

**A Qualitative Exploration of Bangladeshi STEM graduates’  
English Speaking**

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A thesis submitted to the Department of English and Humanities in partial fulfillment of  
the requirements for the degree of  
B.A. in English

Department of English and Humanities  
BRAC School of Humanities and Social Sciences  
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## **Declaration**

It is hereby declared that

1. The thesis submitted is by my original work while completing my degree at BRAC University.
2. The thesis does not contain material previously published or written by a third party, except where this is appropriately cited through full and accurate referencing.
3. The thesis does not contain material that has been accepted or submitted, for any other degree or diploma at a university or other institution.
4. I have acknowledged all main sources of help.

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## Approval

The thesis titled “ An Assessment of English Speaking Skills of Stem (Science, Technology, Engineering, or Mathematics) graduates of Public University and Private University in Bangladesh: Problems and Solutions” submitted by

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## **Abstract**

English speaking skills especially in the ESOL context like Bangladesh, STEM graduates are facing many challenges in terms of English speaking. Many of them are not proficient to speak in English well as they face many challenges. That is why this study aims to explore the challenges and identify the solutions to reduce the speaking challenges of STEM graduates in Bangladesh. For collecting data, the researcher of this study took an individual English-speaking test of 6 STEM graduates, following the IELTS speaking module, conducted observation, and semi-structured interviews for in-depth analysis. The results of this study revealed that most STEM graduates' English speaking skill was of the "limited users" category which was proven based on their speaking test. The reason for being "limited users" in English speaking they face many challenges such as psychological, social, linguistic, and instructional. As they are from Bangla medium background students become nervous and less confident while speaking in English that falls psychological problems. On the other hand, not having an appropriate environment to practice speaking English and peers' negative responses are some of the social problems they face. Linguistic problems include lack of vocabulary knowledge and correct pronunciation while engineering teachers' negative feedbacks, using Bangla instead of English in the classrooms are instrumental problems. However, STEM graduates try to overcome the challenges by using various affective and cognitive strategies. The fact is, in the modern era speaking ability in English is required in every sector. As a result, English speaking skills are most important especially in the ESOL context for STEM graduates who want to engage in jobs in international organisations as well as have a desire to go abroad for higher studies related to STEM background, accordingly the teachers of STEM should emphasise on English speaking proficiency of STEM students.

Keywords: [STEM Education, English Speaking Importance, Speaking Problems, Speaking strategies]

## **Dedication**

This study is wholeheartedly dedicated to my beloved parents, who continuously provide their equitable, impassioned inspiration, strength, and financial support.

To my brother, my best friend who encouraged me to complete my study, and my supervisor who shared her words of advice in this study.

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This research paper has not been submitted in other universities or towards any other degree before this below-mentioned date.

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# **Chapter 1**

## **Introduction**

### **1.1 Importance of English Language Skills**

In this globalised era, the English language is used as a medium of communication in every sector, such as business, politics, social, cultural, economic, and education. So, a person can build a bright career if s/he can speak in English language (Stiglitz, 2014). According to Lewis (2009), there are 172 languages in the world, and at least 112 countries, including ASEA, English language is used as a second language. As a result, different multinational companies or foreign companies want to hire employees who can speak English fluently. For various dealings, the employees may have to contact the global partners. Therefore, in many countries, educational institutes take initiatives to teach English perfectly so that fresh graduates can gain proficiency in English language speaking.

Moreover, in the global market English language is used for technology-based communication. Consequently, there is a big competition of business and workforce among many Asian countries such as Malaysia, Philippines, Singapore, Thailand, and many more countries. So, English is an important language, and it should be taught at the beginning of education so that the youth can connect themselves globally (Shobikah, 2017). In addition, today in the job market, most of the interviews are taken in English, and companies hire an employee with potential and advanced acquaintance over English speaking skills. Again, those who have low confidence and incompetence in English speaking face difficulties getting a good job and sometimes they cannot get the desired job (Zeigler, 2007).

## **1.2 Importance of English Speaking Skill in STEM Education**

In the 21<sup>st</sup> century, it is solely expected that the graduates of STEM students should have efficiency in English speaking skills (Trevelyan & Tillie, 2008) because graduate students have to be connected with the global job market. As a result, communication skills using English are considered the highest demand among all over the world (Riemer, 2017). Also, it is believed that in the job market, almost 75% of engineering students depend on communication skills, and the rest, 25% lies in the proficiency of technical knowledge (Prabhakar, 2004).

English is one of the important subject for Engineering and Technology students, and first-year University students learn it because all advanced knowledge of science, technology, mathematics, and medicine is followed in English. Furthermore, in ESOL countries such as India, Malaysia, Thailand, Bangladesh, English is not used for everyday communications which makes learning of the subject difficult. However, according to Gupta (2013), 50% of engineering students are not perfectly speaking in the English language in India. As a result, in India, unemployment problems among engineering students are noticeable. In addition, fresh engineering graduate students of Malaysia also face the same problem because of a lack of proficiency in the English language (Sharif, 2005). Furthermost, in Nepal, science, and technology students have to participate in the test of speaking and writing skills in English to get jobs. Many fresh graduates often fail to acquire jobs (Awasthi, Pahari, Shrestha, 2016).

Also, English proficiency in speaking performance is very low for petroleum engineering students at Hadhramout University of Science and Technology. So, most graduate students of petroleum do not get the chance to work while applying in the oil companies (Al-Tamimi & Shuib, 2008). Although they are knowledgeable in technical competence, they need to be skilled in English speaking because in the professional work engineers have to make relation with different types of people, arrange important meetings, convince clients, supervisors and

deal with foreign companies with their communicative skills in English (Gupta,2013; Ali, Abid, Hashim, Kassim, Osman, Radzuaan, 2008).

So, in modern days, language proficiency in English is one of the important tools for all science and technology background students because, in every job places, communication skills, presentation skills, and comprehension skills are required (Clement & Murugavel, 2015).

### **1.3 Promoting English Speaking Skill in STEM Education**

The English language is a compulsory subject for academic purposes of the science and technology background students. According to, Hairizila and Subarna (2007), graduate engineering students who have a high level of self-efficacy can speak in English perfectly. Also, some students shared their experiences that they always try to believe in their effort and capability and take positive statements, avoid negative concepts in terms of their English language proficiency.

On the other hand, the teacher's role is very important for engineering students to develop their speaking skills because they are mentors, motivators, counselors, and trainers. For teaching speaking in English, a teacher should first encourage students to be good listeners. If a person is not listening carefully, s/he will not be able to communicate in any language. So, the teachers should motivate the engineering and technology students to listen to different audio materials. In this case, teachers can play audio based on a topic that students will listen to and take some notes. After ending the audio, teachers will ask questions about the topic, and students will give individual or group presentations on this audio material. In this way, engineering and technology students can improve their speaking skills in English (Gopi & Reddy, 2013).

So, many countries take the importance of English speaking skills; therefore, in India, engineering courses are focused on a condition that the soft skills, including English speaking

skills, should fulfill the demand of the job grantors. Moreover, to reduce the fear of English among engineering and technology students, teachers should create the classroom as a comfort zone to feel free to participate in the class. Teachers can involve the students in different activities such as debates, role-play, and group work to practice speaking in the English language (Gopi & Reddy, 2013). For instance, in Chennai, Anna University has started to teach Technical English and designed the syllabus so that learners can practice listening and speaking skills in every context. They have also introduced the students to different speaking strategies to make them perfect for academic and professional purposes. In addition, students get the facilities of e-materials and language lab materials for enhancing their speaking ability (Vijay, 2013).

In the same way, English is given importance in Nepal in the engineering curriculum, which the experts design for developing students 'English language skills (Shrestha, Pahari, & Awasthi, 2016). Again, in China, English teaching training starts in Science and Engineering institutions, especially to support the ability to listen and speak in English (Liu, 2015). Furthermore, English for Technical Purposes (ETP) was started in Malaysia for the polytechnic educational system to develop study, information processing, and presentation skills in English (Ghani, Mohd, Mukhtar, Rashid, Shaupil, & Yasin, 2010). Moreover, in Turkey, Gomleksiz (2007) has conducted an experimental study on engineering students and found that teacher-centered teaching can help to improve vocabulary knowledge which may help their speaking skills. Still, he claims that the cooperative learning method positively affects Engineering students. The cooperative learning method makes students active and responsible, which helps them in their professional life because in the classroom, they use the target language to participate in group tasks So; in today's workplace, language skills in English is an important tool that helps the Science and Technology students to get desired jobs.



## **1.4 English Speaking Skills of Bangladeshi STEM Students**

In the Bangladesh, English is used as a second language or a foreign language. Like other countries' STEM students, in Bangladesh, 90% of graduate engineering students claim that they are eager to develop their speaking proficiency for getting desired jobs. Again, some students believe that if they learn English for academic purposes, they will automatically gain English language skills, which will help prepare for getting good jobs (Sultana<sup>1</sup>, Sultana<sup>2</sup>, & Zakaria, 2019). On the other hand, Bristi (2015) explored Bangladeshi engineering EFL learners' attitudes towards learning English. Her findings show that engineering EFL learners both in public and private universities have moderately positive emotional and cognitive attitudes and highly positive behavioral attitudes to learning English speaking. The study also reveals that public university engineering students are less competent, exam-oriented, and discouraged by bad results. They are also more eager to continue English courses than private engineering students. This study also offers some possible solutions such as methods to increase the positive attitude of learners, facilitate learners with successful learning, make teaching English more effective and make learners and educators aware of learners' attitudes to learning a foreign language to change the overall negative attitudes and to help public university learners stand up equally on the platform of learning the global language.

On the contrary, Sultana, Sultana, and Zakaria (2018) have stated in their study that for improving English speaking skills, the effectiveness of fundamental English language courses has been offered to the diploma engineering learners at a public engineering university in Bangladesh. The findings of their study have revealed the present syllabus does not adequately provide to their perceived needs as the number and duration of the English classes are limited in scope, and it only focuses on the structural aspect of language, neglecting the functional one. Moreover, prescribed textbooks, various instructional methods, including multimedia, formative assessments, and speaking feedback, are hardly practiced and ensured

to make the learners proficient in communicative skills. Therefore, their study suggests that the existing English courses need to be updated and modified so that engineering students can get the opportunity to improve their speaking skills in the English language.

Furthermost, in private universities some English courses are offered for STEM students as most of the students are from Bangla medium background. However, the curriculum, speaking activities and syllabus design are not organised so that students can reduce their weakness especially in speaking (Mohiuddin, 2014). In addition, private university STEM students are less interested to practice speaking outside the classroom. On the other hand, it is also be stated that, due to the current standings of social viewpoint such as no practicing environment, less family support, peers' negative attitudes make the STEM students reluctant to speak in English (Jabeen, 2013). Such scenario in Bangladesh raises a question how STEM students of this country can overcome their challenges of speaking English.

### **1.5 Statement of the Problem**

English speaking is undoubtedly a significant skill for most jobs around the world. Nowadays, knowledge of the English language is highly needed for professional purposes because it provides good positions in the job market and high social status (Krhutova, 2004). Good English speaking is a must for those who are doing jobs in foreign countries or interacting with people from outside countries. Employees working in the offices requiring science, technology, engineering, and mathematics (STEM) knowledge, are not exceptions either. However, in ESOL contexts such as Malaysia, the Philippines, Singapore, Thailand, India, Pakistan, and many more countries, English language teaching to science and engineering students is not up to the mark (Shobikah, 2017). That is why these students cannot communicate effectively with their clients in their workplaces.

Also, it is a matter of fact that in Asia, many engineering students face unemployment problems after completing their graduation because, in every job place communication skills, presentation skills, and comprehension skills are required (Soomro & Channa, 2019; Clement & Murugvel, 2015; Mandasari & Oktaviani, 2018, Shrestha & Awasthi, 2016). The interviews mostly happen in English, so when a candidate cannot express his opinion, in 80% of cases, the rest of the interviews are not taken as expected (Henry & Collins, 2013).

In Bangladeshi context, many graduates from science and engineering backgrounds are not that good at writing, reading, listening, and speaking in English (Chaudhury, 2010). The educational system is responsible for this kind of scenario because during SSC and HSC examinations in English many students try to pass their examinations by memorsing English and teachers are not enough trained to teach the students properly. Therefore, after entering the university, the engineering students do not gain proficiency in English language (Mohamed & Seman, 2012; Aktar, 2012). There is a belief that if one has technical bits of knowledge or good results, the candidate can get a primary job. However, with the current advancement, one also must know how to communicate with others using English (Aslan, 2011). Furthermore, the vocational education system makes students capable of getting jobs after graduation, but students cannot achieve progress in their careers because they cannot communicate well in English (Shahidul, 2021; Ashok, 2018).

So, like other ESOL countries globally, Bangladeshi STEM students need to gain proficiency in speaking, as in today's competitive workplace, communication skills in the English language are getting prioritised to hire the employees. To date, limited studies have been conducted on STEM students' English speaking skills in Bangladesh. For making the STEM graduates successful careers, researchers must know why the students are not developing English language skills, especially spoken skills. That is why it is essential to examine how the STEM students perform in a speaking test in English and their challenges while using this language.

Moreover, it is important to know what strategies STEM students adopt for overcoming these challenges. The study's findings will help the English teachers of STEM institutions in Bangladesh improve their curriculum and teaching strategies.

## **1.6 Central Research objective**

To explore the challenges of Bangladeshi STEM students in terms of English speaking.

## **1.7 Research Questions**

The following research questions have been made explicit about attaining the purposes of the research:

1. How do the STEM students perform in a speaking test?
2. What challenges do they face while speaking in English?
3. How do they overcome the challenges?

## **1.8 Definitions of Key Terms**

STEM Education: A standard term, meta-learning be situated at the school level where the STEM (Science, Technology, Engineering, and Mathematics) teachers teach a complete direction without dividing a certain subject matter and create a potential, inconstant study (Brown, 2012; Barkos, 2012). STEM students do experiments or observations in science (Science, 2012), make innovations in technology (Technology, 2012), apply practical knowledge of science, physics, or chemistry in engineering platforms (Engineering 2012), and use mathematical terms of algebra, geometry, and calculus for making remarkable modulation (Mathematics, 2012).

In Bangladesh the concept of STEM spreads among the students from primary schools to graduate schools. Therefore, students get interested in Science and Engineering. In addition, many universities in Bangladesh such as, BUET, KUET, CUET, RUET, SUST all are

belonging to science, technology, engineering and mathematics disciplines (Mowla, 2019). In the developing country like Bangladesh students are becoming acquainted about the holistic approach of knowledge in the affinity of STEM.

ESOL: According to Cambridge dictionary, English for Speaker of Other Languages (ESOL) means, the learners whose first language is not English but who are inhabitant of English-speaking country.

### **1.9 Significant of the Study**

The study's findings will provide the utility to the society, that the importance of STEM students' English speaking skill is essential in the modern era. Indeed, for Bangladeshi STEM graduates, English speaking skill is categorised as "limited users," which was vindicated on an English-speaking test. Nowadays, English speaking skill is considered one of the most demandable quality in the professional areas especially for all STEM candidates who are from the ESOL context. Therefore, English speaking ability plays a vital role for STEM graduates to get a successful life. The study has also been stated to find out that the STEM students are becoming incompetent in English speaking. As, they face many challenges suchlike, psychological, social, linguistic, and instrumental problems are noticeable. In this situation, the administrators should take the initiative so that STEM students can get proper opportunities to practice their English speaking.

Furthermost, STEM faculty members of the Universities should grow awareness of the importance of English speaking skills among the students, and they should communicate with the students in English instead of using their mother tongue. Apart from this, not only have the problems been figured out, but also effective solutions have also been proposed to culminate the current ongoing scenarios. The study's researcher has tried to find out probable practical, valid, and necessary approaches to resolving all the challenges of STEM students of English

speaking. Such in-depth required solutions have not yet been discovered from on Bangladeshi perspective. Thus, some new resolutions have been proposed based on the students' obstacles.

### **1.10 Scope of the study**

The importance of English speaking skill for STEM graduates and the ability to speak in English is an alarming issue especially in a country like Bangladesh. In this point of view, this study analysed STEM graduates' English speaking performance by taking English speaking tests and the challenges they face which are included in their inability of English speaking. In addition, this study reveals how STEM students overcome their speaking challenges by using their strategies in this current situation. The scope of the study is restricted to the selection of STEM participants who have graduated from different universities from remote areas of Bangladesh. Mainly, the researcher of this study selects 6 participants from different universities in Dhaka, takes a Speaking test of each student to judge their speaking performance, and analyses their opinions according to their interviews. So, this study involves STEM graduates' perspectives who are from different universities in Dhaka city of Bangladesh. Therefore, the scope of the study is limited, and it is offering to explore the STEM graduates speaking condition especially in the remote areas of Bangladesh.

