences are reduced employability due to lower levels of education and skill development. Because many jobs today require specific technical skills, and lacking the necessary qualifications or certifications from a polytechnic institute may limit the employment opportunities for the dropout.

Consequently, the workforce of any society as a whole will be less capable of earning a handsome salary or wage. As education is often linked to earning potential, individuals with higher levels of education, including completion of polytechnic programs, tend to earn more over their lifetime compared to those with lower levels of education.

Most of FGD participant teachers opined that the result of dropout of the workforce the society is a decrease in capability to earn. Though a lot of participants opined that the result of

dropout on the workforce is moderate increase in earning capability, our opinion is that it's not right. Because KII with 26 principals from 26 polytechnic institute clearly opined that result is a decrease in the potential to earn or achieve considering the lifetime of any student. The notion that dropping out leads to an increase in capability is not true over the long-term; however, it may hold some validity on a short-term basis.

It's important to note that the consequences of dropout from a polytechnic institute on the workforce of society can be influenced by various factors, and not all dropouts will experience the same outcomes. However, completing a polytechnic program and gaining the necessary skills and qualifications can generally enhance employability and increase earning potential, which can positively impact the workforce and overall socio-economic well-being of individuals and society.

3.2.3 Innovation and Competitiveness

Based on the focus group discussions (FGD) and key informant interviews (KII), the main themes related to innovation and competitiveness can be summarized as follows:

Fifteen participants expressed the opinion that innovation and competitiveness would decrease.

Seven participants believed that innovation and competitiveness may decrease, but not significantly.

Three participants felt that innovation and competitiveness may moderately increase.

Respondents opined that if any student dropped out from polytechnic institute, it could result in a loss of human capital, including knowledge, skills, and talents, which are crucial for driving innovation and competitiveness in society as Human Capital is a key factor in fostering creativity, generating new ideas, and developing new technologies and products.

One of respondents of KII said, “*dropout can lead to a reduced talent pool of skilled workers and innovative thinkers, which may result in decreased competitiveness in society. This*

can impact the ability of a society to compete with other regions or countries in terms of technological advancements, economic growth, and market competitiveness.”

Therefore, it is to be categorically said that dropout impacts negatively on the innovation and competitiveness of any society.

However, in general, a dropout from polytechnic institutes may result in reduced innovation potential, limited contribution to technology and industry, and potentially negative impacts on industry-academia collaboration, which can affect the overall innovation and competitiveness of a society.

3.3 Consequence on Institute

High dropout rates from polytechnic institutes can have negative effects on the institution's reputation, budget allocation, and use of educational resources. People surrounding the institute may view dropout students as deviant and question the quality of education and support systems. The institute may lose tuition and fees, resulting in budget challenges, and decreased funding may affect the institution's financial sustainability and ability to provide quality education and resources to its students. High dropout rates can also lead to underutilization of faculty, reduced utilization of facilities, decreased support services, and reallocations of resources. The impact on educational resources due to dropout can vary depending on local circumstances. Private polytechnic institutes suffer much in this regard.

3.3.1 Idea about Polytechnic Institute

FGD with teachers and KII with principals supports that when a student drops out from polytechnic institute people of the surroundings takes it very negative both for student and institution. They construe dropped out student as a deviated one. Moreover, they also think that the concerned polytechnic institute lacks quality teachers as well as ancillary equipment. They

might also think the curriculum is tough for students. In a word, people convey negative ideas on polytechnic institutes which are dropout prone.

From research of Hossler and Gallagher (2011), it is found that High college dropout rates can negatively impact the reputation and public perception of the college.

3.3.2 Allocation of Budget

The effect of budget allocation due to dropout from polytechnic institutes can vary depending on the specific context, policies, and practices of a particular educational system or institution. In general, high dropout rates can result in budget challenges for polytechnic institutes.

A Research by Dougherty and Reddy (2011) suggests that some institutes receive funding based on student enrollment, retention, and graduation rates.

When students drop out, the institute may lose the tuition and fees that would have been collected from them, which can affect the overall revenue and financial sustainability of the institute. This may result in budget reallocations or adjustments to compensate for the loss of revenue, potentially impacting the availability of resources, facilities, faculty, and support services for remaining students.

3.3.3 Utility of Institutional Capacity

The use of educational resources in institutions, such as polytechnic institutes, can be affected by dropout rates. High dropout rates can impact the utilization of educational resources in several ways such as reduced utilization of facilities like classrooms, laboratories, and workshops as well as machines and equipment since there may be fewer students requiring these resources; reduced tuition and fee revenue for the institution.

KII with principals of polytechnic institutes, focused on this topic. The outcome of KII is that government polytechnics are less affected by dropout in this respect. On the other hand, private

polytechnic institutes are severely affected by this point due to dropouts. A principal of a private polytechnic stated that they made significant investments in physical infrastructure a few years back, but in recent years, it has remained unused. Thus, it is evident that dropout causes misuse of institution's resources.

3.4 Consequences on National Level

Dropping out of polytechnic education can have significant consequences on unemployment, human resource development, and demographic dividend. Individuals who drop out of polytechnic education may lack the necessary credentials and skills to compete in the job market, resulting in reduced employment prospects and lower earning potential. This can also limit opportunities for career advancement and further education, leading to a workforce with lower skills, productivity, and innovation, which can hinder economic growth and competitiveness. These consequences can have long-term implications for the human resource development and overall socio-economic well-being of a country, potentially reducing the demographic dividend.

3.4.1 Unemployment

Dropout from polytechnic, like dropping out from any educational institution, can potentially increase the risk of unemployment. The reasons are lack of credentials, skills gap, reduced job opportunities etc. (Banerjee et al., 2016).

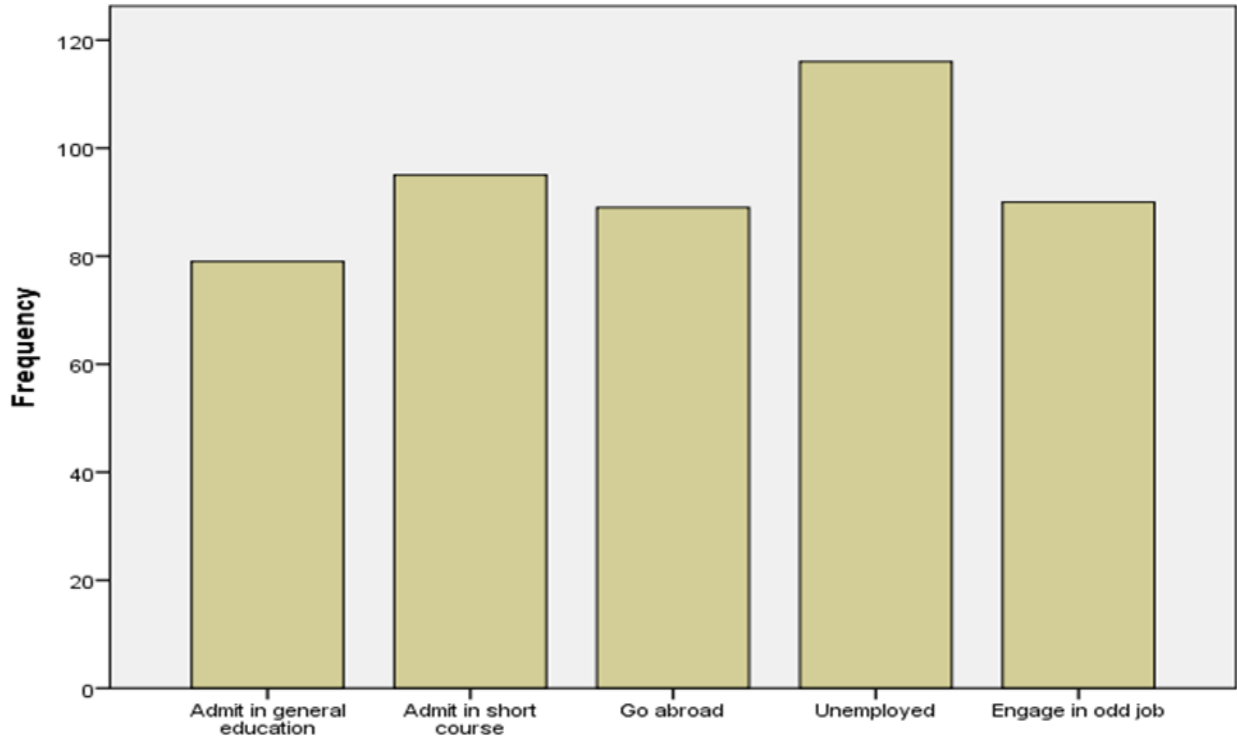


Figure 11: Typical Actions of Dropped-out Students

It's important to note that the relationship between dropout from polytechnic and unemployment can vary depending on individual circumstances, such as the labor market conditions, the field of study, and the specific reasons for dropping out. Additionally, other factors such as work experience, networking, and individual skills and abilities can also impact employability. However, in general, dropping out of polytechnic can increase the risk of unemployment due to the potential lack of credentials, skills gap, reduced job opportunities, and competition in the job market.

3.4.2 Human Resource Development

The consequences of dropping out from a Diploma in Engineering education, including polytechnic, on human resource development in a country can be significant and multifaceted.