## **Chapter 2**

### **Literature Review**

#### **2.1 Part 1: Importance of English Speaking Skill**

English is known as an international language worldwide. English is being used in many sectors such as medicine, engineering, business, technology, computing, banking, education, and tourism. Therefore, learning and speaking in English is necessary to connect globally. As a result, people from different professions need to be proficient in English to communicate with others. So, it is necessary to make the learners efficient in English speaking skills by giving purposeful training.

##### **2.1.1 Importance of English Speaking Skill**

Speaking is undoubtedly a productive skill included with grammar, strategy, sociolinguistics, and discourse because when people speak, they produce sounds with some words to make meaningful sentences for communication. (Chastain, 1998). According to Wilson (1997), speaking skill is one of the necessary parts, which is needed almost everywhere, from natural colloquy to prescribed public speaking. So, speaking in English is very important because English is a global language for communication. In addition, nowadays, English is required in academic, business, government, corporate, international, medical, science, and technology. As a result, the speaker has to be very fluent with correct pronunciation and be in listening comprehension (Khamkhien, 2010).

##### **2.1.2 Fluency, Accuracy, and Complexity**

Fluency is the capability to use a language easily, effortlessly, and unmistakably. When a speaker learns a language and gradually uses that language, he will achieve fluency. On the other hand, accuracy refers to correct grammar, vocabulary, and pronunciation of a language

and Complexity, which is related to the learners' capacity to handle their interlanguage complexity (Skehan, 1996). In speaking, Accuracy, Fluency, and Complexity are very important. Still, it is a matter of the fact that the Information Technological background students especially from Malaysia (Mukminin & Asyrfi, 2018), India (Paakki, 2013), Pakistan (Arafath & Rukanudin 2019), Indonesia (Younes & Albalawi, 2016), are not proficient. There are many reasons such as less knowledge of vocabulary, fewer ideas of grammar, lack of self-confidence, no habit of practicing speaking in English, and never using any strategies to develop the English speaking skill. Moreover, their writing is not well structured, vocabulary and grammatical errors are very common in writing. On the other hand, reading and listening performance is very poor. Also, during speaking, they think first in the native language then translate it into English. In addition, their speaking inability related to psychological problems like hesitance, self-confidence, low self-esteem, and focus only on grammatical and theoretical learning impact the students' performance in English (Younes & Albalawi, 2016; Paakki, 2013). Furthermore, Mridha (2020) has done an experiment on engineering graduate students about their speaking ability and found out that during speaking, they face the influence of their mother tongue, fear of making mistakes, and lack of motivation are the reasons for their inability to speak in English.

### **2.1.3 Factors Influencing English Speaking Skill**

As language is a medium of communication, so for learning a language, it is necessary to develop the required skills. However, speaking in the target language is not easy for the learners because there are many reasons, for instance, learners' less interest in participating in speaking activities, lack of motivations, lack of opportunities in practicing the speaking skill, and lack of guidelines are the main purposes of speaking disability (Lightbown & Spada 2003,). According to Clement and Murugavel (2015), the classroom teaching system is teacher-oriented, and most teachers are not experts in teaching English. Also, at the tertiary level, the



English courses are taught knowledge-based rather than focusing on skilled-based (Gupta, 2013), and irrelevant syllabus and lack of proper guidelines are responsible for creating challenges in teaching English (Vijay, 2014). Furthermore, Savita (2015) claims that teachers have a shortage of proper training and large gaps between classroom teaching practices and the expectations of the students. So, in this case, some areas are required for the learners to improve their speaking abilities, and in the classroom, motivation is one of the major parts of language learning. Whereas motivation helps the students to reduce their shyness to participate in English language speaking (Ali & Osman, 2008). On the other hand, Tambunan & Siregar (2016) have studied and found that Information and Technological background students are instrumentally motivated to learn the English language because if they are good at the English language, they will get the opportunity for higher study and be able to build a good career in the future.

Gomleksiz (2007) has conducted an experimental study on engineering students and found that teacher-centered teaching can help improve vocabulary knowledge which may be helpful for speaking skills. Still, he claims that the cooperative learning method has a greater positive effect on engineering students. The cooperative learning method makes students active and responsible, which helps them in their professional life because, in the classroom, they use the target language to participate in the group tasks. Moreover, Mandasari (2018) has mentioned some engineering students use cognitive strategies such as using new words in writing and speaking, sometimes trying to speak in English with correct grammar and pronunciation. On the other hand, some other students learn English by watching movies, using the dictionary to know the meaning, making a notebook of new vocabulary, and preparing for the presentation. Also, self-efficacy, self-awareness, consistent effort, and learning strategies are required to develop speaking capability (Reddy, 2013; Mandasari, 2018).

### **2.1.4 Strategies for Teaching Speaking in English Classroom**

Teaching English speaking to students, the teachers should notice and identify students' problems during speaking in the target language (Heaton, 1996). In this case, teachers should understand that when students participate in speaking activities, constantly correcting the mistakes is not helpful for them; rather, it makes them unproductive. So, teachers remain silent when the students participate in the activities (Harmer, 2004); besides, they should play a role as an advisor rather than instructors, giving opportunities to express the students' opinions in the classroom (Larsen- Freeman, 1986). According to Johnson (2015), teachers can act in three different types of roles: teaching as a transaction, teaching as transmission, and teaching as transformation. Teaching as a transaction means the teacher provides the knowledge to the students, but the teacher will share all the knowledge rather s/he will instruct and guide. Next, teaching as a transaction means the teacher will collect the old information from the students and try to create another new meaningful information. Lastly, teaching as transformation means teachers will transfer their potential to the students in different ways, for example, cognitive, creative, emotional, and social.

When teaching a target language, teachers should design the teaching materials for the students, learning tasks, and activities that students will complete in the classroom (Richards & Roger, 2016). Moreover, for choosing the activities, the teachers always make sure that the lesson will be interesting, and the students will not be bored during the task. So, teachers can choose interesting topics or lessons for the students through different kinds of activities such as information gap, jigsaw activities, role play, pyramid discussion, picture differences, debate, and prepared talk (Nunan, 2003). By doing these activities, students will get opportunities to share their ideas with their peers. Also, when they give the presentation according to the given task, their shyness, anxiety, nervousness will be reduced gradually. More, they will get

motivation from these activities, and teachers will help them by giving positive feedback (Harmer, 2007).

During teaching English speaking, teachers also focus on pronunciation, intonation. Teachers encourage the students to practice inside and outside the classroom in this situation. If learners face pronunciation difficulties, teachers should motivate them and show them video clips of the pronunciation (Kelly, 2006). On the other hand, intonation plays an important role in teaching English speaking because proper intonation helps the students to understand properly. In addition, teachers' facial expressions, body movements carry meaningful messages (Harmer, 2007).

## **2.2 Part: 2 The Concept of STEM and its Important**

STEM refers to Science, Technology, Engineering, and Mathematics, but it is more than that, which means it has an alterable discipline (Morrison, 2008). Mainly, it integrates various methodical information of a new “entire” part rather than in bits and pieces. In addition, all four disciplines are gathered into one frame for the teaching and learning paradigm to break down the barriers between the disciplines. So, the STEM teachers teach a mixed approach where discipline-distinctive subject-matter is allocated but alluded to and arbitrated as one alive, fluid study (Brown, Reardon & Merrill, 2011; Morrison, 2008; Tsupros, 2008).

### **2.2.1 Definition of Stem Education**

The concept of STEM education has been established since the 1990s in the USA because the global economy started to fall so, Americans began to focus on STEM education and careers (Friedman, 2005). According to the United States Department of Education (2007) STEM education, (Science Technology, Engineering, and Mathematics) are ascertained as an approach that explores teaching and learning among two or more STEM subjects. The education starts from elementary to postgraduate. STEM education plays an important role

because the students get opportunities to participate in different activities and realize the purpose of engineering. On the other hand, STEM education has become an economic creator which establishes economic stability in Europe, the United States, and developing countries. As a result, the demand for STEM education is increasing in many countries to meet subtle economic challenges (English 2016; Marginson et al. 2013; NAE and NRC 2014).

### **2.2.2 STEM and its Importance**

In the world, STEM education is necessary because it develops knowledge, capability, and efficiency of the students to create technological variation and improve productivity. Therefore, STEM education is critically important in the undergraduate program to develop global economic growth (Freeman, 2006). From the quality of mathematics and science education, the U.S.A belongs to 52<sup>nd</sup>, and in global competitiveness, the U.S.A belongs to 5<sup>th</sup> position. On the other hand, in the STEM field, China is rewarded 46.7%, Singapore 51%, South Korea 37.8%, and Chile 24.2% (BHEF, 2010).

STEM education is not only emergent for economic development but also individual affluence. As a result, the students who belong to STEM fields can earn good amount of salaries than the non-Stem students. After completing graduation, STEM students can get a job with favorable wages. Mainly, STEM workers can earn more than \$35 per hour and 26% higher than non-STEM works (Langdon, McKittrick, Beede, Khan, & Doms, 2011).

There is a gap between men and women in STEM jobs because men get 76% whereas women get 24% of STEM jobs (Szelényi, Denson, & Inkelas, 2013). This sort of statistics means gender discrimination is a serious issue that cannot be ignored in STEM-based careers. Many instructors promote male students over females in many sectors. However, they may not be aware that females can also undertake such responsibilities (Gilbreath, 2015). There is a stereotype belief that women are not that efficient in math and science, which also takes women

far behind in the world. Though, men do not face such kinds of negative attitudes over them. This type of negative behavior towards women can affect women's ability to learn math and science (Aronson, 2014). In addition to this, women are highly underrepresented in STEM education and professional sectors due to the biological differences from men like brain size, functions, and many other features (Boaler, 2012). One aspect is evident from the study that we need more women to remove the boundaries and be a part of STEM education and STEM professions by mitigating the stereotype threat (Moss-Racusin, Dovidio, Brescoll, Graham, & Handelsman, 2012).

### **2.2.3 English Speaking for STEM Students**

English speaking skill is essential for STEM students not only for academic purpose but also for obtaining professional success because the English language is a medium of communication worldwide. STEM graduates need to multitask in many skills in the modern era because of the global atmosphere (Riemer, 2007). As a result, good communication skills in English are required in the world (Richards, 2006) because around 60% of STEM graduates have to communicate regularly with people using English in their workplaces (Trevelyan & Tillie, 2008). Though STEM graduates are knowledgeable and creative, they cannot convince their clients, and directors through their communication skills (Gupta, 2013). Therefore, 75% of success in the professional sectors depends on speaking ability (Prabhakar, 2004); and 25% requires technical knowledge. However, Sasidharan (2012) shows in his survey that around 20 engineering colleges of Orissa, 75% of students claim the English language requires learning because they are unable and unfamiliar to understand the academic concepts included in their syllabus.

For developing speaking skills in English, engineering students mention that they need to develop English grammar and vocabulary skills so, they want proper guidelines from the

teachers (Sasidharan, 2012). On the other hand, 79% of students believe that technical documents help increase their vocabulary knowledge and 73.5% of students think that speaking activities help improve the skill and increase confidence to get good jobs. However, in engineering college, 20.9% of teachers practice speaking activities and technical vocabulary exercises. Also, most of the teachers are not familiar with language teaching methods and are not well trained, and their teaching style is “teacher-oriented” in the classroom. They are not conscious about teaching materials and syllabus designs, even they do not think about class objectives that how they will organise the classroom, what will be students’ role and what will be their role. In addition, they do not know how to motivate the students.

However, for learning and speaking in a second language, motivation plays a vital role for the learners to become successful (Kormos & Caizer, 2010); because proficiency of a second language comes from different types of motivation. For example, instrumental motivation can develop the communication skills of STEM students, if they are examined by different kinds of speaking tasks and get proper instruction from the teachers to develop their English speaking proficiency.

English language is an indispensable tool (Boonma, Sureeyatanapas & Thalangkan, 2016) for the science and technology background students because they have to communicate with correct grammatical structure so that the foreigners in their professional life can understand their messages clearly. In addition, engineering graduates in their workplace have to deal with project-based situations, arrange meetings and presentations with clients (Dannels, 2013). As a result, during the communication, if they create any misunderstanding and provide wrong ideas to the clients, it will be the biggest mistake for the benefit of the organisations.

According to the study of Ghani and Rashid (2010), the Malaysian civil engineers’ English proficiency is not up to the mark for getting a good job. They reveal that civil engineers are not

qualified in the four skills of English, which are related to their professional work. In another study, the same problem has pointed to the Thai engineering graduates that they are not proficient enough to speak English. Ngam (2013) has shown in his findings that Thai engineering graduates' TOEFL score is 450, which proves their low proficiency. Also, Pakistani (Soonro & Channa, 2019), Indian (Clement & Murugvel, 2015), Indonesian (Mandasari & Okataviani, 2018), and Napoleon (Shrestha & Awasthi, 2016) STEM graduates have to face the same difficulties in English speaking skills as a result, most of them are suffering in the unemployment problems. On the other hand, the information technology background students face difficulties when they move abroad for higher studies, because they are never conscious about English as a Second Language and never try to learn it properly. So, during the class, they cannot understand the lectures because the teachers speak English very fast and fluently and the accents are too difficult for them to understand (Burke & Wyatt-Smith, 1996).

## **2.3 Part: 3 Bangladeshi Context**

### **2.3.1 The Education System of Bangladesh**

There are mainly three types of streams in the Bangladeshi educational system: formal education, technical or vocational education, and madrasah education. In formal educational system, the instruction is provided in Bangla and tertiary level both Bangla and English. On the other hand, the English medium educational system is followed by the University of Cambridge through the British Council (Ali & Walker, 2014). As a result, English medium students are good at English because they study the international curriculum. On the contrary, Bangla medium students are not qualified enough in English because there is a shortage of communicative language teaching methods to develop communication skills. In addition, teachers of Bangla medium schools are not sufficiently skilled in technology and they are not

used to following any up-to-date materials as a result, in the syllabus and curriculum, there is no use of CLT (Milon, 2018; Ahmed, 2016).

Furthermore, in Bangladesh, English medium students are getting more priority than the Bangla medium students. According to Kabir and Sharmin (2019), Bangla medium students face several problems when speaking in English. Due to lack of practice and 12 years of education, Bangla medium students are not potentially helping them develop their speaking ability in English. So, most of the Bangla medium students face speaking problems when they get admitted to University as most of the universities are conducting their classes using interactive English because of their poor skills, most of the time, in terms of English speaking, their confidence becomes low, which puts a huge impact not only on their university life but also on their career. However, nowadays, Bangla medium students are eager to speak in English and take it as a challenge to learn English correctly (Sharmin, 2019),

The history of English in the sub-continent goes side-by-side. The scenario in Madrasa education is not in good shape as Kusakabe and Golam (2018) have mentioned that the English speaking of madrasa students is too miserable to imagine. They need well-trained instructors to reshape their curriculum structure and syllabus so that they can potentially groom themselves to obtain the knowledge of English as a second language. Meanwhile, several studies have revealed that due to lack of practice and guidance (Karim and Singh, 2018), students of Qawmi madrasas are not involved in English speaking. One very astonishing thing that has been come out by zaman (2014), many madrasas from rural areas have a stereotype belief that Muslim students should not learn or get involved in practicing any language except Arabic, which paves the way of grabbing knowledge of oral communication using English. It has also been evident that due to a lack of proper teaching, learning materials, and approach, it is becoming harder for madrasa students to develop their oral communicational process using English (Kaisar and Khanam, 2008). One thing is highlighted by the researcher that the use of technology and



instructions in English can play a vital to lessen the situation, and students can be motivated to start learning English speaking.

On the other hand, the purpose of vocational education is to get a job after completing all the courses is a common phenomenon in Bangladesh (Shahidul, 2021). Still, in the career aspiration and IT-enabled world, it is also a need for students to understand the necessity of English speaking and become eager to learn the basics of English speaking. Through this, they start communicating using English. Recently, the policymakers from the Bangladesh government have been conscious about vocational students, and a couple of rules have been imposed. Some existing ones have been modified to provide better education to them. Dhali and Ashok (2018) have mentioned the changes where the main motive is to create valuable resources in the job market and provide actual respect to Bangladeshi vocational students. In addition, the authors say that after completing the courses, the students will be able to create a workplace for themselves, and if the graduates want to engage in higher studies, there will be enough scopes for them. There will be changes in the academic level so that the students are no longer lagging and can become self-dependent.

### **2.3.2 STEM Education in Bangladesh**

STEM education allows the learners to connect with scientific, engineering, mathematical, and technological concepts to deal with updated activities, which extend from global relevant issues. So, advanced countries have already integrated STEM into the educational system (Arefin, Ahmed & Chowdhury, 2020). Unfortunately, Bangladesh still cannot move forward in STEM education, and the progress of economic and technological conditions is far behind. In Bangladesh, STEM education is not standard because of limited laboratories, lack of trained teachers, lack of organise syllabus and textbooks. Also, there is discrimination between males and females in STEM education. Learners have a negative attitude towards STEM subjects. There are problems such as lack of family support, fewer facilities in the classrooms, and

scarcity of learning materials. So, Government should provide financial support to increase scientific laboratories and develop the STEM education system in Bangladesh.

Currently, more initiatives are taken by the government and other non-government organizations to facilitate training to the “hardcore poor” by combining components of livelihood and skill training. David (2013) has mentioned that Bangladesh rural advancement committee is volunteering various campaigns to reduce poverty in Bangladesh. According to Hulme (2014), the main aim of such programs should be to assist poor people and overcome scarcity and make them understand how they can use those training to change their fate. There are many NGOs in Bangladesh. Among them, BRAC provides training facilities to female persons from the family (Grindle, 2005) to contribute to the economic growth of Bangladesh. Comyn (2013) has stated that manufacturing enterprises are creating opportunities for people from rural areas to get the basic skills, and as per recent analysis by the International labor organization (ILO), after introducing such programs high skilled labor are supplied to 37 enterprises in eight different sectors in different countries around the world. It is also helping to enhance the GDP growth in Bangladesh.

Any countries development is dependent not only on the hand of males but also on the females who need to come forward to ensure success, and that’s why it has been suggested that women should be properly encouraged, motivated, and trained (Johana, Haque, Hossain, 2016). Amin has mentioned a program named “Balika” conducted by Population Services and Training Center (PSTC), whose aim is women empowerment by arranging multifarious strategy development workshop for rural women as well as stopping child marriage so that each woman get the opportunity to develop themselves first, becoming able to engage herself in some earning activities.

The Center for International Development Issues Nijmegen (CIDIN), a Netherland-based organization, has been eager to introduce technology in the training as there is no alternative

except technology. Though in Bangladesh, the advanced education system is not yet familiarized, Arefin (2014) has highlighted that the policymakers, educationalists, and stakeholders from both private and public should focus on introducing such methods from the primary level to increase the completeness of the students. Here, teachers' perceptions can play a big role in influencing the students about STEM. Whenever the proper message and benefit are passed to them, then the participation of the students in both rural and urban areas will be noticeable (Sohiduzzaman, 2016).

### **2.3.3 English Speaking of Bangladeshi STEM students**

The importance of English is also increasing in the field of Science, Technology, Engineering, and Mathematics because technical people have to communicate using English to connect with the world. The reason is mentioned as in the modern era, English is necessary for engineering students not only for academic purposes but also for professional purposes (Gupta, 2013). However, engineering, science, and technology students are less proficient in English as a result, and they face unemployment threats (Channa, 2013). According to Rahman, Sultana, and Zakaria (2017), engineering students have a lack of knowledge to make appropriate sentences in English, and they are less fluent in speaking because they are rarely engaged in different types of speaking activities such as role-play, presentation, debate, and group discussion which helps to do communication using English. In addition, Khan (2000) claims that in Dhaka University of science background students are eager to develop their speaking skills to get good jobs, like BCS (Bangladesh Civil Service) and foreign companies to establish their career. Still, they are not skilled enough in speaking English because their offered courses do not fulfill their desire to improve their speaking skills. On the opposite side, the University of Asia Pacific offers Pharmacy students EAP (English for Academic purposes) courses to fulfill their demands of academic and professional purposes (Chowdhury & Haider, 2012).

In their quantitative study, Sultana and Zakaria (2019) show that 82% of engineering students claim speaking skill is necessary for job sectors and who is good in speaking skill and doing well to build a bright career. So, 86% of engineering students feel that Fundamental English Courses (FC) are useful for developing their speaking proficiency. However, 72% of students want FC courses for academic purposes because their core courses are in English. Bangladeshi engineering students need to develop English speaking skills; because of a lack of communication skills, many students cannot go abroad. In addition, their TOEFL and IELTS score is not up to the mark. In their HSC and SSC syllabus, they do not get opportunities to practice their speaking skill such as oral presentation, role-plays, and group discussion (Hasan & Mostafa, 2016). However, some students confess that the English courses increase their confidence at the university level and motivate them to develop their speaking skills. Still, most of the students disagreed with the statement. On the other hand, the language teachers mention that many students do not want to build language skills in real life; rather, their only focus is to pass the final exam. So, different teaching strategies, methods, and approaches should apply in the English classrooms and ensure student-centered classrooms so that students can get opportunities to participate and develop their communicative skills in English (Sultana & Zakaria,2019).

## **2.4 Research Gap**

The existing scholarly literature on STEM students' English speaking is an indispensable tool (Boonma, Sureeyatanapas & Thalangkan, 2016); and impacts professional work. Though the problem is that Pakistani (Soomro & Channa, 2019), Indian (Clement & Murugvel, 2015), Indonesian (Mandasari & Oktaviani, 2018), Napoleon (Shrestha & Awasthi, 2016), and Malaysian (Ghani & Rashid, 2010) STEM graduates are not proficient at speaking in English. For this reason, after completing their graduation, they cannot acquire jobs and have to face unemployment problems. In addition, STEM students have to suffer a lot when they speak in

English (Mukminin &Asyrifi, 2018; Arafath & Rukanudin 2019; Mridha, 2020); because during speaking, first of all, they think in the native language and then translate it into English. In addition, engineering students' speaking inability related to psychological problems like hesitance, self-confidence, low self-esteem, and focus only on grammatical and theoretical learning impact the students' performance in English (Albalawi &Younes, 2016; Pakki, 2013). Also, speaking in the target language is not easy because of (Lightbown &Spada, 2003) learners' less interest in participating in speaking activities, lack of motivations, lack of opportunities to practice the speaking skill, and lack of guidelines the main purposes of speaking disability. Clement and Murugavel (2017) have mentioned in their study that teaching systems are not organised. Gupta (2013) has pointed out that the English courses are taught knowledge-based rather than focusing on the skilled-based. Furthermore, Vijay (2014) claims that a lack of proper guidelines is responsible for creating challenges in teaching speaking in the English language.

To date, very few studies have been conducted on Bangladeshi STEM graduate students' speaking skills in English. That is why the current study attempts to fill up this gap of knowledge on STEM students' inability to speak English properly. This study also explores the problems they face during speaking in English. According to the problems, what will be the solutions so that STEM students can succeed in their future careers in an ESOL context such as Bangladesh.

## **Chapter 3**

### **Methodology**

#### **3.1 Introduction**

This study looks for how the STEM students feel about speaking in English, what challenges they face while speaking in English, and how they overcome the challenges. This chapter discusses the adopted research methodology for this study. The methodology is designed based on the research questions of the study. Also, this chapter explains the justifications behind choosing a qualitative multiple case study approach, the procedure of selecting the participants, the theoretical framework of the data collection process, the structure of data analysis, and the steps to make the study reliable.

##### **3.1.1 The Qualitative Paradigm and Its Philosophical Assumptions**

Qualitative research design is based on philosophical assumptions and a specific research paradigm. As qualitative research has many paradigms, among all of them, this study is conducted based on a pragmatist worldview. Paradigm is as “worldviews” and trusts the reality, knowledge, and standard of nature (as cited in Morgan, 2007). So, depending on the pragmatist worldview, the researcher took attempts to see how STEM students face challenges when trying to speak in English by conducting individual interviews. In addition, by following the pragmatist approach, the researcher reaches the goal by taking action, as Roskelly and Kate (1998) claim that the pragmatist approach is an effective way to get the exact result of the target.

Moreover, Kalolo (2015) states pragmatism means a practical experience-oriented approach where the researchers have to gain experiences focusing on solving the problem. In this situation, the researcher arranges a speaking English language for the participants. So, giving

a task to the student's regarded as action, and according to the task, students' participation considers as action's impact. On the other hand, according to Mcdermin (2006), a researcher may have to find out the answers to his research questions on the aspect of pragmatism by adopting different kinds of data. As a result, the researcher of this study uses data such as observation, semi-structured interviews, and audio recording to make the data trustworthy.

Mertens (2015) and Wilson (2012) describe that a paradigm combines four philosophical assumptions. They are axiology, ontology, epistemology, and methodology. Among the philosophical assumptions in this study, ontological assumptions refer to the perspective of individual participants (Creswell, 2013). For this reason, the researcher took individual interviews of the participants that helped the researcher to understand their point of view regarding (R2) and (R3). Next, the researcher follows epistemological assumptions to connect with the issue by choosing different processes (Creswell, 2013). As a result, the researcher tries to observe STEM students' speaking ability, how they can speak in English, and how do they perform in speaking. That is why the researcher observed the participants by taking English speaking tasks through audio and visual recordings (R1).

Then, the third assumption is an axiological assumption, where the researcher tries to collect data without showing personal bias (Creswell, 2013). That is why the researcher of this study had no self-interest to show favoritism. In contrast, the participants were from Science, Technology, Engineering, and Mathematics backgrounds, and the researcher was from the English and Humanities department. The selected participants are not close friends to the researcher, allowing her to judge their speaking activities neutrally. All data had been collected impartially to discover the proper findings related to STEM students' English speaking challenges.

At last, in this study, the researcher follows methodological assumption where she investigates (Antwi & Hamza, 2015) the inevitable question adhering with the methodology that "how does a person can gain knowledge about something?" That means in what way people should perusal the world (Kawulich, 2015). We have to inquire for new information (Schwandt, 2007). In methodology, the researcher of this study has chosen the inductive way. Then researcher connects with a theory as restricted to engage an existing theory on the data. That means the researcher of this study makes her perspective based on the research questions and data analysis procedure (Creswell, 2013).

The philosophical assumptions used in this paper are adapted from Creswell’s (2007) table of “Qualitative inquiry and research design: choosing among five traditions.”

Paradigm	Ontology	Epistemology	Axiology	Methodology
Pragmatism follows a practical experience-oriented approach to gain experiences focusing on the action to solve the problem	Practical observation visual and audio recordings. Also taking individual interviews of the STEM students while multiple subjective views of the participants.	Individual speaking tasks based on different topics to understand STEM students’ performance of English speaking skills.	The researcher kept maintaining an unbiased and neutral role, where the specific role remains to what extent the Bangladeshi STEM students are facing challenges in terms of English speaking skills.	Qualitative research  Multiple case study approach for collecting data  Inductive way to explore the problems of Bangladeshi STEM students’ English speaking skills for collecting information.

*Table 3.1: psychological assumption of the study*

### **3.1.2 Research Design**

The research has been organised by many previous literature reviews and research questions.

In addition, the study follows a pragmatic research paradigm as the researcher tries to maintain



the focus on actions and indicates its immediate problem. So, the speaking tasks and the interview sessions were the actions taken by the researcher, and the participants have responded in the interview session. The spoken task in the English language of the participants was the implications of that action. The central objective of the research is to explore the challenges of Bangladeshi STEM students' in terms of English speaking, so the researcher has decided to make a qualitative multiple case study approach.

The qualitative research aims to understand the experience of peoples' lives in the world for better development. A good researcher tries to get the subjective meanings from the participants and understands society's situation and actions (Fossey & Harvey, 2002). So, why a Bangladeshi STEM student is not able to speak in the English language properly, and what are the problems s/he faces that can be achieved through qualitative data collection approaches, for instance, taking in-depth interviews, observations (Guest & Namey, 2013), or analysing the students' speaking ability through the spoken task. In the following sections of this chapter, the design of this study is explained in depth.

### **3.1.3 Data Collection Procedure**

In this study, several ways were used to collect data in the research, such as speaking test, observation, semi-structured interviews as described below:

#### **3.1.3.1 Speaking Test**

To conduct the speaking test, "student presentation" is one kind of task, where the teacher will give a topic to the students and individually student will give an oral presentation (Harmer, 2007). An oral presentation helps to judge what a person is saying and how he says it (Luoma, 2004). In this case, the researcher follows the IELTS speaking test process because it is an international and most popular language testing system worldwide. Based on the IELTS patterns, the researcher designed the speaking topics for the participants. There were given

planning conditions (four scaffolding points) in the topic, and the students had to cover each point while giving their speech. In this task, the students got two minutes to plan the speech and got four minutes to present the topic. Each student did their oral presentation by turning on their camera through the zoom platform so that virtual eye contact could be maintained. It will assist the researcher in judging the participants critically.

### **3.1.3.2 Observations**

Observation is one kind of monitoring where the researchers look for systemic affairs. In the data collection process, observation helps a researcher comprehend different roles (Creswell, 2014). In addition, observation imposes the qualitative researcher to investigate and gather experience of the participants' action directly (Ritchie & Lweis, 2003). Giving tasks or asking questions in the data collection process refers to understanding the level of feelings who has already gathered experience or skills (Sudaryono, 2017). As a result, for understanding STEM students perform in a speaking test, the research took a one-day session of English-speaking individual presentations based on different topics. In addition, the researcher did video recording while the students were participating in the speaking task.

### **3.1.3.3 Analyse the recording of the Speaking Test**

To analyze the speaking ability, the researcher evaluates the STEM students based on the “IELTS Speaking Band score” (see Appendix B). As the researcher took the speaking task of six participants, she categorized them into different speaking bands of IELTS. The IELTS speaking test evaluates based on four ways such as- fluency and coherence, lexical resource, grammatical range and accuracy, and pronunciation (Nath, 2021). Based on the IELTS Speaking Band score, the researcher of the study analysed the speaking ability to see how the STEM students perform in a speaking test.

### **3.1.3.4 Semi-structured Interview**

An interview means asking questions to the students, and according to the questions, they are capable of granting information or response that is considered essential. According to Nasution (2003), interviews are deemed oral or vocal conversation, which aims to attain information. In addition, the interview takes an individual way of obtaining data.

Semi-structured interviews in this qualitative research help get data based on the research topic. According to Berg (2004), semi-structured interviews help the respondents to express their opinions explicitly. As a qualitative researcher of this study, the researcher needed to gain knowledge about the participants' feelings, thoughts, and ideas. In this manner, the researcher tried to collect all data of the interviews questions that she had planned in her interview session (Wholey, 2015).