FGD with teachers suggested that dropout is a barrier to Human Resource Development. KII also supports this categorically. They also pointed out some reasons shown in the table below:

Table 4: Human Resource Development

Causes	Frequency	Percentage
Can't participate effectively in social and economic life	83	39.2
Obstacle to create skilled manpower	116	54.8

These consequences can have long-term implications for the human resource development and overall socio-economic well-being of a country. It's important to address dropout rates and invest in education and skill development to mitigate these consequences and promote human resource development for sustainable economic growth and social progress.

3.4.3 Demographic Dividend

Dropout has immense negative effect on demographic dividend of Bangladesh which has been shown in table 2. The frequency of reasons is shown below:

Table 5: Effects on Demographic Dividend

Reasons	Frequency	Percentage
Economically negative effect	11	42.3
Increase unemployment	10	38.5
Decreased govt. revenue	2	7.7

It's important to note that the consequences of dropout from polytechnic education on the demographic dividend can vary depending on the local context, economic conditions, and social policies.

4.0 Counter Measures

Polytechnic institutes in Bangladesh provide technical education and vocational training, but the high dropout rates among students pose a significant challenge. Dropout can have severe consequences, including limiting career prospects, hindering economic development, and social mobility. To address this issue, several countermeasures have been proposed and implemented, such as academic support programs, career guidance and counseling, financial assistance, student engagement, support for non-academic needs, and early warning systems.

4.1 Measures Taken

The Bangladeshi government has implemented several policies, projects, and programs to reduce dropout rates in polytechnic institutes in the country. These initiatives include increasing enrollment capacity, providing scholarships and financial assistance, establishing counseling and career guidance centers, improving infrastructure and facilities, and offering vocational training programs. In order to reduce dropout as well as quality enhancement of Diploma in Engineering education, govt. has taken TVET reform project funded by ILO and EU in 2007. Then several other projects were taken or reformed such as BSEP project aims to enhance the employability and productivity of the workforce in Bangladesh; Skills-21 project focuses on developing skills and competencies in specific sectors to meet the demands of the job market and promote economic growth; SDP-ADP funded aims to further strengthen technical and vocational education and training (TVET) programs; STEP-WB funded aims to improve the quality and relevance of TVET programs in Bangladesh; BSEIP focuses on providing technical and vocational skills training to unemployed and underemployed youth in Bangladesh. A similar project funded by WB named ASSET project is running presently to improve access to quality skills training and increase employment opportunities for youth in Bangladesh. With the course of time, government of Bangladesh developed National Technical and Vocational Quality Framework. Under this, several

projects like CBT&A focuses on developing specific competencies required for a particular job or occupation; CS involves developing standardized curriculum for various technical and vocational courses; CBLM-learning materials designed to align with the competency-based training approach; QAM focuses on ensuring the quality of technical and vocational education and training through monitoring and evaluation processes; and AT involves providing practical training opportunities for students to gain hands-on experience in their chosen field. CBTA arranges teacher's training and modernization of lab and equipment.

These government's efforts aim to ensure that polytechnic students in Bangladesh have access to high-quality technical education and vocational training that prepares them for employment and contributes to the country's economic development.

4.1.1 Policy

The National Skills Development Policy is an initiative of the TVET Reform Project, implemented by the Government of Bangladesh with the support of the ILO and funded by the European Union. (National Skills Development Policy, 2012)

4.1.2 Project and Program

Government-funded Several Project and program has been taken as initiatives for improvement of TVET in Bangladesh to reduce dropout rates from polytechnic institutes. For implementing the NSDP-2012 in TVET NTVQF in TVET, competency standards and occupational levels, Competency Based Learning Materials, Quality Assurance Manual, Industry skills council assessment tools and manual of Registered Training Organizations developed. These initiatives aim to improve skills and quality, which can lead to fewer student dropouts from polytechnic institutes. To further reduce dropout rates, the government has introduced various measures such as providing stipends for students through projects like STEP, introducing scholarship for merit and industrial training, and offering other financial support. In addition, the

ILO and ADB have developed Industry Skill Councils (ISCs) to facilitate cooperation with industry and bridge the skill gap between market demand and institutional supply. The recent ASSET project is also related to this area. These initiatives have proven to be effective in reducing dropout rates by providing better opportunities for students.

4.2 Awareness Building

Building awareness among various levels of society will help as a safeguards of dropout problem. Our students are fully aware of the opportunities of a Diploma Engineer. Moreover, industry experts as well as honorable people of our society do not have sufficient idea about the performance, skill and attitude of a Diploma Engineer.

These efforts require a targeted approach that involves collaboration between polytechnic institutions, industry leaders, government agencies, and other stakeholders.

4.2.1 Student

Our survey with students and guardians also found that most of the students think they have job opportunity that is moderately available. On the other hand, KII and FGD suggest that job opportunities are huge if students have sufficient skills.

To increase awareness about polytechnic education in Bangladesh, several strategies can be implemented, including organizing information sessions, attending career fairs, using social media, offering scholarships, collaborating with high schools, and providing internships. These targeted approaches involving educational institutions, industry leaders, and government agencies can encourage students to enroll in polytechnic programs, develop an interest in technical skills, and prepare for successful careers.

4.2.2 Industry Expert

According to the FGD and KII discussions, industry practitioners have expressed their perception that diploma graduates possess only average or below-average skills. The change in perception among industry practitioners could play a vital role in reducing dropout rates.

According to Ahmed and Hossain (2015), Bangladesh Technical Education Board (2013), International Labor Organization (2014), and Rahman and Islam (2016), raising awareness about polytechnic education among industry experts in Bangladesh can be accomplished through several approaches, including establishing industry-academia collaborations, participating in industry events, providing employment placement services, utilizing social media, delivering training programs, and engaging with government agencies.

These efforts require a targeted approach that involves collaboration between polytechnic institutions, industry leaders, and government agencies.

4.2.3 Elite Group of the Society

Based on the FGD and KII discussions, it was also found that some individuals belonging to the elite strata of society hold a negative perception of diploma graduates' skills and attitudes. Akhter (2018), Ahmed and Hossain (2015), Hossain and Rabbani (2016), and Khatun (2016) suggested that several strategies can be employed to increase awareness about polytechnic education among elite members of society in Bangladesh. These strategies include organizing seminars and workshops, inviting renowned speakers, highlighting success stories of polytechnic graduates, collaborating with industry leaders, using social media, and engaging with policymakers.

4.3 Standardization of Institutional Capacity

Standardization of institutional capacity can help reduce dropout rates in educational institutions by providing consistent support and quality education to students. This can be achieved

by focusing on staffing, infrastructure, curriculum, and student support services. Standardizing institutional capacity can also promote transparency and accountability, enabling educational institutions to identify and address issues that contribute to dropout. By establishing clear standards and benchmarks, educational institutions can ensure that students receive consistent, high-quality education and support, ultimately reducing dropout rates.

4.3.1 Teacher-Student Ratio Reduction

The World Bank's report (2016) on improving teaching and learning in Bangladesh underscores the significance of enhancing education management to enhance academic outcomes. One of the key strategies proposed in the report is to reduce the teacher-student ratio by recruiting additional teachers. The report emphasizes the importance of this strategy in improving education quality in Bangladesh.

According to ILO, the ideal ratio of teacher and student in theory classroom should be 1:40 and this ratio in practical classroom should be 1:20. Examining the FGD and KII discussion we came to this decision that government polytechnic should adopt this rule. Luckily in private polytechnic institutes this ratio is better due to less intake.

4.3.2 Classroom and Lab Modernization

Classroom and lab modernization can help reduce the high dropout rates in polytechnic institutes in Bangladesh. Outdated facilities and limited resources are unengaging for students, and modernization can create an interactive and engaging learning environment. This provides access to the latest technology and practical skills for students and improves attendance and academic performance.

A study by the Asian Development Bank (2019) found that institutes with modern classrooms and labs had lower dropout rates than those without, and investing in modernization increases student attendance and academic performance.

During the KII discussions with principals, the following suggestions were put forward regarding the modernization of classrooms:

Nine principals (34.6%) suggested the implementation of blended learning.

Three principals (11.5%) emphasized the need for sufficient equipment in the classroom.

Ten principals (38.5%) suggested the use of multimedia classrooms.

Only one principal suggested changing the shape of the classroom to 'U'.

The KII discussions yielded the following suggestions for the improvement of labs and equipment:

Two participants (8%) suggested the use of Artificial Intelligence (AI)-based modern equipment.

Two participants (8%) emphasized the need for a sufficient yearly budget for the labs.

Fifteen participants (57.69%) suggested the use of modern equipment with proper training facilities.

Only one participant (3.8%) suggested the need for syllabus-related equipment.

The suggestions provided by principals during the KII discussions are also supported by the findings from FGDs conducted with teachers.

4.3.3 Teachers Training

The lack of trained teachers and the use of traditional teaching methods can lead to disengaged students and high dropout rates in polytechnic institutes in Bangladesh. Teacher training programs can help teachers to develop the necessary skills and techniques to deliver engaging and effective lessons to their students, which can improve student learning outcomes and reduce dropout rates.