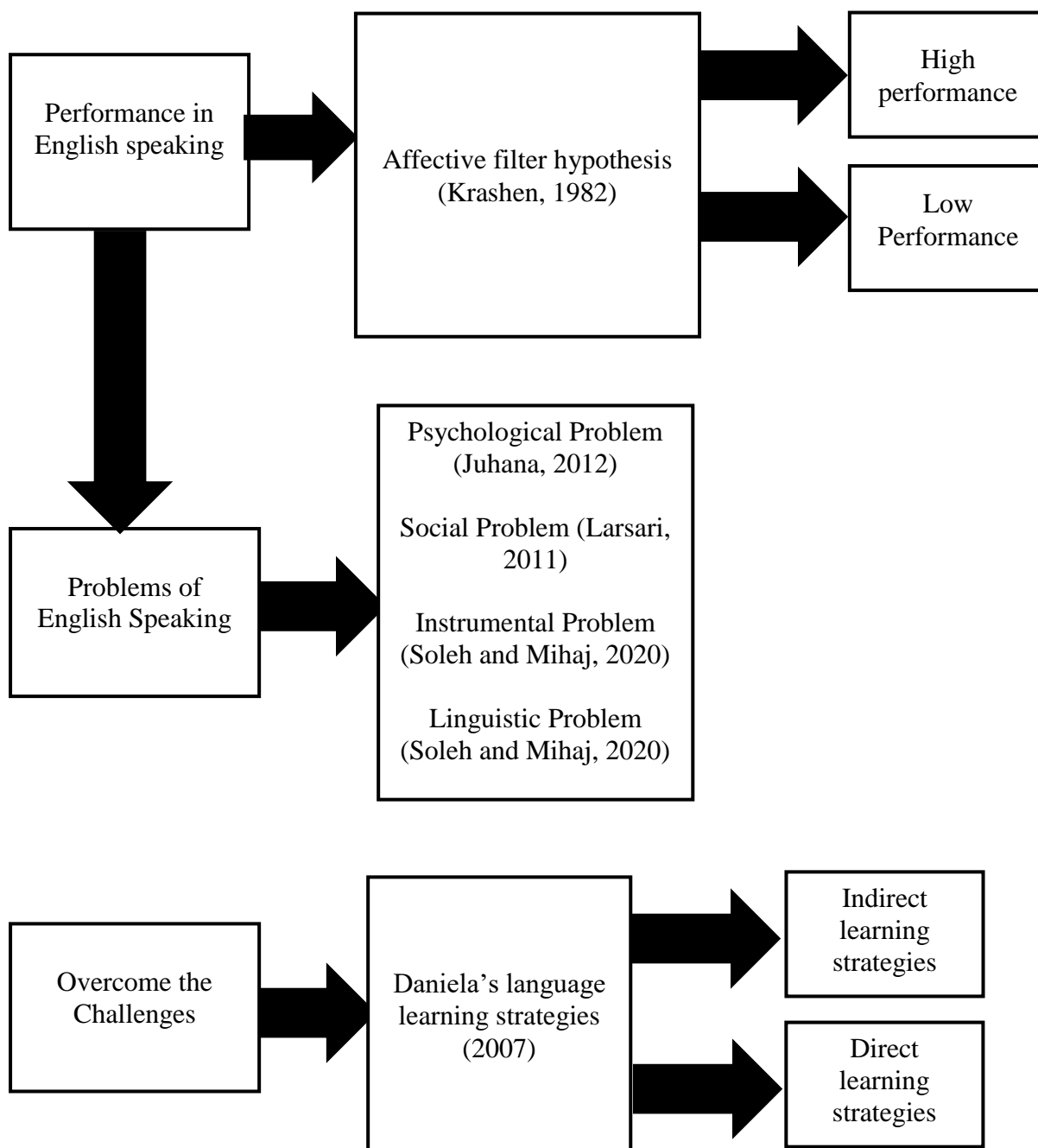
### **3.1.4 The Theoretical Framework of the Study**

The theoretical framework for the study has three main stages. The first stage takes place in a session of speaking tasks to observe the students' feelings regarding English speaking skills. As Krashen (1970) claims, if the affective filter is at an increased level, the learner will have negative feelings. If the affective filter is decreased, the opposite reaction will happen, which means the learner will have positive feelings. For observing students' feelings in this first stage, two days of the English-speaking sessions such as group tasks and individual presentations based on different topics will be announced for the student, and they will participate in an impromptu way. Students will causally deliver their speech (Brown, 2001). In this manner, data has been collected through two days sessions, and audio recording will be done for reliability.

In the second phase, the researcher will find out the problems of English-speaking skills and the diversified problems. Still, this study will focus on four main aspects such as

psychological problem (Juhana, 2012), social problem (Larsari, 2011), instructional problem (Soleh & Mihaj, 2020), and linguistic problem (Soleh & Mihaj, 2020).

In the last phase of this study, the researcher found out how they overcome the English-speaking challenges. A person may follow some strategies for learning or developing English speaking skills. Therefore, this study followed specific strategies such as direct and indirect strategies (Daniel, 2007). Direct strategies mean some particular ways that are included with language learning, such as memory strategies, cognitive strategies, and compensation strategies. Among these, memory strategies help the students remember the new language items. By using cognitive strategies, students can practice, analyse, and structure input and output knowledge of language learning. In compensation strategies, students can guess and surpass their limitations of the language. On the other hand, indirect strategies mean where a learner is not involved directly in language learning, such as metacognitive strategies, affective strategies, and effective social strategies. In metacognitive strategies, learners arrange and plan for learning the language. By using effective strategies, the learner decreases his anxiety. Social, affective strategies help students cooperate with others (Daniel, 2007). All those strategies are useful for the students to improve their English-speaking skills. So, the researcher of this study conducted to analyse the second and third phases and chose to take semi-structured interviews. The research plan is briefly described in the following diagram:



*Figure 3.1.5: Data Analysis Framework*

### **3.1.5 Interview Protocol**

To scheme the questions of semi-structured interviews, the researcher has accepted the Interview Protocol Refinement (IPR) framework. In addition, for making the interview protocols more reliable in qualitative research, the four-phase of IPR framework is most suitable for it (Jones, Torres, & Arminio, 2014). Also, according to Corbin and Strauss (2015), the IPR framework is more appropriate for structure or semi-structured interviews. The interview protocol framework is conducted by following four phases.

The first phase creates classification between interview questions and research questions so that the compatibility of interview questions may remain. To check the classification of questions, a researcher can draw a matrix for making interview questions to research questions. That process helps to figure out the information based on the certain interview question which is pertinent to a certain research question. Otherwise, the researcher may not remark the probable information gap while collecting data (Rubin & Rubin, 2012).

In the second phase, to fill up the aim of the study, a researcher has to inquiry. As a result, a researcher redacts the interview session with different questions. In addition, the researcher prepares excessive questions for generating the interview more conversational (Patton, 2015). So, the researcher arranges the research question in a theoretical and academic formation of language. The research asks the interview questions to represent the daily and common language style of speech (Brinkmann & Kvale, 2015). After completing the first and second phases, the researchers need to get feedback on the chosen interview protocol to enhance reliability and trustworthiness. This work is accomplished in the third phase.

Furthermore, to get better reconsideration, a researcher should search for an expert who can provide better feedback and guidelines (Patton, 2015). In this regard, the researcher of this study has decided to contact her supervisor, Dr. Sabreena Ahmed, an Assistant Professor of

English and Humanities at BRAC University. She has adequate experience working on many renowned articles and research papers based on applied linguistics and language learning. After receiving the proper guidelines in the final phase, a researcher needs to do piloting. Piloting refers to the accomplishment of interviews, which favors getting errors and omissions in the process (Teijlingen & Hundley, 2001; Watson, Atkinson & Rose, 2007).

Mainly, the reason for doing the piloting activity is to ensure the accuracy and attribute of the questions to gain the final interviews (Merriam, 2009). As a result, in this study, that final phase helps the researcher select the exact interview questions to get the necessary information for further analysis. Even to keep balancing the usual conversation, the researcher adds any new questions when required in the interview.

### **3.1.6 Selecting the Participants**

For this study, the researcher has chosen STEM graduate students between the age of 23 and 25 from different universities in Bangladesh because the central objective of the research is to explore the challenges of Bangladeshi STEM students in terms of English speaking. Before collecting data through observation and semi-structured interviews, the participants were informed about the study's aim, nature, and object. The researcher of this study had selected six participants who were willing to be interviewed regarding English speaking challenges. Before taking interview, the criteria for selecting participants were:

1. The participants must be STEM educational backgrounds.
2. The participants must have problems with English speaking skills
3. They must be willing to be part of the study.

At first, the researcher contacted one of her close friends who is already graduated with a STEM background. That friend helped the researcher to manage other participants, and the researcher tried to connect with them, convinced them to take part in the interview. This process

is similar to the snowball technique, where a participant helps the researcher manage other participants to share their own experiences (Burns & Groove, 2005). Thus, the researcher managed six eager participants to give interviews in this research.

### 3.1.7 Participants Profile

Information about the participants is shown in the table.

Participant Name	Age	Gender	University name	Department	Medium of Education	The score of the IELTS Speaking Test	Profession
M.D Reza	23	Male	BRAC University	Computer Science and Engineering	Bangla	4	Fresh graduated
Zubair Mohammad	23	Male	Ahsanullah University of Science and Technology	Electrical and Electronic Engineering	Bangla	5	Fresh graduated
Joy Mahmood	23	male	East-West University	Computer Science and Engineering	Bangla	3	Fresh graduated
Rabeya Khatun Muna	25	Female	BRAC University	Mathematics and Natural Science	Bangla	3.5	Doing a part-time job
Mohammad	25	Male	Chittagong University of Engineering & Technology	Mechanical engineering	Bangla	4	Fresh graduated
Shihab Samim	23	Male	North-South University	Computer Science and Engineering	Bangla	4	Fresh graduated

*Table 3.1.7: Participants Information*



### **3.1.8 Data Analysis**

Data analysis is the systemic way of forming the data to attain continuance of conformity of the research. For data analysing, three major steps have been found from the model of Miles and Huberman (2009), and the components are data reduction, data display, and conclusion drawing.

#### **3.1.8.1 Data Reduction**

Data reduction is the way of choosing, facilitating, focusing, abstracting, and transforming the data that represent into notes or transcriptions. In this process, huge data has to form in an accomplished way, significantly minimized or reconfigured and looking for themes. In this way, the researcher can reach the main purpose of the qualitative research in finding.

#### **3.1.8.2 Data Display**

According to the model of Miles and Huberman (2009), in the second step data display has been done. It means after conducting data reduction, data has been displayed in a meaningful way. In data display, the research makes the data organized so that the result can be understandable and draw a conclusion (Sugiono, 2016). So, the researcher did some activities such as speaking tests, observations, and semi-structured interviews for data analysis.

##### **a. Speaking test**

To get the proper idea regarding English speaking skills, how do the STEM students perform in a speaking test. As a result, the researcher took an English-speaking test of six STEM students to give an individual presentation on the selected topic. The English speaking test was taken in the format of IELTS because it is an international and most popular language testing system all around the world. All the tasks were designed in IELTS format, and wherein each topic has four scaffolding points. Based on the points, participants had to give the presentation

and cover it within four minutes. Before starting the task, participants got two minutes to think. Depending on their speaking performance, the researcher gave them a score following the IELTS speaking band. In addition, the researcher showed the scoring process to her supervisor for getting the confirmation of judging. In this way, the researcher marked their speaking task while giving their presentation on particular topics.

b. Observation

In this stage, the researcher observed the STEM participants to judge, how the STEM students speak English. During the speaking tasks of the six participants, the researcher observed, their fluency, pronunciation, use of vocabulary, and the correct grammatical structure. In addition, she also observed their task time and adequate information that they provided based on the given topic. Furthermost, the researcher took video recordings of the participants while they gave English-speaking presentations.

c. Analyse the recording of the Speaking Test

After taking the IELTS speaking test, the researcher analysed the recording of each participant. Mainly, the researcher evaluated the participant's fluency, lexical resource, grammatical accuracy, and pronunciation. According to the IELTS speaking band score, the researcher marked the participant for analysing their speaking performance.

a. Semi-structured Interview

At this last stage, the researcher took in-depth interviews of individual students to find out their speaking problems and know about their strategies and how they overcame the speaking challenges. In this interview, the researcher tried to collect in-depth information for analysing the data based on students' opinions.

### **3.1.8.3 Conclusion Drawing and Verification**

In the final step of the data analysis process, the researcher concludes with the information derived from observation, semi-structured interviews, and recordings. In addition, the researcher of the study did an entire transcript of each participant and described every experience that has been found in the field. Furthermore, the researcher frequently revised the data to verify that the explanations were correct based on research questions and objectives. Thus, the researcher can conclude the STEM students how they speak in English, how they face the problems of English speaking, and how they overcome the English speaking challenges.

### **3.1.9 Establishing Trustworthiness and Credibility of the Study**

In qualitative research, a researcher has to create reliability in the study (Shenton, 2004). According to Lincoln and Guba (1985), to get the validity of qualitative research, triangulation is the way to increase the value of data. Triangulation expands the authenticity and expectancy of a study. So, the meaning of triangulation is to conclude with the help of many sources such as observation, interviews and, recordings (Casey & Murpht, 2009). In this study, the researcher conducted observations of speaking tasks, analysed the speaking test, and took semi-structured interviews of the six students individually. All these three sources contribute to the triangulation of this study. In addition, during observation and interview, the researcher took video recordings through google meet to see their expressions.

In addition, the researcher also sent the transcript interviews through email to the participants to take their consent which is member checking. Member checking in qualitative research enhances exactitude and accuracy (Morse, 2015). Also, the researcher applied inter-rater reliability and intra-coder reliability to establish the study's credibility and trustworthiness because intra-coder reliability helped create codes and the researcher found many notions to

analyse (Strauss, 1987). In this process, the researcher coded the interview of the participants and sent that to her supervisor for rating the theme. The themes of the transcription counted in percentage. Thus, the researcher made the study trustworthy.

## **Chapter 4**

### **Results and Discussions**

#### **4.1 Introduction**

This chapter will represent the findings of the study. The chapter is divided into two sections. Section one will be described the students' English speaking skills, which are judged by taking a speaking test based on different topics. This process is related to research question one. It is necessary to know about the STEM students speaking performance and ability in the English language. As a result, the researcher took a speaking test of six STEM students using pseudonyms. So, this section will reveal the STEM students' English speaking proficiency, following the speaking tasks and marking process based on the IELTS speaking test. Section two will discuss the English-speaking problems of STEM students and find out the strategies they adopt to solve their speaking problems. So, all those answers are related to research questions two and three. The researcher will present STEM students' speaking problems and how they try to overcome their challenges. The answers will be collected from the dominant themes of the interview questions.

##### **4.1.1 STEM Students' Proficiency in English Speaking**

###### **4.1.1.1 Task Analysis of First Participant**

At first, the researcher introduced the task process to the first participant, whose name was Mohammad. Then the researcher showed six topics, and among the topics, Mohammad chose one. His topic was "Describe a job that you have done (part-time/ full time)." There was a task rule that the participant would get two minutes for planning and four minutes for presentation. According to the rule, the researcher gave the participant two minutes to think about the topic. The participant thought about the topic, and then he started his presentation. There were four

scaffolding points (see appendix C) that the participants had to cover. When he started his presentation, firstly, the researcher observed his “fluency and coherence.”

According to the IELTS speaking band 4, he was not fluent, most of the time, he paused, even he could not maintain coherence. In his speech, he used many repetitive and simple words such as, “because”, “and” “so” were very common in his speech. Secondly, to judge the “lexical resource” of Mohammad, the researcher had found simple use of vocabulary in his speech. In addition, he could not use appropriate vocabulary for describing his topic (marked based on IELTS band 3 speaking). Thirdly, in the “grammatical range and accuracy” part, the researcher observed that Mohammad only used basic simple sentences. He mixed up with past and presented tense in the sentences and corrected himself during his presentation. He did not maintain the flow while he was speaking. For instance, in one sentence, he said I have to do the calculation, and in another sentence, he said I have to maintain different types of the sheet. He had only knowledge of present and past indefinite tense, and many times he mixed up with the present and past tenses. When he gave the speech, he used simple sentences and did not use complex sentences.

In addition, in his speech, grammatical errors were noticeable such as, he said, there were different works. All those characteristics are similar to IELTS speaking band 4. Finally, the researcher observed that he had pronunciation problems judging his “pronunciation”. According to IELTS speaking band 4, mispronunciation makes the listener tough to understand. In his speaking, some words such as he pronounced “ploor” instead of “floor,” “cetting” instead of “setting” all were his mispronunciations. In this way, he completed his speaking task within three minutes. Based on the IELTS speaking band score, the researcher marked Mohammad in this manner-

Fluency and Coherence	4
pronunciation	4
Lexical Resource	3
Grammatical Range and Accuracy	4
Total IELTS Speaking Score of Mohmmad	4

*Table 4.1.1 1: speaking band score of the first participant*

#### **4.1.1.2 Task Analysis of Second Participant**

The second participant's name was Joy and his topic was “Describe a city that you have visited and impressed you the most.” There were four scaffolding points (see appendix C) that he had to cover. According to the task rule, he got two minutes to think and described his speech in four minutes. As the participant got two minutes to think, he used pen and paper to write his speech rather than thinking. When he started his presentation, firstly, the researcher observed his “fluency and coherence”. The participant joy took long pauses at the middle part during his speaking test (according to IELTS speaking band 3), he said he needs time to think. In addition, he did not perfectly respond and could not connect the sentences in his speaking. Secondly, his “lexica resource” was very poor. He had insufficient vocabulary knowledge, so he could not describe the topic properly. During his speech, he used the Bangla word “purbopurush” because he could not know or remember the vocabulary of “forefather”. These characteristics are related to IELTS speaking band 3. Thirdly, his “grammatical range and accuracy” were low, matching with band 3. He just produced limited sentences and could not describe the given topic properly. For example, in the topic, there was a point “why did you like the most about the city” he just talked about irrelevant things which were not connected with this point. He said, “*as I born in Dhaka, but this city is my fatherland that is why I like this city very much*”

he made grammatical mistakes in his speech as well, except for the memorized simple sentences. Lastly, his “pronunciation” was unintelligible, matching the speaking pronunciation of band 2. He could not pronounce correctly in his speech; as a result, his speech delivery was not clear. Based on the IELTS speaking band score, the researcher marked Joy in this manner-

Fluency and Coherence	3
pronunciation	3
Lexical Resource	3
Grammatical Range and Accuracy	2
Total IELTS Speaking Score of Joy	3

*Table 4.1.1.2: speaking band score of the second participant*

#### **4.1.1.3 Task Analysis of Third Participant**

The third participant was female STEM. Her name was Muna. She gave a test on the topic of “Describe a competition where you have participated.” There were four scaffolding points (see appendix C), but according to the point, the participant did not describe the topic. For example, the first point was asked, “where did the competition occur?” she said, “*I participated in a mathematics competition and there was a lot of mathematical questions terms to judge your mathematical skills*”. She normally responded that did not convey an actual message (IELTS speaking band description 3). Then, her lexical resource was not up to the mark, which matched with band 3. So, in this case, her “fluency and coherence” was considered the limited capability to connect simple sentences.

In her topic, she could not talk more because she lacked vocabulary knowledge. For instance, in her topic, she was asked what her role was and how expressly did she do that, in her reply she said, “ *I went there to have some time with my friends because my friends also went to*



*participate to this competition*”. For her insufficient vocabulary knowledge, she made errors and could not select the correct vocabulary in her speech. Next, her “grammatical range and accuracy” are below expectation. Following the speaking band description 4, she made mistakes in her speech that did not make any sense. She did not know the proper use of past and present indefinite tense. She was asked why she participated in the competition. She replied, “*I am participate in the competition to spend the whole day with my friends that’s why I participate.*” from her answer, it is clear she has the problem of grammatical range and accuracy. Lastly, her use of the “pronunciation” range was limited. Some words she pronounced correctly some were not so clear such as she pronounced “whoale day” rather than pronouncing “whole day”. Then she said, “expirience” instead of “experience”. (marked on the band description 4). Based on the IELTS speaking band score, the researcher marked Muna in this manner-

Fluency and Coherence	3
Pronunciation	4
Lexical Resource	3
Grammatical Range and Accuracy	4
Total IELTS Speaking Score of Muna	3.5

*Table 4.1.1.3: speaking band score of the third participant*

#### **4.1.1.4 Task Analysis of Fourth Participant**

The fourth participant’s name was Reza, and he gave a test on “describe an exhibition or art gallery program that you have visited.” Also, he had to give the speech based on four scaffolding points (see appendix C). When he started his presentation, his “fluency and coherence” were not prominent. Without pauses, he could not keep continuing his speech. He

spoke very slowly, and repetition was noticeable in his speech, which matched with IELTS speaking band description 4. He said, *“I went there...I went there because so many people there, it was a musical program”*. Secondly, his “lexical resource” (IELTS band 3), was not enough to continue his speech properly. He used common and simple vocabulary that carried only personal information. For example, he said, *“it is a very nice event”*. Next, his “grammatical range and accuracy” were not advanced (IELTS band 4). He said, *“I visited this place because it nicely decorate inside and outside. I mainly recommended that place people to go attend events and enjoyed it so much because they organised most of the time very wonderful events.”* In his speech, he made many errors which led to misunderstanding. Lastly, he had “pronunciation” problems and that mispronunciations frequently occurred (IELTS band 4). For example, he said, *“Mini people attend there* instead of “many.” Also, I recommended going there instead of “recommended.” Based on the IELTS speaking band score (see appendix), the researcher marked Reza in this manner-

Fluency and Coherence	4
Pronunciation	4
Lexical Resource	3
Grammatical Range and Accuracy	4
Total IELTS Speaking Score of Reza	4

*Table 4.1.1.4: speaking band score of the fourth participant*

#### **4.1.1.5 Task Analysis of Fifth Participant**

The fifth participant named Shamim gave the speaking task on “Describe something that was owned and important to you”. According to the four scaffolding pints (see appendix C), the participant gave his speaking test. In his four-minute speaking task when the researcher

observed his “fluency and coherence”, he took pauses and used many repetitive sentences and words (IELTS band 4). Such as he said, “*ahh...if I owned something it was my laptop actually. So actually ahh... it was my laptop, my father gave me. So, it was important for me because for my study.*” Secondly, the researcher noticed his “lexical resource” which were not sufficient because in his speech he repeated some common words such as, “actually”, “important” and these characteristics matched with IELTS band 3. Also, in his speech, he did not use any ordinary words rather common and simple words were noticeable in his speech. Thirdly, his “grammatical range and accuracy” were not strong because he frequently created errors that did not contain meaningful sentences (IELTS band 4). He said, “*My father was give to me I mean bought it to me.*” This sentence does not contain any meaning rather he could say, “my father gave it to me. I mean he bought it for me”. Finally, he also had a “pronunciation” problem that was noticeable in his speech and was not understandable for a listener (IELTS band 4). He pronounced, “soft cofy” (soft copy), “coudend” (couldn’t), and “impurtant” (important). Based on the IELTS speaking band score the researcher marked Shamim in this manner-

Fluency and Coherence	4
pronunciation	4
Lexical Resource	3
Grammatical Range and Accuracy	4
Total IELTS Speaking Score of Shamim	4

*Table 4.1.1.5: speaking band score of the fifth participant*

#### **4.1.1.6 Task Analysis of Sixth Participant**

The last participant was another female STEM student and her name was Zubair. His topic was “Describe a movie or series which inspired you to be strong,” including four scaffolding points

(see appendix C). She maintained her “fluency and coherence” during his speech with a flow according to the IELTS speaking band description 5, but repetition was common in his speech. For example, he said, “*there were two famous actors both are well...ahh both are played a good role in the movie.*” Then his “lexical resource” was enough to speak in the familiar and unfamiliar topic, and he was marked based on IELTS speaking band 5. However, repetitive vocabularies were noticeable such as she said, “horrible, violent and crime.” Next, his “grammatical range and accuracy” were correct. He produced simple sentences without grammatical errors, so his range was considered in the IELTS speaking band 5. Lastly, his use of correct “pronunciation” knowledge was limited because he mispronounced (IELTS band 4) some words such as “washed” instead of “watched” and “horribole” instead of “horrible.” So, based on the IELTS speaking band score (see appendix), the researcher marked Zubair in this manner-

Fluency and Coherence	5
pronunciation	4
Lexical Resource	5
Grammatical Range and Accuracy	5
Total IELTS Speaking Score of Zubair	5

*Table 4.1.1.6: speaking band score of the sixth participant*

So, the speaking performance of the STEM students was not proficient that the researcher had tested on them. Among six participants, two students scored 3 and 3.5 out of 9, three students scored 4 and only one student whose score was 5 was higher than the other STEM students. 9 is counted as “expert user” in the IELTS band score. So, the STEM students who got 3 belongs to “extremely limited user,” which means frequently disrupting the communication and only

can understand general meanings in common circumstances. The other three STEM students were “limited users” as they got 4. They can only communicate in a simple language, but they have problems of understanding and limited knowledge in the common situation. The last student is a “modest user” whose band score was 5. This participant can understand maximum meanings in any circumstances however, there is a possibility of making many errors. Mainly they can communicate primitively in their own space.

STEM students are considered “limited users” which was proven based on their speaking task. In addition, we can connect their performance with the theory of Krashen’s Affective Filter Hypothesis (1982). Most of the students’ affective filters are low, including anxiety, self-confidence, and motivation. The means lack of confidence and anxiety made their speaking performance poor.

#### **4.1.2 The challenges of STEM Students’ Speaking Skill**

##### **4.1.2.1 Psychological problems**

Psychological problems are connected with emotion and create negative impacts on the student’s speaking performance. Many non-native students face this problem and cannot speak English perfectly. To be a good speaker, accuracy, fluency, and complexity are most required. But the fact is science and technology background students, especially from Malaysia (Mukminin &Asyrifi, 2018), India (Paakki, 2013), Pakistan (Arafath & Rukanudin 2019), and Indonesia (Younes & Albalawi, 2016), both are suffering from Psychological problems. Many of them are facing nervousness, less interest in practicing English speaking. The researcher also found psychological problems among Bangladeshi STEM graduates in this study. The psychological problems of STEM students are given below-

a. The nervousness of Bangla medium students

According to Salahuddin, Khan, and Rahman (2013), English teachers only follow the book “Englis For Today” to teach English in Bangladesh. In addition, Billah (2012) mentions that there were many lessons for the students to practice speaking in the classroom in this book. However, the STEM students said that their teachers never focused on speaking activities and did not get the chance to practice English speaking. Therefore, Bangla medium students face the problem of “nervousness” while they speak in English. Zubair a participant, says,

*I was from Bangla medium and in school or college we don't use English that much, so when in university I tried to use English in speaking a bit of nervousness always creates trouble for me and I think this has happened with all Bangla medium students. ( DU Zub 49).*

Being the Bangla medium backgrounds in education, STEM students claimed to only focus on writing and reading in English. In addition, when they entered into their University life, there were few opportunities to practice English speaking. Most of the times, teachers and students focus on academic courses. That is why “nervousness” is the common reason for Bangla medium students when they speak English.

b. Psychological factors create barriers in English speaking

In addition, Mridha (2020) has done an experiment on engineering graduate students about their speaking ability and found out that during speaking, they face the influence of their mother tongue, fear of making mistakes, and lack of motivation are the reasons for their inability to speak in English. Likewise, Bangladeshi STEM graduates face difficulties of psychological factors such as making mistakes, forgetting vocabulary, create barriers to English speaking. A participant, Muna described her problem that-

*I am not able to control the psychological factors (making mistakes, forgetting vocabulary, lack of motivation), as a result, I could not deliver speech confidently. I become nervous or sometimes become blank in speaking. (DU Mun 40).*

It is common for EFL and ESL students to face psychological factors such as making mistakes, forgetting vocabulary (Svetlana, Timina, & Bulter, 2011). For the STEM students, psychological factors also hinder their speaking ability, make them nervous, and gradually lose their self-confidence.

In addition, students making mistakes transfer into the fear of “peers laugh” which creates a negative impression among the students and reduces their confidence level (Chowdhury and Shaila, 2011).

c. Lack of courage and confidence

According to Younes and Albalawi (2016), speaking inability is connected with self-confidence and low self-esteem, which negatively impacts the performance of STEM students in English. In this study, the STEM student shared that “lack of courage and confidence” is another major reason not to speak English. Reza shared-

*During any English speaking, we become afraid and for such lacking courage and confidence, we become incapable to deliver what we were trying to say, become nervous and stop saying further ( DU Rez 39).*

Lack of courage and confidence is most common in Bangladeshi students. The reason for it is less participation of the students in the classroom and lack of practicing. In addition, a less communicative environment is another issue where the students do not practice their speaking to increase their confidence and courage (Ahmed, 2006; Chowdhury & Shaila, 2011).

According to the participant's opinion, psychological problems create many barriers to speaking. Many STEM students are from Bangla medium students so, nervousness is a common problem for all. Then making mistakes, forgetting vocabulary, and lack of motivation hindrances them to speak in English. Lastly, STEM students lack courage and confidence when they perform in English speaking.

#### **4.1.2.2 Social problems**

According to Carrasquillo (1994), language learning activities depend on the racial, physical disposition. Therefore, the social problem is counted as the speaking inability of the non-native speaker. For learning a language, "classroom norms" play a vital role, but in the non-western classroom, teachers give a lecture, and students take the class notes silently. The students are not eager to ask any questions to the teachers (Scallon & Scollon, 1990). In Bangladesh, STEM students cannot speak English properly, and the social problem is one of them. Different types of social problems the STEM students are facing in Bangladesh such as-

- a. No use of supportive materials

Sasidharan (2012) claimed that most of the teachers are not well trained, and they do not have enough language teaching methods. Their teaching style is "teacher-oriented" in the classroom. They are careless about teaching materials, and they never focus on syllabus designs. Even they do not have any aim about class objectives, how they will make the classroom, what they will teach, and what students will play a role in the classroom. In this study, due to not having enough supportive material, STEM students are not involved in practicing English speaking. Even teachers only influence the students to focus on getting good grades. A participant Shamim said,

*Our teachers, as well as parents, are only aware of getting good marks in exams, they don't know anything else apart from getting good positions in exams and, we only focus*



*on coursebook, no other external supportive things are provided to us from our organization. (DU Sha 30).*

For developing English speaking skills, supportive materials are needed for the students who are not provided to the students. Even teachers and parents only want students to get good grades in engineering courses. Engineering teachers only motivate the students to concentrate on engineering courses, and the university does not take any initiative of making supportive materials so that students can improve their speaking ability.

b. Students unwillingness and no practice in English speaking

Sasidharan (2012) shows in his survey that around 20 engineering colleges of Orissa, 75% of students claim the English language requires to learn because they are unable and unfamiliar to understand the academic concepts included in their syllabus. It reveals that many STEM students are eager to learn English only for academic purposes to understand the concepts. The same repetition happens in Bangladesh, where the STEM students only use English terms for academic purposes. In engineering universities, STEM students do not feel eager to speak in English. Students prefer to use Bangla than English in communication due to less interest. According to a participant named Joy said,

*In engineering courses, some terms have no meaning in Bangla. so, we only use English in uttering the terms, and the rest of the discussions on this topic or questions are asked in Bangla. (DU Joy 36).*

Mainly, STEM students are only concerned about their engineering courses. As a result, Gupta (2013) claimed that most STEM graduates are knowledgeable and creative, but it is a matter of the fact that they have less interest in speaking in English. Therefore, in their professional carrier, they cannot convince their clients and directors through their communication skills. In

this study, the STEM participants shared their opinion that they do not have a habit of practicing English speaking. Reza said,

*As university students, we thought that all of our classes will be in English and we have to speak in English, and we have seen this in our first class only then things go normal and in our university, we started using Bangla and practicing English speaking is not seen normally in our campus. ( DU Rez 21).*

However, they have to study all the books and give the exams in English, but in the classroom, they prefer to discuss in Bangla rather than in English. For this reason, they cannot improve their speaking skills, and their unwillingness reveals a lack of opportunity for practice in English speaking.

c. Peers negative feedbacks

STEM students claimed that if they tried to practice speaking in English, sometimes they made mistakes or used the wrong pronunciation in front of their friends. At that time, their friends showed negative impressions and demotivated further usage of English in communication. A participant, Mohammad he explained his opinion that-

*Whenever we made mistakes or use wrong pronunciation, then our friends started laughing or taunted us. For such negative feedbacks from our peers, we always try to avoid English in our communication. (DU Moh 55).*

So, peers, irrespective of attitude demotivate the other learners willing to practice. In that situation, they lose their intention and avoid practicing English anyone. Also, most of them start to lack confidence and are not eager to speak in English in front of their friends (Hanumtharao,2020; Timina,2016).

To learn a language, social influence plays one of the major roles. In Bangladesh, STEM graduates face social difficulties such as, not getting enough supportive materials for practicing English speaking, teachers only influencing the students to focus on getting good grades, university students preferring to speak in Bangla rather using English with teachers and classmates. All those social problems are creating hindrance of STEM graduates' English speaking ability.

#### **4.1.2.3 Linguistic Problems**

For many learners who are learning a second language, linguistic difficulties are one of the major problems. Such as in Malaysia (Mukminin & Asyrifi, 2018), India (Paakki, 2013), Pakistan (Arafath & Rukanudin 2019), and Indonesia (Younes & Albalawi, 2016), the science and technology background students have less knowledge of vocabulary and grammatical structure. Therefore, they cannot communicate in English properly for having linguistics problems in their working life. On the other hand, in this study, the researcher observed that the Bangladeshi STEM graduates had linguistic problems while they were given a speaking test. They could not speak on particular topics during their speaking test because they had grammatical problems and a lack of vocabulary knowledge. Also, in the interview, they had shared regarding the linguistics problems. As Reza said,

*As I don't have enough knowledge of words, so I face difficulties with this. And this lacking vocabulary is making me use the same words repeatedly which also makes me shy and due to this I avoid using English speaking. (DU Rez 60).*

Joy claimed vocabulary problem is a major issue for him, which is why he cannot express his exact opinions. He said,

*Ahh...frankly the less knowledge in vocabularies are creating main challenges to me in English speaking. Due to this lacking, I can't express my views properly. (DU Joy 61).*

Another major linguistic problem the researcher has found is that many of them had pronunciation problems. For example, in the speaking test, a participant named Noushin pronounced “washed” instead of “watched” and “horribole” instead of “horrible”. Another participant Shamim, pronounced “soft cofy” (soft copy), “coudend” (couldn’t), and “impurtant” (important).