A study by Rahman and Hossain (2020) found that institutes that invested in teacher training programs were more likely to see a decrease in dropout rates and an increase in student attendance and academic performance.

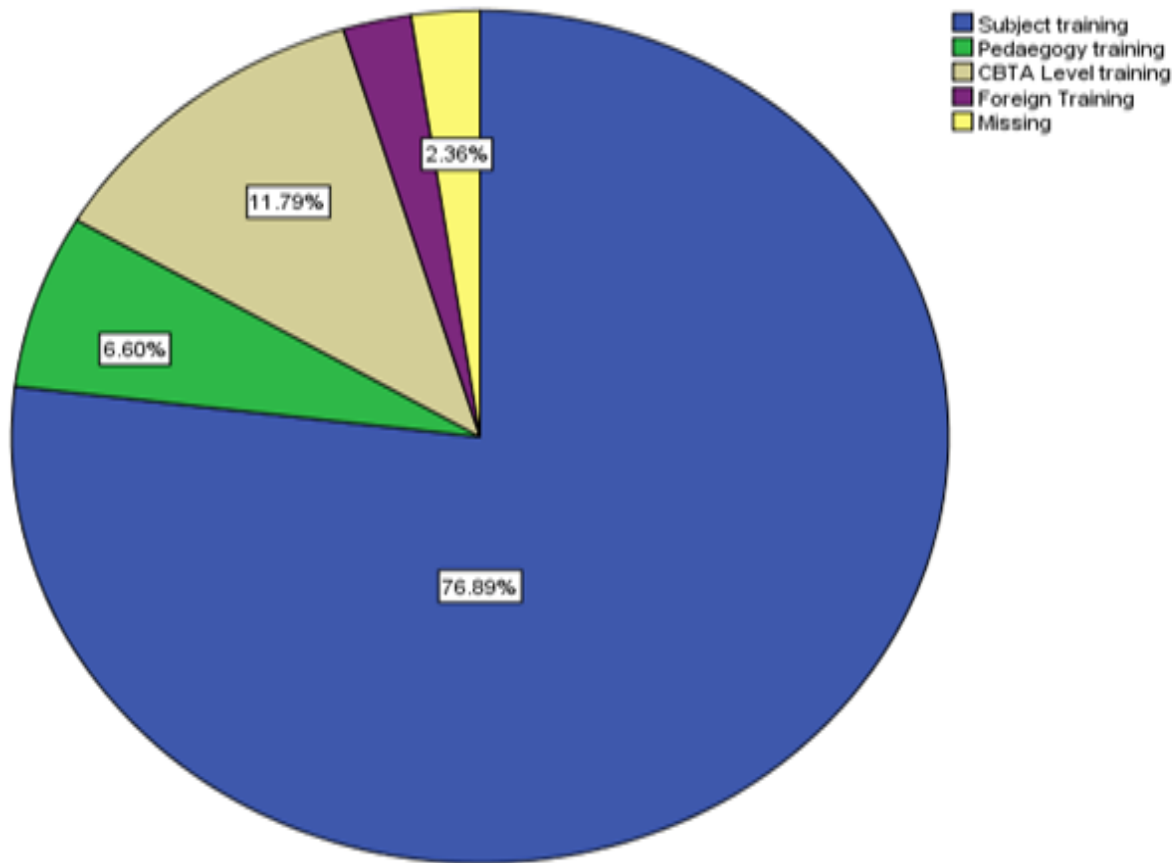


Figure 13: The types of training that were suggested during the FGD

The findings from the FGD and KII were largely consistent. However, the KII participants were more likely to emphasize the need for pedagogy training, while the FGD participants were more likely to emphasize the need for subjective training.

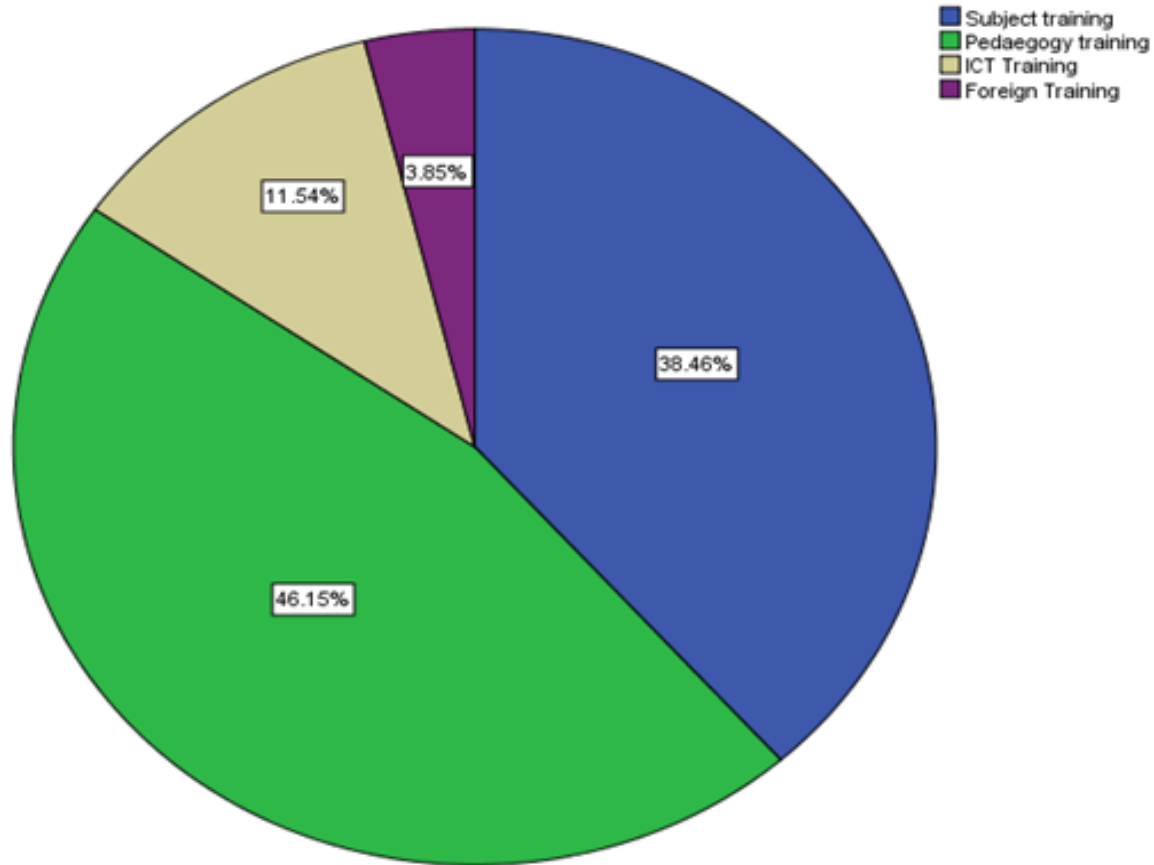


Figure 14: The types of training that were suggested during the KII

4.4 Future of Graduates

There are various strategies that can be implemented to improve the employability and career prospects of polytechnic graduates in Bangladesh. These include increasing opportunities for entrepreneurship, creating more job opportunities both domestically and internationally, giving priority to opportunities to work abroad, and providing ample opportunities for higher education.

4.4.1 Scope of Entrepreneurship

Entrepreneurship and self-employment opportunities: Promoting entrepreneurship and self-employment opportunities among polytechnic graduates in Bangladesh can empower them to create their own job opportunities and contribute to economic growth.

Our findings from FGD and KII show the same result and support each other. The main findings are as follows:

1. Give SME loans to diploma graduate.
2. Provide them loan with low-interest rate.
3. Provide them CBT&A level training for free.

These findings suggest that targeted interventions that address financial and skills-related barriers could be an effective way to support diploma graduates in securing employment and advancing their careers.

4.4.2 Creation of Job Opportunity

Creation of job opportunity is the crucial preventive measure of dropout problem in polytechnic institutes of Bangladesh. FGD with teachers and KII with principals suggests that the job opportunity for diploma graduates which prevails at present in our country, is comparatively higher. But often graduates are only looking for a government job, that's why they are in extensive competition.

According to survey findings, job opportunities for diploma graduates are available in Bangladesh.

Although job opportunities are present both at home and abroad, the job market is highly competitive for both government and private jobs, as the number of graduates exceeds the number of available jobs each year.

4.4.3 Creation of Advantage for Going Abroad

A study by Rahman and Hossain (2021) finds that overseas employment can provide significant advantages for polytechnic graduates, including access to higher-paying jobs, exposure to new technologies and working environments, and opportunities for career advancement.

There are various programs and projects in Bangladesh that aim to promote the development of skilled workers, including diploma engineers, and facilitate their overseas employment. For example, the government has established the Bureau of Manpower, Employment, and Training (BMET) to oversee the training and employment of workers abroad. Additionally, the government has signed bilateral agreements with a number of countries to promote the overseas employment of Bangladeshi workers, including diploma engineers.

Our FGD and KII discussion finds that there is barely any advantage for diploma engineers for going abroad in as skilled workforce. The frequency table of the findings of FGD is shown below:

Table 6: Advantage of Going Abroad for Diploma Engineers

Responses	Frequency	Percentage
Few policies from BOESEL	79	37.26
No policy	106	50
CBT based training	18	8.5

The findings from the FGD and KII were largely consistent with survey findings. Participants from both discussions were more likely to say that there is no policy or hardly any policy.

Thus, it is confirmed that boosting opportunities for international employment will definitely help retention of study in Diploma in Engineering course.

4.4.4 Higher Education Opportunity

Higher Education Opportunity can be a potential counter measure to reduce dropout from polytechnic institutes in Bangladesh. To address the dropout issue, providing higher education opportunities for the students can be an effective strategy. As higher education can improve the student's socio-economic status and can help them to get better job opportunities. Moreover, by providing higher education, polytechnic institutes can increase the students' motivation to continue their studies and reduce the chances of dropout.

Based on the survey with students, job opportunities are available for diploma graduates in Bangladesh. However, the FGD and KII discussions suggest that higher study opportunities may be more limited in the government sector and more available in the private sector, which can be costly for some students. Additionally, many students are enrolled in evening courses due to job commitments, which may provide a different level of education than regular courses. These factors may contribute to the difficulty of finding suitable employment for diploma graduates in Bangladesh.

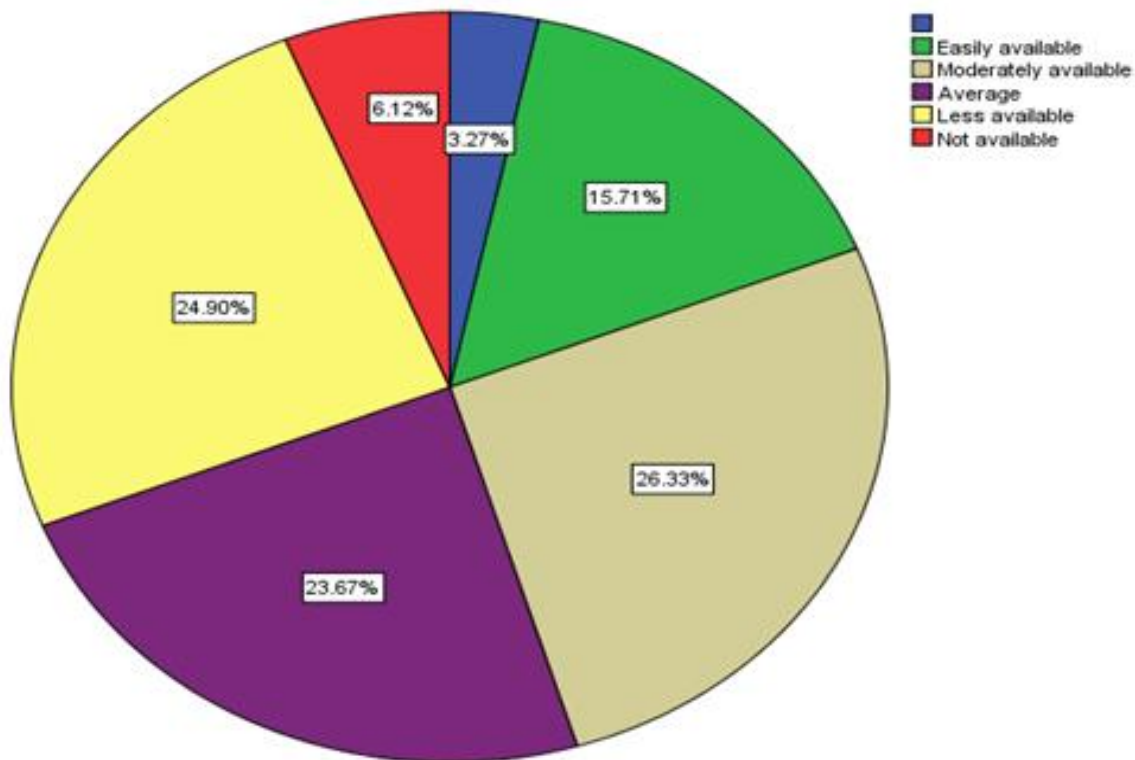


Figure 15: Scope of Higher Education for Diploma Graduates

Therefore, the government and the polytechnic institutes should take necessary steps to provide higher education opportunities to the students to reduce the dropout rate in polytechnic institutes of Bangladesh.

Findings

Dropout from Polytechnic Institutes in Bangladesh occurs due to the following causes:

1. The teacher-student ratio in the studied context was generally higher, typically at 1:50.
2. Students faced difficulties in coping with certain challenging subjects, such as Math, Physics, Chemistry, Basic Electronics, and Programming Essentials.
3. The teaching strategy employed by teachers was often deemed inadequate, with average or poor delivery.
4. The number of lab and number of equipment especially number of modern equipment were inadequate to support effective practical learning.
5. There was a lack of awareness among individuals of the society regarding the advantages and benefits of Diploma in Engineering graduates.
6. Married girls are facing obstacles to continue Diploma in Engineering degree due to societal factors.
7. The cost of accommodation was comparatively higher in district or divisional cities, which could pose a financial burden for students.
8. Limited opportunities for part-time jobs were available in district or divisional cities, restricting students' ability to support themselves financially.
9. Insufficient financial aid was identified as a significant challenge, limiting students' access to necessary resources and support.

The consequences of dropout are as follows:

1. Parents may benefit financially in the short run by dropping out; however, they would suffer economically in the long run, as dropouts may not earn as much as diploma engineers.
2. Dropouts may appear as an economic and psychological storm to his family members.

3. Dropout may reduce employability, lower earning potential, increase reliance on low-skilled jobs, lead to a loss of human capital, reduce innovation capacity, diminish competitiveness, and pose many other social challenges.
4. Institutions' reputation suffer as well as people of the society think that completing of Diploma in Engineering course is difficult.
5. Lack of optimum use of budget and educational resources.
6. Dropout increases unemployment.
7. There will be a hindrance to Human Resource Development that will result in failure of reaping the benefit of Demographic Dividend.

5.0 Conclusion

This research has been done to extract meaningful observations on the dropout scenario in the arena of Diploma in Engineering education from Polytechnic Institute in Bangladesh. Through the analysis of data collected from a diverse range of sources and the identification of key factors contributing to the dropout rates, this research has shed light on the multi-dimensional and intricate features of the problem.

The goal of this study was to identify the factors that lead to students discontinuing study in Diploma in Engineering from Polytechnic Institutes in Bangladesh. In addition to this, the result of dropping out of polytechnic institutes i.e., the impact on individual students and the wider economy, society and nation.

The implementation of the findings will be helpful for policy and practice in the field of Diploma in engineering education in Bangladesh. Our purpose was to find the gaps in current knowledge and understanding of dropout in Diploma Engineering education in Bangladesh, and how future research could address these gaps.

This investigation aimed to find the potential long-term benefits of reducing dropout rates in diploma engineering education for the country's economic and social development

The study found that the major causes of dropout in the Diploma in Engineering program were financial difficulties, loss of interest in the program due to inadequacy of educational equipment, academic difficulties, social naivetés, teaching delivery quality, lack of awareness of the guardians about the benefit of Diploma graduates, as well as job and family obligations.

The study also revealed that the consequences of dropout were significant and included loss of time, financial loss, negative effects on self-esteem, limited job opportunities, unskilled workforce, less innovative society, loss of academic expenses, less efficacy of working hours and harmful ramifications on Human Resource Development and unfavorable outcomes of

Demographic Dividend. These consequences were more severe for students who dropped out in the later stages of the program.

To address the issue of dropout, the study suggested several corrective strategies, including the provision of increase the financial assistance for students, inclusion of academic support services, career counseling, conducting awareness-raising campaigns at various levels, including among students, educators, parents/guardians, community leaders, and industry stakeholders, strengthening institutional capacity as well as institutional features.

In general, an increase in job opportunities, greater ease of entrepreneurship, priority for skilled workers to work abroad, and expanded access to higher education can significantly reduce student dropout rates from polytechnic institutes.

Contribution of research

The contribution of the researcher in this research is multifaceted. Firstly, the researcher has conducted a thorough and systematic review of existing literature on the topic. This helped to establish a strong theoretical foundation for the research and to identify areas where further investigation is needed.

Secondly, the researcher has conducted primary research, using both qualitative and quantitative methods, to gather data from students of Diploma in Engineering, as well as from teachers and other stakeholders in the education system. This has helped to identify the specific causes of dropout in the context of Bangladesh and to understand the experiences and perspectives of those who have been affected by the issue.

Thirdly, the researcher has analyzed the data gathered from both the literature review and the primary research, in order to identify potential countermeasures that can be implemented to reduce the dropout rate among students of Diploma in Engineering from Polytechnic Institutes in Bangladesh.

This has involved careful consideration of the feasibility and effectiveness of different interventions, as well as the potential challenges and limitations associated with each approach.

Additionally, the study emphasizes the importance of improving the quality of teaching and learning in Diploma in Engineering programs. This includes the need for more practical and hands-on learning opportunities, as well as better training and support for Teachers. Policymakers could consider investing in teacher training programs and updating the curriculum to include more practical and industry-relevant skills.