Linguistic problems create a hindrance, especially in vocabulary, grammar, and pronunciation of English speaking skills. Therefore, in the speaking test, six participants could not speak in English about the selected topics because of having linguistic problems.

#### **4.1.2.4 Instrumental Problems**

According to Nawshin (2009), to teach a second language, teachers’ incorrect instructional methods such as only teachers’ talking time, use of mother language instead of the target language, teachers’ less command, and less motivation can create the speaking problems of the students. In this study, the STEM graduates talked about the instrumental problem, which is another reason for the inability in English speaking in that place-

- a. Teach in Bangla and no discussion about English speaking

Many teachers do not know exactly about language teaching methods, and they teach based on “teacher-oriented” in the classroom. As a result, engineering students mentioned that they need proper guidelines from the teachers (Sasidharan, 2012). In Bangladesh, teachers of the engineering department only follow engineering subjects, give lectures to the students in Bangla, and never discuss the importance of English speaking in the classroom. As Mohammad said about his engineering teachers

*In our classes, we only focus on engineering subjects and we didn’t engage in other areas and teachers never discussed English speaking. (DU Moh 20).*

Again, Shaman described that,

*We only see that students join the class, teachers came and started delivering lectures in Bangla, no such discussions happened in our classes. (DU Sha 24).*

Though English speaking skill is necessary for STEM students, but in university, the engineering teachers are not concerned about it. They used to give lectures in Bangla on engineering terms instead of teaching in English. Even teachers never alert their students to the importance of English-speaking skills and never discuss it at all.

b. Engineering Teachers ‘negative responses and negative comments impact grades

In some engineering courses, the students have to give a presentation. Sometimes in the presentation, they made mistakes, and for making mistakes, they got negative responses from the teachers. Participants talked about teachers’ negative feedbacks that discouraged them a lot. Reza mentioned,

*we have to give final presentations in some courses, and in there some teachers showed negative responses to students when we made mistakes. such negative ones we feel that, no, I am not able to continue my presentation. (DU Rez 58).*

Even engineering teachers gave negative comments on their English speaking while they took viva of the students, which negatively impacted their grades. Zubair shared his own experience that,

*Teachers from my engineering department tend to give negative comments and this also had an impact on our final grade, mainly in viva teachers give negative comments on our English speaking. (DU Zub 35).*

Teachers play an important role for the students, but engineering teachers provide negative comments when they make mistakes in their speaking. That negative responses feel the

students so down to continue their speaking performance. In addition, negative comments of the teachers demotivate the students to learn and hindrance their performance to do well. Even teachers' negative comments lead the STEM students to make bad grades in exams.

To learn a language, the students need to get experienced and knowledgeable instructors to speak English properly. This is a matter of the fact that STEM students of Bangladesh claimed that their teachers only focused on the engineering courses and never talked about the importance of English in their university. Even they provided a negative feedback on their speaking skills which impacted their grades.

### **4.1.3 Overcoming the Challenges of English Speaking**

#### **4.1.3.1 Affective Strategy**

To be a good speaker in any language, at first, a learner needs to develop self-efficacy, self-awareness, consistent effort, and create learning strategies (Reddy, 2013; Mandasari, 2018). According to Oxford (2013), affective strategy reduces anxiety, self-motivation, and controlling self-pathological temperature. In addition, affective strategy is included in indirect strategy which is not directly engaged with the practicing of language rather a supporter of the application of the language (Pathomchaiwat, 2013). Some affective strategies that are followed by the STEM students in this study and are given below-

- a. Enhancing self-confidence and belief

According to Chmot (1994), many groups who follow affective strategies for language learning and self-efficiency and enhancing confidence are one them. Self-confidence helps a learner to believe in the ability to do a particular work. In this study, the participants said they are trying to enhance their confidence to reduce speaking challenges. A participant Zubair said that,

*Though we are not habitual with English speaking during the speaking time we are trying to enhance the confidence among ourselves and I try to enhance the belief that yes I can do it. (DU Zub 50).*

By confidence, a person can relate his/her ability, skill, knowledge, and power. So increasing self-confidence is most important because, without it, a person can never gain any knowledge and skills (Ryan, 2000). For developing speaking skills increasing self-confidence is essential for the students and the STEM students are focusing on it.

b. A positive mindset and encouragement engages students in English speaking

According to Ali and Osman (2008), motivation helps students reduce their shyness so that they can participate in English speaking. On the other hand, Tambunan & Siregar (2016) have studied and found that Information and Technological background students are instrumentally motivated to learn the English language because if they are good at the English language, they will get the opportunity for higher study and be able to build a good career in the future.

However, the study participants talked about institutions that can play a vital role for the students. If educational institutions arrange language clubs, students with their friends can learn and get the encouragement of English speaking. According to the opinion of Joy,

*If there is a language club or something like this, then students will get the encouragement of English speaking. And if my friends are going there then I will also go there. And that's how we can engage in English speaking. (DU Joy 64)*

In any institution, having a language club will be one of the effective initiatives for STEM students to learn English speaking. Students will get positive environments and encouragement for learning with their friends from the language club. As a result, their learning will be more fruitful for developing their speaking efficiency.

Furthermore, STEM students talked about a “positive mindset” that helps students speak in English. A participant, Reza believes a positive mindset is very important for a student to get success. He said,

*All I need is to grow a positive mindset that yes I can use English in speaking. I have seen that if I don't remain positive then other mistakes are done by me though I can avoid those If I remain calm and positive. (DU Rez 66).*

A positive mindset is one of the major parts for STEM students because the positive mindset or attitude helps the learner gain the success of language learning (Venkatraman &Prema, 2007). When a learner sets a positive mind of learning a language he/she will be able to raise their speaking proficiency in English.

c. The necessity of practicing environment and arranging speaking competitions

For developing the speaking ability, Baily (2005) and Goh (2007) identified that organized teaching materials and trained teachers could help the learners. However, in Bangladesh, STEM students do not get a speaking environment where they will get the opportunity to practice their English speaking skills. From school to university, most STEM students get less convenience to practice English speaking. As a result, the participants believe that they need to practice for developing their speaking ability and need a specific environment for practicing. In this issue, Zubair mentioned that,

*I want to have a fixed place for practicing English speaking, if the university can ensure a sound English-speaking practicing environment then I think others will be encouraged to go there to learn English speaking. (DU Zub 67).*

Speaking environment is necessary to increase the students' proficiency level because when they get the chance to practice easily, they can overcome the challenges of speaking. As only teaching materials and trained teachers are not enough for the learners. On the other hand, the



participants claimed that arranging speaking competitions engages students in speaking through different initiatives. Participating in the speaking competition makes the students strong and confident. Also, winning in the competition decrease the fear of public speaking in English, and students get motivated to perform well in English speaking day by day. According to Shamim's perception,

*University needs to arrange competitions related to English speaking like other countries, then this will very much beneficial for us. From there we can get the awareness, can learn the necessity and students will participate in the competition to win prizes and accordingly we can also remove our fears to speak in English in front of audiences to become a good speaker in English. (DU Sha 66).*

So, for language learning, students are increasing their confidence level, positive encouragement, need the specific environment for practicing, positive mindset, and arranging speaking competitions all those things will improve the speaking ability in the English language. in this way, affective strategy helps the learners to develop their speaking skills.

#### **4.1.3.2 Cognitive Strategy**

Language learning strategies are considered behavior or ideas of learners that help develop the skills (Wenden, 2013). To improve English speaking skills, Mandasari (2018) has mentioned some engineering students use cognitive strategies such as using new words in writing and speaking, sometimes trying to speak in English with correct grammar and pronunciation. Some other students learn English by watching movies, using the dictionary to know the meaning, making a notebook of new vocabulary, and preparing extra during the presentation. As cognitive strategies of language learning mean practicing, taking in and transmitting messages, exploring and arguing, making structure for input and output. In addition, cognitive strategies are referred to as a direct strategy which means certain ways of connecting with the language

usage (Pathomchaiwat, 2013). In this study, the Bangladeshi STEM graduates confessed regarding their cognitive strategies. All the participants claim that having a wide vocabulary knowledge is a potential asset to developing in English speaking. As STEM students mentioned that they have a shortage of vocabulary knowledge. As a result, they try to expand their vocabulary knowledge so that they can adequately speak in English. As Shamin said,

*During my academic presentation, I could not complete my sentences properly because of limited vocabulary knowledge. So, I try to learn new vocabulary from books, movies and make a note of new these for practicing. (DU Sha 68).*

Having a vast vocabulary knowledge can help a learner be a good speaker. Without enough vocabulary knowledge, no one can express their thoughts appropriately. According to Hamad (2013), EFL and ESL students cannot perform well in English speaking because of poor vocabulary knowledge. To reduce vocabulary deficiency, STEM students use cognitive strategies for developing their speaking skills. Many of them read books, newspapers and watch movies to expand their vocabulary knowledge. Also, they take to make a note of vocabulary to practice it regularly.

Expanding vocabulary knowledge is one of the major parts of developing speaking proficiency for the learners. Cognitive strategies are useful for learners where they can develop themselves by using their strategies. Those strategies help the learners to overcome the challenges of English speaking obstacles (CEFR, 2001).

## **Chapter 5**

### **Conclusion and Recommendations**

#### **5.1 Introduction**

The study's main purpose is to understand the English speaking ability of STEM students by taking a speaking test to find out their speaking challenges and their strategy to overcome the challenges. The qualitative approach enabled the researcher to get the idea regarding the speaking ability of STEM students, their speaking challenges that create hindrance during their speaking, and the strategy that helps to overcome the problems.

#### **5.2 Implications for the Study**

##### **5.2.1 Implications for Knowledge**

Current studies asserted that STEM graduates' English speaking ability as communication skills in English have the highest demand in the world (Riemer, 2017). For the science, technology, engineering, and mathematic students to get jobs, 75% of skills are needed in communication skills in English and 25% depending on their technical knowledge (Prabhakar, 2004; Clement & Murugavel, 2015). However, 50 % of engineering students cannot speak English properly (Gupta, 2013; Ali, Abid, Hashim, Kassim, Osman, Radzuaan, 2008). Therefore, after graduation, STEM students often fail to acquire jobs (Sharif, 2005; Awasthi, Pahari, & Shrestha, 2016; Al-Tamimi & Shuib, 2008). Some authors mentioned that STEM students have less knowledge of vocabulary, fewer ideas of grammar, lacking in self-confidence, psychological problems, no habit of practicing to speak in English, and never use any strategies to develop the English speaking skill (Mukminin & Asyrifi, 2018; Paakki, 2013; Arafath & Rukanudin 2019; Younes & Albalawi, 2016). Other researchers' studies also show irrelevant syllabus, lack of proper guidelines of the teachers, shortage of proper training and

large gaps between classroom teaching practices are the reasons for English speaking problems of the STEM students (Clement and Murugavel 2015; Vijay, 2014; Savita, 2015). The mentioned studies above focused mainly on STEM students' English speaking skills in countries like Malaysia, India, Pakistan, Nepal, Saudi Arabia, Indonesia, and Thailand. A few numbers of studies have been conducted on STEM students' English speaking challenges in the Bangladeshi context. In their quantitative study, Sultana and Zakaria (2019) show that 82% of engineering students claim the importance of English speaking skills in job sectors. Then Hasan and Mostafa (2016) mentioned that in the HSC and SSC syllabus, there are no activities of speaking skills, that is why STEM students are unable to speak and cannot get the opportunity to go abroad. The lack of research on these fields leaves a gap in how STEM graduates perform in English speaking, what challenges they face during speaking in English, and how they try to overcome the challenges of speaking skills in ESOL countries like Bangladesh. Thus, to fill the gap of this study, the researcher aims to take English speaking tasks based on IELTS format, giving the speaking scores to the STEM students' speaking skills, identifying the speaking challenges of STEM students such as Psychological problems, social problems, linguistic problems, and instrumental problems, and getting the solutions of overcoming the challenges of STEM students by using affective and cognitive strategies.

It fills the gap in how STEM graduates from an ESOL country can speak in English (based on the IELTS speaking test), what challenges they face while speaking in English, and how STEM students solve the problems using the strategies.

### **5.2.2 Implications for Education**

English is an international language and is required not only for occupational purposes but also in trade and commercial sectors worldwide. However, in the Bangladeshi context, education's English language learning system is a major concern. Most of the time, teachers teach English

using Bangla to the students instead of teaching in proper methods. On the other hand, in the syllabus of English courses, there are no such activities related to speaking that can assist in developing the student's skills in English speaking. Furthermost, in university for the STEM students, the Engineering teachers prefer to teach in Bangla rather than taking classes in English. They are only used to describe some engineering terms in English, and exams are taken in English. Again, engineering teachers give lectures to the students in Bangla and ask questions in Bangla. Also, very few teachers prefer to teach in English, and at that time, students are unwilling to ask questions in English. There are no speaking environments in schools, colleges, and universities to practice for the students. This study finds that STEM students speaking skills are not up to the mark. Psychological problems such as being the Bangla medium background students nervousness and lack of courage and confidence are the major problems of the STEM students. Social problems are no use of supportive materials to develop speaking skills of STEM students, STEM students are not interested in speaking in English as teachers teach in Bangla, and in the universities, there is no practicing environment where the STEM students will get the opportunity to practice. In addition, linguistics problems are very common in STEM students. They also have less knowledge of vocabulary, grammatical rules, and pronunciation problems. Lastly, instructional problems are the reason for STEM students as the engineering teachers insult the STEM students for making mistakes and lose their confidence to speak in English. So, this study finds that STEM students need a speaking environment in university where they will get the chance to practice; classroom environment should be made in such a way where engineering teachers and students have to discuss in English and no use of mother tongue in the classroom. For developing the English speaking skills of the STEM students, institutions should design supportive materials for speaking activities. Lastly, engineering teachers should inspire STEM students to practice speaking in English and understand the importance of speaking in their professional life.

### **5.2.3 Implications for Society**

The main source of communication for us is language to share our ideas and views with others. There are thousands of languages in the world, but English is the most common language and is known by many of us. First of all, learning English speaking is a must for STEM students as it can assist them in pursuing and getting more career opportunities. Currently, the job market has become globalized. Companies from both our country and others are looking for candidates who are proficient in English speaking and can communicate with their other local and foreign clients in English. Apart from this, having a good command of English can help STEM students cross the border to engage themselves in higher studies and travel around the globe to learn upcoming technologies to make the country a better one in the world ranking. Today the global economy is more consolidated; companies have branches all over the world. Having good English speaking skills can create opportunities for STEM students to be a part of those companies, and with this, they can also contribute to the country's economy. As STEM students are mainly focused on their technical sectors, attending different conferences, or collaborating between different technical around the world, English speaking can take them to a level to accomplish those areas. Most of the good research works are already shifted in English. If any of us want to excel in science and technology, English speaking skill is a must to capture the insight knowledge of different research works, publications, and journals. Moreover, as STEM students are very familiar with using computers and the internet, understanding the commands and delivering voice commands in English requires good English speaking skills. So, the importance of English speaking skills needs to spread among the STEM students so that they are aware of their academic study and practice their English speaking skills.

### 5.3 Recommendations

The researcher would like to give recommendations based on the findings of this study.

1. The study draws attention to the experts and judgments of the education part in Bangladesh to change teaching style in English. Especially promoting English speaking skills among the students so that STEM students can gain proficiency in English speaking.
2. STEM teachers should teach the students English instead of using their mother tongue and encourage them to speak English in the classroom. Students will discuss their thoughts with the teachers depending on the teacher's lectures.
3. Practicing environment in English should be established in the institutions. In this case, arranging an English language club and participating in a debate competition for the STEM students will be effective.
4. Nowadays, English speaking skills are required in professional sectors. So that STEM students be aware of speaking skills and start to practice speaking. Teachers should spread the awareness among the students that only making good grades on academic courses of the engineering department is not enough to get good jobs.
5. STEM students should increase their self-confidence, self-esteem for language learning in English. They should enhance vocabulary knowledge by reading books, watching movies, newspapers and correcting their pronunciation in English speaking.

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## **Appendix A: LETTER OF CONSENT FOR PARTICIPANTS**

Dear participants,

My name is Nusrat Sharmin. I am doing my thesis for my undergraduate study in ELT & Applied Linguistics at the Department of English & Humanities, BRAC University, Dhaka, Bangladesh. My research topic is “An Assessment of English Speaking Skills of Stem (Science, Technology, Engineering, or Mathematics) graduates of Public University and Private University in Bangladesh: Problems and Solutions”. The main aim of this study is to judge the Bangladeshi STEM graduates speaking performance through an English speaking test, to explore their speaking challenges, and to find out their solutions to how they are overcoming these challenges. For being a part of this study, you have to give two days. On the first day, you have to give an English speaking test and on the second day, you will be invited to an interview session where you will share your English speaking challenges. In addition, your interview will be recorded only for this study purpose and never will be shared anywhere. Your friendly collaboration in this study will be accumulated.

Thanking you

Nusrat Sharmin

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## Appendix B: IELTS SPEAKING BAND DESCRIPTION

<b>IELTS Speaking Band Description</b>	<b>Fluency and coherence</b>	<b>Lexical resource</b>	<b>Grammatical range and accuracy</b>	<b>Pronunciation</b>
Speaking IELTS band 9	Speaks fluently with only rare repetition or self-correction; Any hesitation is content-related rather than to find words or grammar Speaks coherently with fully appropriate cohesive features Develops topics fully and appropriately	Uses vocabulary with full flexibility and precision in all topics Uses idiomatic language naturally and accurately	Uses a full range of structures naturally and appropriately Produces consistently accurate structures apart from ‘slips’ characteristic of native-speaker speech	Uses a full range of pronunciation features with precision and subtlety Sustains flexible use of features throughout Is effortless to understand
IELTS band 8 speaking	Speaks fluently with only occasional repetition or self-correction; Hesitation is usually content-related and only rarely to search for language Develops topics coherently and appropriately	Uses a wide vocabulary resource readily and flexibly to convey precise meaning Uses less common and idiomatic vocabulary skillfully, with occasional inaccuracies Uses paraphrase effectively as required	Uses a wide range of structures flexibly Produces a majority of error-free sentences with only very occasional inappropriate or basic/non-systematic errors	-
Speaking 7 band in IELTS	Speaks at length without noticeable effort or loss of coherence May demonstrate language-related hesitation at times, or some repetition and/or self-correction Uses a range of connectives and discourse markers with some flexibility	Uses vocabulary resource flexibly to discuss a variety of topics Uses some less common and idiomatic vocabulary and shows some awareness of style and collocation, with some inappropriate choices Uses paraphrase effectively	Uses a range of complex structures with some flexibility Frequently produces error-free sentences, though some grammatical mistakes persist	Shows all the positive features of band 6 and some, but not all, of the positive features of band 8

IELTS band 6 speaking	Is willing to speak at length, though may lose coherence at times due to occasional repetition, self-correction, or hesitation Uses a range of connectives and discourse markers but not always appropriately	Has a wide enough vocabulary to discuss topics at length and make meaning clear in spite of inappropriate paraphrases Generally paraphrases successfully	Uses a mix of simple and complex structures, but with limited flexibility May make frequent mistakes with complex structures though these rarely cause comprehension problems	Uses a range of pronunciation features with mixed control Shows some effective use of features but this is not sustained
IELTS band 5 speaking	Usually maintains the flow of speech but uses repetition, self-correction, and/or slow speech to keep going May over-use certain connectives and discourse markers Produces simple speech fluently, but more complex communication causes fluency problems	Manages to talk about familiar and unfamiliar topics but uses vocabulary with limited flexibility Attempts to use paraphrase but with mixed success	Produces basic sentence forms with reasonable accuracy Uses a limited range of more complex structures, but these usually contain errors and may cause some comprehension problems	Shows all features of band 4 and some, but not all the positive features of band 6
IELTS speaking band description 4	Cannot respond without noticeable pauses and may speak slowly, with frequent repetition and self-correction Links basic sentences but with repetitive use of simple connectives and some breakdowns incoherence	Is able to talk about familiar topics but can only convey basic meaning on unfamiliar topics and makes frequent errors in word choice Rarely attempts paraphrase	Produces basic sentence forms and some correct simple sentences but subordinate structures are rare Errors are frequent and may lead to misunderstanding	Uses a limited range of pronunciation features Attempts to control features but lapses are frequent Mispronunciations are frequent and cause some difficulty for the listener
IELTS band 3 speaking	Speaks with long pauses Has limited ability to link simple sentences Gives only simple responses and is frequently unable to convey the basic message	Uses simple vocabulary to convey personal information Has insufficient vocabulary for less familiar topics	Attempts basic sentence forms with limited success, or relies on apparently memorized utterances Makes numerous	Shows some of the features of band 2 and some, but not all, of the positive features of band 4



			errors except in memorized expressions	
IELTS speaking band description 2	Pauses lengthily before most words Little communication possible	Only produces isolated words or memorized utterances	Cannot produce basic sentence forms	Speech is often unintelligible
IELTS band 1 speaking	No communication possible No ratable language	No communication possible No ratable language	No communication possible No ratable language	No communication possible No ratable language
IELTS band 0 speaking	Does not attend	Does not attend	Does not attend	Does not attend

## Appendix C: ENGLISH SPEAKING TOPICS FOR THE STUDENTS

- a. Describe a city that you have visited and impressed you the most.

You have to mention:

- Where it is located?
- What was the reason to visit the city?
- What did you like the most about the city?
- Why did you select it rather than any other city?

You have 2 minutes to think and 4 minutes to give the speech (total 6 minutes)

- b. Describe a job that you have done (part-time/ full time)

You have to mention:

- How did you get the job?
- What does the job comprise?
- How long have you been in this office?
- Share your experience, was it good or bad?

You have 2 minutes to think and 4 minutes to give the speech (total 6 minutes)

- c. Explain about a competition where you have participated.

You have to mention:

- Where did the competition occur?
- What was your role?
- How expressly did you do it?
- Why did you participate in the competition?

You have 2 minutes to think and 4 minutes to give the speech (total 6 minutes)

- d. Describe an exhibition or art gallery program that you have visited.

You have to mention:

- Where was it held?
- Why did you plan to go there?
- What was the specialty of the place that you have remembered?
- Why would or would not you recommend to your friend about the place to visit?

You have 2 minutes to think and 4 minutes to give the speech (total 6 minutes)

e. Describe something that was owned and important to you.

You have to mention:

- From where did you gain it?
- How long you have had it?
- What was the reason to use it?
- Why it was special to you?

You have 2 minutes to think and 4 minutes to give the speech (total 5 minutes)

f. Explain a movie or series which had inspired you to be strong

You have to mention:

- What type of movie or series it was?
- When did you see that?
- What was the movie or series about?
- How did it create an impression in your life?

You have 2 minutes to think and 4 minutes to give the speech (total 5 minutes)

## Appendix D: INTERVIEW QUESTIONS FOR PARTICIPANTS

Interview Questions (IQs)	Background Information	Research Question 2	Research Question 3
Mention the name of your university. What was your academic background?	●		
Were there any English courses offered by your university or any language learning facilities from your institution?	●		
In which area do you feel more comfortable (writing/speaking in English) and why?	●		
How do you practice English speaking?	●	●	
How much aware you are of the importance of English speaking? Have you ever discussed this topic in the classroom?	●	●	●
Did your course teacher take classes in English? And if then what was the response of your classmates?	●	●	●
How often do you use English in conversation with others (Ex. Classmates/family members/teachers etc.)?	●		●
Do you follow any kind of techniques in times of speaking in English?	●		●
What supportive materials does your institution have to teach English speaking skills?		●	●
Is there any teacher in your department who encourages you to speak in English? How much inspiration do you get from your family members to learn English speaking?		●	
How often and what type of feedback do you receive from your peer or teachers when you make mistakes in English speaking?		●	
what are the reasons hindering you in English speaking?		●	
Do you feel nervous or often forget words when speaking in English?		●	
What kind of problems do you usually face when speaking in English?		●	
Do you believe that having vast knowledge of vocabulary or grammar can make anyone a good speaker in English? If yes then why?		●	●
In the previous session, I gave you to speak on a specific topic, so what is most difficult for you, speaking in a fixed topic using English or speaking randomly in English?		●	
Do you think that having an English language club can encourage students in English speaking? If then why?			●

According to you, what could be the initiatives that can help students engage in English speaking?			●
Have you ever tried to cope with the difficulties you face in English speaking? If then how and why?			●

## Appendix E: NOTATIONAL CONVENTIONS FOR INTERVIEWS

Notional Conventions of the Interview Transcripts:

1	DU	Discourse Unit
2	I	Interviewer
3	[ ]	For showing action [Laughs]
4	.	Small pause
5	.....	Long pause Incomplete sentence (if at the end of the sentence)
6	Ahh...	Hedging in speech
7	Umm...	Thinking in speech
8	DU SHAMIM 43	DU <space> student name's first three alphabets <space> DU number DU SHAMIM 43 refers to Shamim's DU number 43.

## SAMPLE INTERVIEW OF JOY

DU	Participants	
1	I	Hello! How are you?
2	Joy	Hi. I am good.
3	I	Mention the name of your university. What was your academic background?
4	Joy	Well, Ahh...I studied at Rajshahi University of Engineering and Technology. My subject was Mechanical Engineering. umm... I have completed my SSC from Motijheel Model School and HSC from Motijheel Model College.
5	I	So, you are from Bangla medium?
6	Joy	Ahh...hmm, I was from a Science background and it was Bangla medium.
7	I	So, were there any English courses offered by your university?
8	Joy	Ahh...in our first semester we had a theoretical English course. In this course, we had to give just one presentation.
9	I	In which part the course was mainly focused on development?
10	Joy	Mainly, the writing part. We had to learn grammatical parts and vocabulary.
11	I	Well, by doing this course how much you could develop your speaking skill?
12	Joy	As we had only a theoretical English course. There only taught grammar, vocabulary. There was no extra class of English speaking. So, this course did not much develop my speaking skill as I never got the opportunity to practice.
13	I	In which area do you feel more comfortable (writing/speaking in English) and why?
14	Joy	Ahh... I feel comfortable in writing. Because in writing I have enough time to think. Ahh... in speaking in am not enough confident because my SSC and HSC both were Bangla medium. As a result, I was not used to speaking in English, so uneasiness, shyness, and nervousness are very common for me.
15	I	How do you practice English speaking?
16	Joy	Ahh... actually no. Because we have no scope or any kind of environment to practice. But when I had a group presentation I practiced with my groupmate. Usually, I memorized my speech to get a good mark in the presentation. And the teachers are also not aware of English speaking.

17	I	How much aware you are of the importance of English speaking? Have you ever discussed this topic in the classroom?
18	Joy	Yes, I believe English speaking is a bit essential as after completing graduation if anyone wants to go for higher studies or doing the job then English is must for them, but it is a matter of great regret that we don't discuss such topics or importance in our classes and teachers are also not discussed such importance of English speaking with us. They only teach how to get good marks and how can we pass our exams.
19	I	So, you only practiced or memorized to get good marks? Otherwise, you don't?
20	Joy	Ahh... yes. For the presentation, I only prepared myself regarding specific topics in a very short time. And memorized what would I say so that I don't get to the stop.
21	I	How much aware you are of the importance of English speaking? Have you ever discussed this topic in the classroom?
22	Joy	You know that English is an international language, so we should focus on English speaking language. And I think it is a part and parcel of our life. Because we have to study our engineering courses in English. In our English course only discuss the importance of the English language that's it.
23	I	Have you ever discussed this topic in the classroom?
24	Joy	Ahh...no they did not discuss.
25	I	Did your course teacher take classes in English? And if then what was the response of your classmates?
26	Joy	Umm...no. They taught us in Bangla. Just they used the topic name in English. And we also participated in Bangla.
27	I	Did you participate in the class to communicate in English?
28	Joy	Ahh...no as there was no scope and environment to practice English speaking skills in the classroom, everybody used Bangla to communicate so I never did.
29	I	What supportive materials does your institution have to teach English speaking skills?
30	Joy	Mainly our teachers provided PDF for studying and we follow that PDF for our exam. And I already mentioned that we did not have any speaking course, so we only studied the PDF. In private universities, there are many presentations but in public universities are not so many presentations. IN my 4yrs university life I gave only three presentations.
31	I	Is there any teacher in your department who encourages you to speak in English?
32	Joy	Ahh... no. our main intention was only to pass the exam.



33	I	How much inspiration do you get from your family members to learn English speaking?
34	Joy	Ahh... no. They mainly focused on my engineering study. Wanted to get a good result from me that's all. And I personally also focused on my academic courses and never practiced speaking.
35	I	How often and what type of feedback do you receive from your peer or teachers when you make mistakes in English speaking?
36	Joy	Ahh... actually when we had a presentation we just practice with my groupmate. During my presentation, if I forget any vocabulary my friend helped me to remind and teachers played a positive role so that I did not get nervous.
37	I	So, your teachers motivated you a lot?
38	Joy	I mean they did when I gave my presentation if I cannot continue my speaking for forgetting any vocabulary that time they inspired me to keep continuing my speech.
39	I	How often do you use English in conversation with others (Ex. Classmates/family members/teachers etc.)?
40	Joy	I have never done to speak in English with my friends except for preparing my presentation. At that, I time I only practiced with my friends As I have already mentioned, we don't do that much conversation in English. And my friends always prefer to communicate in Bangla. And if I particularly mention family members it's completely 'NO' as they are not familiar with English speaking that much.
41	I	what are the reasons that hinder you in English speaking? (probe: grammar, vocabulary Psychological, social)
42	Joy	Yes, as English is not my first language so it's normal to face hindrances in speaking. So, I do not have sufficient knowledge of vocabulary, when I speak as a result, I cannot say anything properly. As I mentioned during my presentation I had to stop because I cannot remember the exact vocabulary and my friends help me to remind the vocabulary to continue my speech. Even, I also have a pronunciation problem when I speak.
43	I	Do you feel nervous?
44	Joy	Yes, of course. Nervousness is very common for me because my background was Bangla medium. As, I never practiced speaking so nervousness, shyness, making mistakes are very common for me.
45	I	Do you follow any kind of techniques in times of speaking in English?
46	Joy	I never focused on English because as an engineering student I am always serious about engineering courses to pass. So, when I watch any movies or series I try to learn vocabulary from it to enrich my vocabulary knowledge.
47	I	What kind of problems do you usually face when speaking in English?

48	Joy	First of all, I have never practiced because as engineering students we do not need to develop English speaking skills. We were busy with our engineering courses. If I say about the problem of my speaking which is my lack of vocabulary knowledge.
49	I	Do you believe that having vast knowledge of vocabulary or grammar can make anyone a good speaker in English? If yes then why?
50	Joy	To be a good speaker grammatical knowledge is not the priority. Enough vocabulary knowledge can make a good speaker. Because if I can make someone understandable then grammatical knowledge is not so important. Only for writing grammatical knowledge is necessary.
51	I	How do you feel about joining classes of learning English speaking? To what extent it can assist you to become a good speaker in the English language?
52	Joy	Not so good because there was nothing new to learn. Same grammatical rules which we learned during our HSC. As a result, this course was not enough for me to develop my speaking skill. I think more English courses should be added to develop our speaking skills. So, I intended to pass the course and the main focus on my engineering courses.
53	I	Do you think that having an English language club can encourage students in English speaking? If then why?
54	Joy	In a public university, a language club does help to improve English speaking skills. But if it works seriously I think it will be helpful for the students.
55	I	According to you, what could be the initiatives that can help students to engage in English speaking?
56	Joy	Ahh... I think we should enrich our vocabulary knowledge because without vocabulary we cannot speak any language. then we should practice more and more because doing practice makes a person perfect. So if anyone wants to develop in speaking they should practice and communicate with others a lot.
57	I	Have you ever tried to cope with the difficulties you face in English speaking? If then how and why?
58	Joy	Yeah of course, though I am from an engineering background in courses outside of my dept I felt trouble several times and the trouble is still going on. If anyone wants to solve his challenges then enriching vocabularies is a must and must try to control his nervousness and practicing is also a must. He or she must try practicing regularly also a can-do mentality should be built
59	I	In the previous session, I gave you to speak on a specific topic, so what is most difficult for you, speaking in a fixed topic using English or speaking randomly in English?
60	Joy	For me, it seems to talk on a fixed topic is tougher than a random one. Because you know their effects psychological factor a lot.
61	I	Well, thanks for your participation.