In addition to the above, the study suggests that policymakers should consider developing a comprehensive policy framework to address the issue of dropouts in diploma engineering programs. This could include establishing a monitoring and evaluation system to track dropout rates, as well as implementing targeted interventions to address the specific causes of dropout.

Limitations and Areas of future research

One limitation of the study is that it focused only on Diploma in Engineering students from Polytechnic Institutes in Bangladesh and may not be generalizable to other educational contexts or to other countries. Therefore, future research could explore the causes and consequences of dropouts in other educational programs or in different regions.

Another area for improvement is that the study relied on self-reported data from students who had dropped out, which may be subject to bias or inaccuracy. Future research could use more objective measures to validate the findings of the study.

Additionally, the study did not explore the impact of demographic or socioeconomic factors on dropouts, such as gender, ethnicity, or family income. Future research could investigate the role of these factors in dropout rates among Diploma in Engineering students.

It should also be noted that the study focused primarily on the causes and consequences of dropouts, rather than on the experiences of students who successfully completed the program.

Future research could explore the factors that contribute to successful Diplomas in Engineering programs and identify best practices that could be used to support student retention and graduation.

In terms of future scope, the study highlights the need for continued research on the issue of dropouts in diploma engineering programs, as well as the need for ongoing policy and programmatic interventions to address this issue. Future research could build on the findings of this study by exploring the effectiveness of different interventions and identifying new strategies for reducing dropout rates among engineering diploma students.

Policy Implications/ Recommendations

The study has several policy implications for improving the quality and accessibility of Diploma in Engineering education in polytechnic Institute in Bangladesh.

- ❖ Scholarships or other forms of financial support should be provided to students.
- ❖ Mass media and Social media platforms could be utilized to disseminate detailed information about the advantages of Diploma in Engineering course among the wider society.
- ❖ Teacher-student ratio of 1:40 in theory classes and 1:20 in practical classes could be maintained to enhance the learning experience.
- ❖ The curriculum could be revised to make it more future-oriented and aligned with market responsiveness.
- ❖ The infrastructure of polytechnic institutes could be modified to meet future needs and technological advancements.
- ❖ The laboratories could be equipped with modern equipment and provided with adequate training facilities for effective utilization.

- ❖ The frequency of subjective training and pedagogical training for instructors could be increased.
- ❖ Easier accessibility to SME loans and low-interest bank loans to facilitate the growth of Diploma in Engineering education could be ensured.
- ❖ Competency-Based Training and Assessment (CBT&A) at all levels of Technical and Vocational Education and Training (TVET) programs could be implemented.
- ❖ Job creation in both the public and private sectors, including multinational companies, to provide more employment opportunities for graduates could be promoted.
- ❖ Diploma Engineers could be given priority as skilled professionals when considering opportunities to work abroad.

Bibliography:

- International Labour Organization (2012), Retrieved from https://www.ilo.org/wcmsp5/groups/public/---asia/---ro-bangkok/---ilo-dhaka/documents/publication/wcms_226500.pdf
- The Financial Express.(2022). “Govt aims to increase enrolment in technical education to 30pc by 2030”, The Financial Express, Sep 06, available at: <https://thefinancialexpress.com.bd/education/govt-aims-to-increase-enrolment-in-technical-education-to-30pc-by-2030-1662444948>
- Ahmed, N., & Hossain, M. A. (2015). Polytechnic education in Bangladesh: problems and prospects. *Centre for Policy Dialogue*.
- Akhter, R. (2018). Vocational education and training in Bangladesh: current status and future challenges. *Vocational Education and Training in Asia and Europe: Comparative Perspectives* (pp. 111-126).
- Asian Development Bank. (2019). Improving skills training for employment program (ISTEP) - technical assistance report. Retrieved from <https://www.adb.org/projects/documents/improving-skills-training-employment-program-istep-technical-assistance-report>
- Asian Development Bank. (2021). Technical and Vocational Education and Training (TVET) Reform Project. Retrieved from <https://www.adb.org/projects/51316-001/main#project-pds>
- Banerjee, R., Chatterjee, A., & Raby, R. L. (2016). Understanding Dropout and Completion at Polytechnic Institutions: A focus on the Role of Race and Gender. *Community College Journal of Research and Practice*, 40(11), 886-901.

- Bangladesh Technical Education Board. (2013). Promoting TVET in Bangladesh: A Strategic Framework for Action. Retrieved from <http://www.bteb.gov.bd/public/files/upload/system/files/StrategicFramework.pdf>
- Baum, S., Ma, J., & Payea, K. (2013). Education Pays 2013: The Benefits of Higher Education for Individuals and Society. *The College Board*.
- Baum, Sandy. (2016). Trends in Student Aid 2016. New York: College Board. Retrieved from <https://research.collegeboard.org/media/pdf/trends-student-aid-2016-full-report.pdf>
- Belfield, C. R., & Bailey, T. (2014). The Benefits of Attending Community College: A Review of the Evidence. *Community College Review*, 42(3), 219-241.
- Buchmann, C., DiPrete, T. A., & McDaniel, A. (2018). The Growing Socioeconomic Gap in Dropout from Higher Education: Consequences for Inequality in Labor Markets. *American Sociological Review*, 83(4), 653-702
- Bureau of Manpower, Employment and Training. (n.d.). About BMET. Retrieved from <http://www.bmet.gov.bd/site/page/b8fb9544-b5b7-4804-a3a7-5ec6f3c7891c/About-BMET>
- Card, D., Dougherty, C., & Lee, J. (2011). The Causal Effect of Education on Earnings. *Handbook of the Economics of Education*, 3, 1801-1863.
- Chowdhury, M. R. (2001). Dropouts and Primary Education in Bangladesh. *International review of Education*, 47(5), 431-444.
- Chowdhury, M. S. (2017). Economic effect of school dropout in Bangladesh. *Journal of economics and finance*, 8(2), 31-39.
- Claybourn, C. (Feb. 9, 2023). Dropping Out of College: Why Students Do So and How to Avoid It. *California: U.S. News & World Report*. Retrieved from

<https://www.usnews.com/education/best-colleges/articles/dropping-out-of-college-why-students-do-so-and-how-to-avoid-it>

Dougherty, K. J., & Reddy, V. (2011). The Impact of Performance Funding on Community College Outcomes. *Educational Evaluation and Policy Analysis*, 33(2), 236-254.)

Garba, A. G., & Dauda, Y. A. (2018). TVET Policies and Practices in Nigeria: Why the Gap? *Academia.edu*. Retrieved from https://www.academia.edu/38204319/37_TVET_POLICIES_AND_PRACTICES_In_Nigeria_Why_the_Gap

Gil, A. J., Lanzat, A. M. A., González, M. L. C., & Navío, E. P. (2018). School dropout factors: A teacher and school manager perspective. *Educational Studies*, 45(5), 1-15. <https://doi.org/10.1080/03055698.2018.1516632>

Government of Bangladesh. (n.d.). Skills and Training Enhancement Project (STEP). Retrieved from <http://step-fd.gov.bd/>

Government of Bangladesh. (n.d.). Skills for Employment Investment Program (SEIP). Retrieved from <https://seip-fd.gov.bd/>

Government of Bangladesh. (n.d.). Technical Education Quality Improvement Program (TEQIP). Retrieved from <https://teqip.gov.bd/>

Haque, A. F. M. Z. (2018). Enhancing the Employability Skills of Graduates: Evidence from a Polytechnic Institute in Bangladesh. *International Journal of Educational Sciences*, 27(2), 190-197.

Hassan, M. S., & Islam, M. A. (2012). Determinants of School Dropout Among Boys in Rural Bangladesh. *Academic research international*, 3(2), 238-250.

- Hoque, N., & Mahanta, R. (2021). Teacher Quality and Dropout Rates in Primary Education: The Case of Developing Countries. Retrieved from https://www.researchgate.net/publication/368645996_Teacher_Quality_and_Dropout_Rates_in_Primary_Education_The_Case_of_Developing_Countries
- Hossain, M. A., & Islam, M. T. (2019). Employment Prospects of Technical and Vocational Education and Training Graduates in Bangladesh. *Journal of Vocational Education & Training*, 71(4), 568-585.
- Hossain, M. S. (2018). Career Guidance and Counseling Services: Role in Reducing Students' Dropout at the Polytechnic Institute. *Asian Journal of Education and Social Studies*, 2(2), 1-7.
- Hossain, M. S., & Tareque, M. I. (2016). Dropout Scenario in Bangladesh: A Review of Literature. *International Journal of Humanities and Social Science Research*, 6(1), 14-26.
- Hossain, M. Z., & Rabbani, M. G. (2016). Enhancing Skills for Employment in Bangladesh: The Role of Technical and Vocational Education and Training (TVET) System. *Journal of Technical Education and Training*, 8(2), 1-8.
- Hossain, M. Z., & Rabbani, M. G. (2016). Enhancing Skills for Employment in Bangladesh: The Role of Technical and Vocational Education and Training (TVET) System. *Journal of Technical Education and Training*, 8(2), 1-8.
- Hossler, D., & Gallagher, K. (2011). Studying College Choice: A Three-phase Model and the Implications for Policymakers. In Smart, J. C. (Ed.), *Higher education: Handbook of Theory and Research* (Vol. 26, pp. 99-157). Springer.)

- Ingul, J. M., Klöckner, C. A., & Silverman, W. K. (2012). Treatment Outcomes and Mediators of Parent- and Child-reported Anxiety in a Randomized Controlled Trial of Childhood Anxiety Disorder. *Journal of Anxiety Disorders*, 26(7), 737-745.
- International Labour Organization. (2014). Skills for Employment in Bangladesh: Analysis of the Technical and Vocational Education and Training (TVET) System. Retrieved from https://www.ilo.org/wcmsp5/groups/public/---asia/---ro-bangkok/documents/publication/wcms_214202.pdf
- Iqbal, A. (2015). Role of Tutorial Programs in Reducing Dropout in Poly
- Islam, M. A., & Hossain, M. S. (2018). A Study on the Factors that Influence Dropout among Polytechnic Students in Bangladesh. *International Journal of Education and Research*, 6(6), 141-156.
- Islam, M. A., & Islam, M. S. (2010). Impact of Family Background and Demographic Factors on Student Dropout: Evidence from Rajshahi District of Bangladesh. *Journal of Mathematical Modeling and Application*, 1(2), 77-83.
- Islam, M. M., & Alam, K. (2021). Dropout at Tertiary Education in Bangladesh: Configurations and Determinants. *Studies in Higher Education*, 46(2), 281-295
- Islam, M. M., & Huque, M. H. (2013). School Drop Out in Bangladesh: Insights Using Panel Data. *Journal of Social Science*, 35(2), 111-123.
- Islam, M. S., Sultana, S., & Paul, S. K. (2018). Exploring the Reasons for Dropout of Students from Polytechnic Institutes in Bangladesh: A Qualitative Study. *International Journal of Humanities and Social Science Research*, 7(1), 1-9.
- Khatun, F. (2016). Vocational Education and Training (VET) in Bangladesh: An Overview. *Journal of Technical Education and Training*, 8(1), 44-51.

- Khatun, F. (2016). Vocational education and training (VET) in Bangladesh: An Overview. *Journal of Technical Education and Training*, 8(1), 44-51.
- Lamb, S., Sandberg, N., & Huo, S. (2015). Non-completion and the Labour Market: The Role of Vocational Education and Training in Australia and the Netherlands. *Education + Training*, 57(5), 548-562.
- Ma, Jennifer. (2016). Trends in College Pricing 2016. New York: CollegeBoard. Retrieved from <https://research.collegeboard.org/media/pdf/trends-college-pricing-2016-full-report.pdf>
- MacKechnie, C. (2018). Non-Traditional Students: Advantages of Adult Education. *Journal of Continuing Higher Education*, 66(1), 36-38.
- Mahanta, N. H. (2021). Teacher Quality and Dropout Rates in Primary Education The Case of Developing Countries. *The Journal of Development Practice*, 7, 21-26.
- Mahmood, S. A., & Alam, M. N. (2018). Improving Management of TVET Trainers in Bangladesh. Dakar: IIEP-UNESCO. Retrieved from <https://dakar.iiep.unesco.org/en/news/improving-management-tvet-trainers>
- Mamun, A. A., Hasan, M., & Amin, M. R. (2012). Investigating the Causes of Students' Dropout from the Diploma Engineering Programs in the Polytechnic Institutes of Bangladesh. *Journal of SAVAP International*, 3(3), 353-360. Retrieved from https://www.researchgate.net/publication/281279339_Investigating_the_Causes_of_Students%27_Dropout_from_the_Diploma_Engineering_Programs_in_the_Polytechnic_Institutes_of_Bangladesh
- Md Abdullah Al Mamun, M. H. (2012). Investigating the Causes of Students' Dropout from the Diploma Engineering Programs in the Polytechnic Institutes of Bangladesh. *Academic Research International*. Retrieved from

- https://www.researchgate.net/publication/281279339_Investigating_the_Causes_of_Students'_Dropout_from_the_Diploma_Engineering_Programs_in_the_Polytechnic_Institutes_of_Bangladesh
- National Center for Education Statistics. (2018). Digest of Education Statistics, 2017 (NCES 2018-421). *U.S. Department of Education*. Retrieved from <https://nces.ed.gov/pubs2018/2018421.pdf>
- OECD. (2017). Getting skills right: Future-ready Adult Learning Systems. *OECD Publishing*.
- Prince, M. J. (2004). Does Active Learning Work? A Review of the Research. *Journal of Engineering Education*, 223-231.
- Rahman, M. M., & Hossain, M. A. (2021). Role of Overseas Employment in Technical and Vocational Education and Training: A Study on Polytechnic Graduates of Bangladesh. *Journal of Technical Education and Training*, 13(1), 63-73.
- Rahman, M. M., & Hossain, M. S. (2020). Impact of Teacher Training on Students' Attendance and Performance in Polytechnic Institutes of Bangladesh. *International Journal of Economics, Business and Management Research*, 4(3), 57-65.
- Rahman, M. M., & Islam, M. R. (2016). Polytechnic Education in Bangladesh: An Overview. *Journal of Education and Practice*, 7(5), 51-55.
- Rahman, M. M., & Islam, M. R. (2016). Polytechnic Education in Bangladesh: An overview. *Journal of Education and Practice*, 7(5), 51-55.
- Ricardo Sabates, A. H. (October 2010). School Drop Out in Bangladesh: New Insights from Longitudinal Evidence. University of Sussex.
- Rumberger, R. W. (2011). Dropping out: why students drop out of high school and what can be done about it. Harvard University Press.

- Rumberger, R. W., Lauen, D. L., & Francis, D. (2017). The impact of dropout prevention programs: what the research tells us. *Preventing School Failure: Alternative Education for Children and Youth*, 61(3), 193-203.
- Salman, M. S. (2022 Oct 20). Technical education thrives on good job prospects. Dhaka: The Business Post. Retrieved from <https://businesspostbd.com/front/technical-education-thrives-on-good-job-prospects-2022-10-20>
- Salman, M. S. (2022 Oct 20). Technical education thrives on good job prospects. Dhaka: The Business Post. Retrieved from <https://businesspostbd.com/front/technical-education-thrives-on-good-job-prospects-2022-10-20>
- Siddiqui, M. F. (2019). Employability skills of the graduates of polytechnic institutes of bangladesh: an employers' perspective. *Journal of Technical Education and Training*
- Stephen L. DesJardins, D. A. (2006). The effects of interrupted enrollment on graduation from college: Racial, income, and ability differences. *Economics of Education Review*, 575-590.
- The Guardian. (2020, September 19). UK universities predict record student dropout rate amid covid crisis. Retrieved from <https://www.theguardian.com/education/2020/sep/19/uk-universities-predict-record-student-dropout-te>.
- U.S. News & World Report. (n.d.). Dropping out of college: why students do so and how to avoid it. Retrieved from <https://www.usnews.com/education/best-colleges/articles/dropping-out-of-college-why-students-do-so-and-how-to-avoid-it>
- Vujić, S., Biewen, M., & Hommel, G. (2016). Dropout after the first year of higher education: the role of family background characteristics, academic preparation, and institutional characteristics. *European Sociological Review*, 32(2), 233-247.

- World Bank Group. (2018). Technical and Vocational Education and Training: lessons from China. World Bank. Retrieved from <https://www.worldbank.org/en/news/feature/2018/10/30/technical-and-vocational-education-and-training-lessons-from-china>.
- World Bank. (2016). Bangladesh: improving teaching and learning through better education management. Retrieved from <https://www.worldbank.org/en/results/2016/05/09/bangladesh-improving-teaching-and-learning-through-better-education-management>
- World Bank. (n.d.). Polytechnic development project. Retrieved from <https://projects.worldbank.org/en/projects-operations/project-detail/P122278>

Questionnaire for Students

Research Title: Dropout of Diploma in Engineering Education from Polytechnic Institutes in Bangladesh: Causes, Consequences and Counter Measures

Letter of Identity and Consent:		
Sample Number:	Gender of Respondent: 1. Male 2. Female	
Types of Respondents:	1. Principal 2. Teacher 3. Guardian 4. Student	
Area of Survey:	1. Dhaka 2. Chattogram 3. Khulna 4. Rajshahi	
	5. Sylhet 6. Barishal 7. Rangpur 8. Mymensingh	
The purpose of this research has been told to respondents or not? A. Yes B. No		
Consent of respondent has been taken or not? A. Yes B. No		
Date of Interview:	Signature of respondent:	

Personal & Work Place related Information:		
Name:	Age:	Village:
Post Office:	Upazila:	District:
Semester:	Shift:	Department:
Name of Institute:	Mobile No.:	

1. Causes of dropout:

1.2 Academic causes of dropout

1.2.1 A. At present, in your institute teacher-student ratio in theory classroom?	
1.2.1 B. At present, in your institute teacher-student ratio in practical classroom?	
1.2.2.A. Most difficult non-tech subject -	(a)Physics (b)math (c)Chemistry (d)English (e) no idea
1.2.2 B. Most difficult technological subject -	(a)Basic Electricity(b)Basic Electronics (c)Computer Application (d)Programming Essentials (e) no idea
1.2.3 A. Your teachers' delivery quality-	(a)Very well (b) Well (c) Average (d)Poor (e)Very poor
1.2.3 B. Why do you think so?	
1.2.4 A. Condition of Lab and Equipment-	a. Highly equipped b. Adequately equipped c. Moderately equipped d. Not enough lab and equipment e. No Lab and Equipment
1.2.4 B. What are the reasons that's why you think so?	