62	Joy	Thanks to you too.
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## Appendix F.1 : SAMPLE OF CODING TEMPLATE BY THE RESEARCHER

RQ2: What challenges do they face while speaking in English?

Coding of Joy's Interview						
Interview Question  (1)	Subordinate key word of question  (2)	Subordinate main point from conversation  (3)	Elaboration examples from verbal to support the subordinate  (4)	Occurrence main idea transferred into the form as key word(s)  (5)	Frequency of occurrence  (6)	Ordering of discourse unit  (7)
How do you practice English speaking?	*Practice *Speaking	*Usually no practice *Presentation *Do memorization *Awareness	Ahh... actually no. Because we have no scope or any kind of environment to practice. But when I had a group presentation I practiced with my groupmate. Usually, I memorized my speech to get a good mark in the presentation. And the teachers are also not aware of English speaking.	*Usually never practice *Academic presentation *Do memorization *Awareness	1 1 1	DU 16
How much aware you are of the importance of English speaking? Have you ever discussed this topic in the classroom?	*Awareness *Value of English speaking *Discussion about English speaking	*Less awareness *Job interview *Teachers less intention	Yes, I believe English speaking is a bit essential as after completing graduation if anyone wants to go for higher studies or doing job then English is must for them, but it is a matter of great regret that we don't discuss such topics or importance in our classes and teachers are also not discussed such importance of English speaking with us. They only teach how to get good marks and how can we pass our exams.	*Less awareness *Job interview *Teachers less intention	1 1 1 2	DU 18

Did your course teacher take classes in English? And if then what was the response of your classmates?	*Language in class *Response	*No usage *Few scopes of English speaking *Negative response of students	Umm...no. They taught us in Bangla. Just they used the topic name in English. And we also participated in Bangla.	*No usage *Few scopes of English speaking *Negative response from students	1 1	DU 26
What supportive materials does your institution have to teach English speaking skills?	*Supportive materials *Skills of English speaking	*Course related PDF *Less presentations	Mainly our teachers provided PDF for studying and we follow that PDF for our exam. And I already mentioned that we did not have any speaking course, so we only studied the PDF. In private universities, there are many presentations but in public universities are not so many presentations. IN my 4yrs university life I gave only three presentations.	*Usage of course related PDF's	1	DU 30
Is there any teacher in your department who encourages you to speak in English? How much inspiration do you get from your family members to learn English speaking?	*Encouragement in English speaking *Inspiration	*No encourage	Ahh... no. our main intention was only to pass the exam.	*No encouragement	1	DU 30
How often and what type of feedback do you receive from your peer or teachers when you make mistakes in English speaking?	*Feedbacks *Making mistakes	*Inspiring response *Helping attitude	Ahh... actually when we had a presentation we just practice with my groupmate. During my presentation, if I forget any vocabulary my friend helped me to remind and teachers played a positive role so	*Received positive and negative types of feedbacks from teachers *Enhancing confidence *Maintaining eye contact *Focus on fluency	1 1	DU 36

			that I did not get nervous.			
what are the reasons hindering you in English speaking?	*Obstacles of English speaking	*Grammatical problems *Less skills over vocabulary *Pronunciation difficulties	Yes, as English is not my first language so it's normal to face hindrances in speaking. So, I do not have sufficient knowledge of vocabulary, when I speak as a result, I cannot say anything properly. As I mentioned during my presentation I had to stop because I cannot remember the exact vocabulary and my friends help me to remind the vocabulary to continue my speech. Even, I also have a pronunciation problem when I speak.	*Less skills over vocabularies *Grammatical problems *Pronunciation difficulties	1 1	DU 40
Do you feel nervous or often forget words when speaking in English?	*Nervousness *Forgetting words	*Nervousness of Bangla background students *Tendency of making mistakes *Fear of making mistakes of students	Yes, of course. Nervousness is very common for me because my background was Bangla medium. As, I never practiced speaking so nervousness, shyness, making mistakes are very common for me.	*Nervousness of Bangla medium students *Forget words *Making mistakes	1 1 1 1	DU 42
What kind of problems do you usually face when speaking in English?	*Problems in speaking	*Less interest *No awareness *Nervousness *weak over vocabularies	First of all, I have never practice because as engineering students we do not need to develop English speaking skills. We were busy with our engineering courses. If I say about the problem of my speaking which is my lack of vocabulary knowledge.	*Less interest *weak in vocabulary *Nervousness *Pronunciation mistakes *Less attention	2 3 2 2	DU 48

<p>Do you believe that having vast knowledge of vocabulary or grammar can make anyone a good speaker in English? If yes then why?</p>	<p>*Vocabulary *Grammatical knowledge</p>	<p>*Importance of vocabulary *Grammatical knowledge is must</p>	<p>To be a good speaker grammatical knowledge is not the priority. Enough vocabulary knowledge can make a good speaker. Because if I can make someone understandable then grammatical knowledge is not so important. Only for writing grammatical knowledge is necessary.</p>	<p>*Importance of vocabulary</p>	<p>3 2</p>	<p>DU 50</p>
<p>In the previous session, I gave you to speak on a specific topic, so what is most difficult for you, speaking in a fixed topic using English or speaking randomly in English?</p>	<p>*Fixed topic vs random topic</p>	<p>*Influence of psychological factors *Random speaking is easier</p>	<p>For me, it seems to talk on a fixed topic is tougher than a random one. Because you know their effects psychological factor a lot</p>	<p>*Prefer random topics *Impacts of psychological factors in fixed topics</p>	<p>2 1</p>	<p>DU 62</p>

## Appendix F.2: SAMPLE THEME GENERATION TEMPLATE

Research question2:	What challenges do they face while speaking in English?						
Interview question	How often and what type of feedback you receive from your peer or teachers when you make mistakes in English speaking?						
Mohammed (C1)	Joy (C2)	Rezyuan (C3)	Shihab (C4)	Zubayer (C5)	Shazid (C6)	Sub themes	Themes
Received positive and negative types of feedbacks from teachers Enhancing confidence Focus on fluency Maintaining eye contact Demotivation from teachers (DU Moh 36)	Received positive and negative types of feedbacks from teachers Enhancing confidence Maintaining eye contact Focus on fluency Increasing vocabulary knowledge (DU Joy 35)	Received positive and negative types of feedbacks from teachers Enhancing confidence Maintaining eye contact Demotivation from teachers (DU Rez 37)	No feedback from teachers (DU Shi 38)	Received positive and negative types of feedbacks from teachers Enhancing confidence Focus on fluency Increasing vocabulary knowledge (DU Zub 37)	Received positive feedbacks from teachers Enhancing confidence Maintaining eye contact Focus on fluency Discouraging expression (DU Sha 35)		Getting both positive and negative feedback from teachers Feedback of increasing self-confidence in speaking time Maintenance of proper eye contact Practice to improve fluency Enhancing knowledge of vocabulary Discouraging and demotivational expressions from teachers
Interview question	what are the reasons hindering you in English speaking?						
Less skills over vocabularies Grammatical problems Pronunciation difficulties (DU Moh 39)	Less skills over vocabularies Grammatical problems Pronunciation difficulties (DU Joy 38)	Less skills over vocabularies Grammatical problems Pronunciation difficulties Impacts of psychological factors in speaking (DU Rez 39)	Less skills over vocabularies Grammatical problems Pronunciation difficulties Impacts of psychological factors in speaking (DU Shi 40)	Less skills over vocabularies Lack of confidence Impacts of psychological factors in speaking (DU Zub 39)	Less skills over vocabularies Lack of confidence Fear of doing mistakes in front of audience (DU Sha 37)		Lack of knowledge in vocabularies Doing grammatical mistakes Difficulties in pronunciation in speaking Effects of psychological factors along with fears of the audience Lack of courage and confidence



Research question3:	How do they overcome challenges?						
Interview question	Did your course teacher take classes in English? And if then what was the response of your classmates?						
Mohammed (C1)	Joy (C2)	Rezyuan (C3)	Shihab (C4)	Zubayer (C5)	Shazid (C6)	Sub themes	Themes
Less usage Less interest Few scopes of English speaking Negative response from students (DU Moh 24)	No usage Few scopes of English speaking Negative response from students (DU Joy 26)	No usage Less interest Negative response from students (DU Rez 29)	Usage on particular topic Less interest Negative response from students (DU Shi 29)	Less usage Usage on particular topic Negative response from students (DU Zub 26)	Less usage Usage on particular topic (DU Sha 26)		Students unwillingness in English speaking Less usage of English Less interest of teachers Usage of English in specific topics and terms
Interview question	According to you, what could be the initiatives that can help students engage in English speaking?						
Creating awareness Providing practicing environment Motivating positively Arranging speaking competition Reading books or hearing podcast (DU Moh 61)	Creating awareness Motivating positively Arranging speaking competition Providing practicing environment (DU Joy 66)	Creating awareness Arranging speaking competition Providing practicing environment (DU Rez 64)	Ensuring family support Motivating positively Providing practicing environment (DU Sha 67)	Creating awareness Motivating positively Arranging speaking competition Providing practicing environment (DU Zub 67)	Motivating positively Arranging speaking competition Reading books or hearing podcast (DU Sha 66)		Ensuring practicing environment Need to raise awareness Need positive motivation to students Arranging speaking competition Reading books and listening podcast Need family support

### Appendix F.3: RATING FOR STUDENTS INTERVIEW

Please respond to the following themes by choosing “Agree” or “Disagree”. You can also suggest a new theme in the comment column.

RQ. 2. What challenges do they face while speaking in English?						
Theme	Main ideas	Disco urse Unit	Verbal support	Inter-Rater		Comments/Su ggestions
				Agre e	Disa gree	
No English speaking practice	Usually, students don't practice English speaking	Rez 21  Shi 23	"To be honest, we don't practice English speaking. We love to use Bangla in our classroom and also to communicate with our friends"  "Umm. As university students, we thought that all of our classes will be in English and we have to speak in English, and we have seen this in our first class only then things go normal and in our university, we started using Bangla and practicing English speaking is not seen normally in our campus"	/		
Students' unwilliness to speak in English	Students prefer Bangla to English in communication	Moh 24  Joy 26	"Ahh... sometimes we use, basically we are forced by the teacher to use English in the classroom but we feel too much bored in those classes and we want to use Bangla because you know sometimes due to asking questions in English we don't ask questions to teachers and we face problems later on"		/	Theme should be students' preference to use Bangla

			"No, in engineering courses though some terms have no meaning in Bangla so, we only use English in uttering the terms, and rest of the discussions on this topic or questions are asked in Bangla, even the teacher also use Bangla because of the unwillingness of students in speaking using English."			
No use of supportive external materials	Due to not having enough supportive material students are not involved in practicing English speaking	Zub 30  Sha 30	"No, we don't get any sort of external supportive materials except the coursebook to practice English speaking"  "Actually, our teachers, as well as parents, are only aware of getting good marks in exams, they don't know anything else apart from getting good positions in exams and total, we only focus on the course book, no other external supportive things are provided to us from our organization."	/	/	Make the separate theme of expectation of good grades
Encourage ment by English course teacher	The teacher positively encourages students to start English speaking	Rez 35  Zub 35	"From the very beginning of our university life, we only thought that we have to do the engineering courses but later we found that except those there are others courses too, and in other courses,	/	/	

			<p>especially in English our teachers encourage us to learn English speaking."</p> <p>"Yeah.. we get encouragement from our course teachers. They tried to make us understand why English speaking is important and say different scenarios so that we can get positive encouragement from there to start or practice English speaking."</p>			
Getting both positive and negative feedback from teachers	Positive feedback encourages students and negative feedbacks demotivate s them to use English in communication	Zub 35	"You know we have to give final presentations in some courses and in there what .....Some teachers showed negative responses to students when we made mistakes. When we receive positive feedback from teachers we feel confident that yes I can do it but when we receive such negative ones we feel that, no, I am not able to continue my presentation."	/	/	
		Moh 34	"Mostly the teachers from my engineering dept. tend to give negative comments and this also have an impact on our final grade, mainly in viva teachers give negative comments on our English speaking."			

Lack of knowledge in vocabularies	Less knowledge of vocabulary is a potential challenge for students in English speaking	Joy 38  Rez 39	"Ahh...frankly the less knowledge in vocabularies are creating main challenges to me in English speaking. Due to this lacking, I can't express my views properly."  "Mostly, the lacking in vocabularies are the main problems for me and my friends in English speaking."	/  /		
Nervousness of Bangla medium students	Bangla background students nervousness create troubles for them	Zub 49  Sha 51	"I was from Bangla medium and in school or college we don't use English that much, so when in university I tried to use English in speaking a bit of nervousness always creates trouble for me and I think this has happened with all Bangla medium students."  "As a student of Bangla medium, we always prefer speaking Bangla than English and for such kind of tendency when we tried or when we have to continue English speaking then we remain too much nervous and we hardly control such nervousness which spoils our English speaking."	/  /		

<p>No discussion about English speaking in the classroom</p>	<p>For not having discussions regarding English speaking students are discouraged</p>	<p>Moh 20  Shi 24</p>	<p>"No, in our classes we only focus on engineering subjects and we don't also engage in other areas so teachers also don't do such discussions about English speaking because if they do then students will talk in between themselves and a negative impression can also create among students about the teacher or the course."</p> <p>"We only see that students join the class, teachers came and started delivering lectures, no such discussions that you are asking has happened in our classes."</p>	<p>/</p> <p>/</p>		
<p>Effects of psychological factors along with fears of the audience</p>	<p>Psychological factors create barriers in English speaking</p>	<p>Joy 38  Shi 40</p>	<p>"We were not enough able to control the psychological factors and due to this sometimes we were not able to deliver properly even we were very much confident in our speaking. Most of the students become nervous or some become blank in speaking or anxiety which is another reason which was a threat for us in English speaking."</p> <p>"Hmm... the effect of a psychological factor is a bit problematic for us. And most of</p>	<p>/</p> <p>/</p>		

			us were facing such troubles in communicating using English."			
Lack of courage and confidence	Increasing courage and confidence is a must	Rez 39  Sha 37	"During any English speaking we become afraid and for such lacking courage and confidence we become incapable to deliver what we were trying to say, become nervous and stop saying further."  "I believe that I have some lacking's in confidence like in my speaking it always remains that am I doing some mistakes or if I do then what will others say. Umm.. for this my courage automatically degrades and for all these, I always end quickly without saying what I was intended."	/	/	

NAME OF THE RATER: DR SABREENA AHMED

DATE: 16 December 2021

## **Appendix F.4: INTER-RATER RELIABILITY CALCULATION FOR STUDENTS' INTERVIEWS**

Percentage of agreement:  $(18/20) * 100 = 90 \%$

[20= total number of verbal supports]

[18= inter-rater's agreement with the verbal supports]




## Appendix G: SAMPLE OF EMAIL FOR MEMBER CHECKING


← 📁 ⓘ 🗑️ | 📧 ⌚ ↺ | 📁 🗑️ ⋮

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member checking **External** **Inbox x**

 **Nusrat Sharmin**  
Dear friend, Please check the coding of the interview and provide your feedback.

---

 **Mohammad Zubayer**  
to me ▾  
Dear Nusrat:  
  
Yes, I have checked & found all are okay.  
  
Regards,  
Mohammad Zubayer  
⋮

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## Appendix H: AUDIT TRIAL OF THE STUDY

Date	Activities	Records
20 <sup>th</sup> June 2021	Approval of topic from the supervisor	Approval E-mail
5 <sup>th</sup> November 2021	Contacting the supervisor for the permission of data collection procedure	Email
6 <sup>th</sup> to 12 <sup>th</sup> November 2021	Speaking test	Zoom and Face to face
13 <sup>th</sup> to 18 <sup>th</sup> November 2021	Interviews of participants	Zoom and Face to face
20 <sup>th</sup> November 2021	Transcribing Interviews	Recording
5 <sup>th</sup> December 2021	Member checking	Email
10 <sup>th</sup> December 2021	Contacting rater, sending documents for rating, and receiving inter-raters' feedbacks.	Email & soft copy of the documents