1.3 Social causes of dropout

1.3.1. Your guardian's idea about educational environment in polytechnic institute-	(a)Very much satisfactory (b)Satisfactory (c)Moderately satisfactory (d) Less satisfactory (e) Not Satisfactory
1.3.2 C. How much people of the society know about the opportunities for Diploma in Engineering education in Home and Abroad?	(a)Very well known(b)Well known(c)Known(d) Less known (e) Unknown
1.3.2 D. Your interest level to admit in polytechnic was-	(a) Highly interested (b) Interested (c) Moderately interested (d) Less interested (e) Not interested at all
1.3.3 B. Actually, what are the effects of marriage girls to continue Diploma in Engineering education?	
1.3.3 C. Status of Diploma Engineers in society –	(a)Highly Valued (b)Adequately Valued (c)Less Valued (d)No idea (e) Bad

1.4 Financial Causes

1.4.1 Accommodation cost of polytechnic students-	(a) very high (b) high (c) average (d) low (e) very low
1.4.2. Your family's financial condition –	(a)Solvent (Father) (b)Moderately solvent (Father)(c)Family solvent (d)Self-Solvent (e)Insolvent
1.4.3. Availability of part-time job during education-	(a) very high (b) high (c) average (d) low (e) very low

2. Consequences

2.1 Consequences on Family

2.1.1. After dropout, financial hardship of the family will-	(a) increase (b) moderately increase (c) decrease (d) decrease but not significantly (e) no idea
2.1.2. After dropout, Your parent's mental condition now-	(a) very positive (b) positive (c) no effect (d) Moderately fed-up (e) very fed-up

2.2 Consequences on Society

2.2.1. A. What idea society possess after dropout from Diploma in Engineering education?	(a)Very positive (b)Positive (c)Average(d)Negative(e)Very negative
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2.3 Consequences on Institution

2.3.1. What is your opinion about Polytechnic Institute?	
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2.4 Consequences on National Level

2.4.1 A. Being dropped out what will you do now? (For dropped-out students only)	(a)Admit in General Education(b)Admit in short course for NTVQF level (c)Go abroad (d)Unemployed (e) Engage in odd job
2.4.1 B. Being dropped out what they generally do? (For running students only)	(a)Admit in General Education (b)Admit in short course for NTVQF level (c) Go abroad (d)Unemployed (e) Engage in odd job

3. Counter Measures and Suggestions:

3.2 Counter measure by awareness building

3.2.2 Your idea about success of Diploma Engineers-	(a) Very high (b) High (c) Moderate (d) low (e) very low
3.3 Counter measure by Standardization of Institutional Capacity	
3.3.2. C. Do you think e-classroom along with physical class will be helpful to reduce dropout?	a. Yes b. No.
3.3.2.D. If yes, how?	
3.4 Counter measures on Future of Graduates	
3.4.1. Entrepreneurship opportunity after passing from your dept-	(a) Highly available (b)Easily available (c)Moderately available (d) Average (e)Less available
3.4.2. Job opportunity after passing from your dept-	(a) Highly available skill (b)Easily available(c)Moderately available (d) Average (e)Less available
3.4.4. A. What is the dimension of scopes of higher education for Diploma in Engineering graduates?	(a)Easily available(b)Moderately available (c) Average (d)Less available (e)Not available
3.5 Suggestions for Initiatives to be taken	
3.5.1. A. Have you noticed any advertisement for Diploma Engineers job opportunity in <u>home and abroad</u> ?	a. Yes b. No
3.5.1. B. Have you noticed any advertisement for Diploma Engineers opportunity for higher education in home and abroad?	a. Yes b. No
3.5.2. What kind of advantages are available for Diploma Engineering Education over traditional education regarding job?	
3.5.3. What kind of awareness campaign can be taken for promoting Diploma Engineering Education?	

Questionnaire for Guardian

Research Title: Dropout of Diploma in Engineering Education from Polytechnic Institutes in Bangladesh: Causes, Consequences and Counter Measures

Letter of Identity and Consent:	
Sample Number:	Gender of Respondent: 1. Male 2. Female
Types of Respondents:	1. Principal 2. Teacher 3. Guardian 4. Student
Area of Survey:	1. Dhaka 2. Chattogram 3. Khulna 4. Rajshahi 5. Sylhet 6. Barishal 7. Rangpur 8. Mymensingh
The purpose of this research has been told to respondents or not?	A. Yes B. No
Consent of respondent has been taken or not?	A. Yes B. No
Date of Interview:	Signature of respondent:

Personal & Work Place related Information:		
Name:	Age:	Village:
Post Office:	Upazila:	Dist.:
Occupation:	Duration of Job/Work:	
Mobile No.:		

1. Causes of dropout

1.3 Social causes of dropout

1.3.1. Your idea about educational environment in polytechnic institute-	(a)Very much satisfactory (b)Satisfactory (c)Moderately satisfactory (d) Less satisfactory (e) Not Satisfactory
1.3.2 C. How much people of the society know about the opportunities for Diploma in Engineering education in Home and Abroad?	(a)Very well known(b)Well known(c)Known(d) Less known (e) Unknown
1.3.2 D. Your interest level to admit your child in polytechnic was-	(a) Highly interested (b) Interested (c) Moderately interested (d) Less interested (e) Not interested at all
1.3.3 B. Actually, what are the effects of marriage on girls to continue Diploma in Engineering education?	
1.3.3 C. Status of Diploma Engineers in society –	(a)Highly Valued (b)Adequately Valued (c)Less Valued (d) No idea (e) Ignored
1.3.3. D. Your willingness for girls to admit in Diploma in Engineering education	a. Very much interested b. Interested c. Less interested d. No idea e. Not interested

1.4 Financial causes of dropout

1.4.1 Accommodation cost of polytechnic students-	(a) very high (b) high (c) average (d) low (e) very low
1.4.2. Your financial condition –	(a)Solvent (b)Moderately solvent c) Family solvent (d) Self-Solvent (e)Insolvent

2. Consequences

2.1 Consequences on family

2.1.1. Financial change in the family -	(a) increase (b) moderately increase (c) decrease (d) decrease but not significantly (e) no idea
2.1.2. Your mental condition now-	(a) too positive (b) positive (c) no effect (d) Moderately fed-up (e) very fed-up

2.2 Consequences on society

2.2.1. What idea Society possess after dropping out from Diploma in Engineering education -	(a)Very positive (b)Positive (c)Average (d)Negative (e)Very negative
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2.4 Consequences on Nation

2.4.1.A. What does your child do now?	
2.4.1 C. Do you think dropout increases unemployment?	a. Yes b. No

3. Counter measures and suggestions

3.2 Counter measure by awareness building

3.2.2 Your idea about success of Diploma Engineers-	(a) Very high (b) High (c) Moderate (d) low (e) very low
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3.5 Initiatives to be taken

3.5.2. What kind of advantages are available for Diploma Engineering Education over traditional education regarding job?	
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Questionnaire for Teacher

Research Title: Dropout of Diploma in Engineering Education from Polytechnic Institutes in Bangladesh: Causes, Consequences and Counter Measures

Letter of Identity and Consent:	
Sample Number:	Gender of Respondent: 1. Male 2. Female
Types of Respondents:	1. Principal 2. Teacher 3. Guardian 4. Student
Area of Survey:	1. Dhaka 2. Chattogram 3. Khulna 4. Rajshahi 5. Sylhet 6. Barishal 7. Rangpur 8. Mymensingh
The purpose of this research has been told to respondents or not?	A. Yes B. No
Consent of respondent has been taken or not?	A. Yes B. No
Date of Interview:	Signature of respondent:

Personal & Work Place related Information:		
Name:	Age:	Village:
Post Office:	Upazila:	District:
Designation:	Department:	Duration of Teaching:
Duration of Job/Work:	Mobile No.:	
Name of Institute:		

1. Causes of dropout

1.2 Academic causes

1.2.1. A. At present, in your institution teacher-student ratio in theory classroom is-	
1.2.1. B. At present, in your institution teacher-student ratio in practical classroom is-	
1.2.2. A. Which are the most difficult non-tech subject for students?	(a)Physics (b) math (c) Chemistry (d) English (e) Social Science and Bangla
1.2.2 B. What is your idea about most difficult technological subject for students?	(a)Basic Electricity(b)Basic Electronics(c)Computer Application (d)Programming Essentials(e)Engineering Drawing
1.2.4 A. What is your opinion regarding condition of Lab and Equipment?	a. Highly equipped b. Adequately equipped c. Moderately equipped d. Not enough lab and equipment e. No Lab and Equipment

1.3 Social causes

1.3.2. A. What is your idea about social belief on higher education of Diploma Engineers in Home and Abroad?	
1.3.3. A. What is your idea about guardians' belief on safety and security in polytechnic institute?	

1.3.3 B. Actually, what are the effects of marriage on girls to continue Diploma in Engineering education?	
1.3.3 C. What is your opinion on social-status of Diploma Engineers?	
1.3.3. D. Your willingness for girls to admit in Diploma in Engineering education	a. Very much interested b. Interested c. Less interested d. No idea e. Not interested

1.4 Financial causes

1.4.1 Accommodation cost of polytechnic students-	(a) very high (b) high (c) average (d) low (e) very low
1.4.3. Availability of part-time job-	(a) very high (b) high (c) average (d) low (e) very low

1.5 According to your experience, what are the other reasons of dropout from polytechnic institutions?	
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2. Consequences

2.1 Consequences on family

2.1.1. Financial hardship of the dropped-out student's family will be-	(a) increase (b) moderately increase (c) decrease (d) decrease but not significantly (e) no idea
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2.2 Consequences on Society

2.2.1. What idea society possess after dropout of any student from polytechnic?	
2.2.2. What is the result of dropout on workforce in the society?	(a) increase (b) moderately increase (c) decrease (d) decrease but not significantly (e) no idea
2.2.3. What is the result of dropout on innovation and competitiveness in the society?	(a) increase (b) moderately increase (c) decrease (d) decrease but not significantly (e) no idea

2.4 Consequences on Nation

2.4.2. A. Do you think Dropout is a barrier to Human Resource Development?	a. Yes b. No
2.4.2. B. Why do you think in this way?	
2.4.3. How dropout affected the opportunity of Demographic Dividend?	
2.5 According to your experience, what are the other consequences of dropout from polytechnic institutions?	

3. Counter measure

3.1 Measures already taken

3.1.1. A. Policies already taken as a measure to reduce dropout-	
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3.1.2 B. Running projects and programs taken for reducing dropout -	
3.2 Awareness Building as a counter measure	
3.2.2 What is the idea of industry experts about the performance and skill of Diploma graduates?	
3.2.3 What is the idea of the elite persons about the skill and attitude of Diploma graduates?	
3.3 Suggestion on Standardization of Institutional Capacity	
3.3.1 A. Ideal teacher-student ratio in theory classroom-	
3.3.1. B. Ideal teacher-student ratio in practical classroom at this moment?	
3.3.2. A. Do you think modernization in classroom is required?	a. Yes b. No.
3.3.2. B. If yes, which particular modernization is required?	
3.3.2. C. Do you think e- classroom along with physical classroom will be helpful to reduce dropout?	a. Yes b. No.
3.3.3. Your suggestions on improvement of lab and workshop –	
3.3.4. A. Do you think teacher’s need more training?	a. Yes b. No
3.3.4. B. If yes, then which types of training?	
3.4 Suggestions for the future of graduates	
3.4.1. Which are the possible ways of entrepreneurship of Diploma Engineers?	
3.4.2. Job opportunity after passing Diploma in Engineering-	(a) private job (b) public job (c) entrepreneurship (d) self-employment (e) job in abroad
3.4.3 Is there any policy available that will provide Diploma Engineers, priority over general people in regard to be considered eligible for going abroad as a workforce?	
3.4.4. What is the dimension of scopes of higher education for Diploma in Engineering graduates?	
3.5 Initiatives to be taken	

3.5.1. A. Have you noticed any advertisement for Diploma Engineers job opportunity in home and abroad?	a. Yes b. No
3.5.1. B. Have you noticed any advertisement for Diploma Engineers opportunity for higher education in home and abroad?	a. Yes b. No
3.5.2. What kind of advantages are available for Diploma Engineering Education over traditional education regarding job?	
3.5.3. What kind of awareness campaign can be taken for promoting Diploma Engineering Education?	

3.6 According to your experience, what could be other suggestions or counter measures to be taken in order to reduce dropout from polytechnic institutions?

1.1.1 C. Number of students technology wise in-													
Sl. No	Dept	2 nd			4 th			6 th			8 th		
		2020	2021	2022	2020	2021	2022	2020	2021	2022	2020	2021	2022
1													
2													
3													
4													
5													
6													
7													
8													
9													
10													
11													
12													

1.2 Academic causes of dropout

1.2.1. A. At present, in your institution teacher-student ratio in theory classroom is-	
1.2.1. B. At present, in your institution teacher-student ratio in practical classroom is-	
1.2.3. Your teachers' delivery quality-	(a)Very well (b)Well (c)Average (d)Poor (e)Very poor
1.2.4. A. Condition of Lab and Equipment?	a. Highly equipped b. Adequately equipped c. Moderately equipped d. Not enough lab and equipment e. No Lab and Equipment

1.3 Social causes of dropout

1.3.2. A. What is your idea about social belief on higher education of Diploma Engineers in Home and Abroad?	
1.3.3. A. What is your idea about guardians' belief on safety and security in polytechnic institute?	
1.3.3 B. Actually, what are the effects of marriage on girls to continue Diploma in Engineering education?	
1.3.3 C. What is your opinion on social-status of Diploma Engineers?	

1.5 According to your experience, what are the other reasons of dropout from polytechnic institutions?	
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2. Consequences of dropout on different level

2.2 Consequence on society

2.2.1. What idea society possess after dropout of any student from polytechnic?	
2.2.2. What is the result of dropout on workforce in the society?	(a) increase (b) moderately increase (c) decrease (d) decrease but not significantly (e) not sure
2.2.3. What is the result of dropout on innovation and competitiveness in the society?	(a) increase (b) moderately increase (c) decrease (d) decrease but not significantly (e) not sure

2.3 Consequences on institution

2.3.2. A. Is there any effect of dropout on your yearly budget?	a. Yes b. No
2.3.2. B. If yes, then what kind of effect?	
2.3.3. A. Is there any effect of utility of equipment due to dropout?	A. Yes b. No
2.3.3. B. If yes, then what kind of effect?	

2.4 Consequence on nation

2.4.2. A. Do you think Dropout is a barrier to Human Resource Development?	a. Yes b. No
2.4.2. B. Why do you think in this way?	
2.4.3. How dropout affected the opportunity of Demographic Dividend?	
2.5 According to your experience, what are the other consequences of dropout from polytechnic institutions?	

3. Counter measure

3.1 Measures already taken

3.1.1. A. Policies already taken as a measure to reduce dropout-	
3.1.2 B. Running projects and programs taken for reducing dropout -	

3.2 Awareness Building as a counter measure

3.2.2 What is the idea of industry experts about the performance and skill of Diploma graduates?	
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3.2.3 What is the idea of the elite persons about the skill and attitude of Diploma graduates?	
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3.3 Suggestion on Standardization of Institutional Capacity

3.3.1 A. Ideal teacher-student ratio in theory classroom-	
3.3.1. B. Ideal teacher-student ratio in practical classroom at this moment?	
3.3.2. A. Do you think modernization in classroom is required?	a. Yes b. No.
3.3.2. B. If yes, which particular modernization is required?	
3.3.2. C. Do you think e- classroom along with physical classroom will be helpful to reduce dropout?	a. Yes b. No.
3.3.3. Your suggestions on improvement of lab and workshop –	
3.3.4. A. Do you think teacher's need more training	a. Yes b. No
3.3.4. B. If yes, then which types of training?	

3.4 Suggestions for the future of graduates

3.4.1. Which are the possible ways of entrepreneurship of Diploma Engineers?	
3.4.2. Job opportunity after passing Diploma in Engineering-	(a) private job (b) public job (c) entrepreneurship (d) self-employment (e) job in abroad
3.4.3 Is there any policy available that will provide Diploma Engineers, priority over general people in regard to be considered eligible for going abroad as a workforce?	
3.4.4. What is the dimension of scopes of higher education for Diploma in Engineering graduates?	

3.5 Initiatives to be taken

3.5.1. A. Have you noticed any advertisement for Diploma Engineers job opportunity in <u>home and abroad</u> ?	a. Yes b. No
3.5.1. B. Have you noticed any advertisement for Diploma Engineers opportunity for higher education in home and abroad?	a. Yes b. No
3.5.2. What kind of advantages are available for Diploma Engineering Education over traditional education regarding job?	
3.5.3. What kind of awareness campaign can be taken for promoting Diploma Engineering Education?	

3.6 According to your experience, what could be other suggestions or counter measures to be taken in order to reduce dropout from polytechnic institutions?

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B. Acronyms and Abbreviations

ILO- International Labor Organization

EU- European Union

WB- World Bank

ADB- Asian Development Bank

TVET- Technical and Vocational Education and Training

BSEP- Basic Skills Education Program

NSDA- National Skill Development Authority

NSDP- National Skill Development Policy

SDP- Skills Development Program

CBT&A- Competency-Based Training and Assessment

CBLM- Competency-Based Learning Materials

CS- Competency Standard

QAM- Quality Assurance and Manual

ATM- Apprenticeship Training Manual

NTVQF- National Technical and Vocational Qualification Framework

AI- Artificial Intelligence

BMET- Bureau of Manpower, Employment and Training

BOESL- Bangladesh Overseas Employment and Services Limited

ISC- Industry Skills Council

FGD-Focus Group Discussion

KII- Key Informant Interview

QS- Questionnaire Survey

ASSET- Accelerating and Strengthening Skills for Economic Transformation

STEP- Skills and Training Enhancement Project