

English Medium Instruction in Technical Education: An ESP-Oriented Review of Bangladesh's Textile Engineering Sector

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Evidently, English Medium Instruction (EMI) has become remarkably important in higher education in Bangladesh, particularly in academic subjects with substantial global connections like textile engineering. EMI practices in Bangladesh's textile engineering programs in relation to their implications for academic achievement, professional competence, and international collaboration are critically viewed in this paper. This study, given the globalized nature of the textile industry, situates EMI within the broader context of English for Specific Purposes (ESP) and English for Academic Purposes (EAP) in Bangladesh; EMI practices intersect with English for Specific Purposes (ESP). Regarding methodological strategy, this paper synthesizes findings from peer-reviewed literature, policy documents, and comparative EMI research. Following a scoping review logic, the Population–Concept–Context (PCC) framework was applied: population (textile engineering students and teachers in Bangladesh), concept (EMI and ESP/EAP integration), context (higher education). Results highlight three recurring themes: primarily, the necessity of English proficiency for knowledge exchange and research visibility; secondly, the demand for linguistically skilled graduates in the textile business sector; and, finally, the role of EMI in strengthening disciplinary literacy. Observed barriers were outdated curricula, limited teacher training, and resource shortages. It is very crucial to embed ESP-informed EMI into textile engineering curricula to align national educational needs with international professional expectations. Future research should examine discipline-specific EMI models, long-term outcomes, studies across regions, and policy implementation strategies.

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Keywords: English Medium Instruction (EMI), textile engineering education, English for specific purposes (ESP), English for academic purposes (EAP), Bangladesh higher education, language policy in technical education.

1. Introduction

1.1. Textile Engineering and Language in Technical Education

The textile industry has, for centuries, remained a backbone in international trade, because of a never-ending quest for innovation and high-tech development. More recently, however, textile engineering has actually emerged as a prominent area that concentrates on designing, developing, and working with machines and systems used in textiles as well as clothing technology (Hossain et al., 2019). Technical education in textile engineering has assumed significance due to increased advances in technology, which requires superior language proficiency on the part of students so that they can communicate effectively with their global counterparts and be able to make sense of technical literature (Hutchinson & Torres, 1994). It appears that there exists a nexus between technology education, through which language remains imperative to its cause, because they establish a platform between knowledge and application.

1.2 Importance of Textile Engineering in the Economic and Education Fields

Textile industry ranks among the most visible and vibrant sectors in the economy of Bangladesh, generating foreign exchange, transforming the employment sector, and upgrading socio-economic progress (Ahsan & Vasquez-Elizondo, 2012). This gives a clear emphasis on the growing requirement of education in textile engineering in Bangladesh because universities are doing their level best to produce this talent by providing graduates who are capable of contributing to the demands of the textile industry. But currently, the medium of instruction in nearly all institutions remains Bengali so that the students confront difficulties in interacting with their international peers, acquiring knowledge from worldwide

sources, and contributing to their publications (Islam & Sultana, 2013).

1.3 The Growing Importance of English as a Global Lingua Franca in Technical Areas:

Requirements and needs in English is considered the most widespread international language for many years, especially regarding technical and scientific aspects (Graddol, 2006). The factors justifying the widespread prevalence of the English language are related to the phenomenon of globalization, where English language is considered the shared medium among specialists and scholars with totally different backgrounds (Kachru, 1992). The English language has become a basic subject in all engineering fields, such as textile engineering, to obtain knowledge and expertise, as well as the knowledge of the concept of technicalism, through the relevant contents of the technicalism literature (Hutchinson & Torres, 1994).

This research paper tries to analyze the factors that necessitate the implementation of the English language in textile engineering education in Bangladesh. Through an in-depth study of the latest literature, teacher-teacher interaction, and an industry trend study, this paper tries to define the relevance and importance of English language skills in textile engineering education. As the success factor for learning languages is dependent on the effectively well-structured nature of languages for specific fields, it tries to outline an insight for developing efficient language strategies by presenting an in-depth study of regional, national, and international paradigms of textile engineering education for developing countries like Bangladesh with the intention to scale up the implementation trend for integrating English in textile engineering curricula in the country.

1.4.1 Historical Progress

Bangladesh: The history of textile engineering education in Bangladesh can be traced back to the establishment of technical and vocational education institutes in the early 1980s. Realizing the vast potential in the textile and garments industry, which was quickly taking shape as an integral part of the economy, the government introduced and began training engineers exclusively for the textile and garments industry (Khan & Rahman, 2021). The first-degree program in textile engineering was introduced at the Bangladesh University of Textiles in 1998, marking the beginning of textile engineering education in the country (Hossain, 2018). Subsequently, other colleges have followed the suit and have introduced specialized textile engineering programs in recent years to meet the growing demand for human resources in an industry that is now the epitome of Bangladesh's economic identity.

The next decade saw the change in education towards a modern technology education curriculum that conforms to global requirements. Owing to the rising importance of research & development in the textiles industry, most educational institutions are now incorporating modern approaches in laboratories so that engineers in Bangladesh remain up to date in the global market. Today, education in textile engineering has incorporated traditional approaches towards the evolution of textiles, sustainability, modern approaches towards the generation of textiles, along with material sciences.

1.4.2 Current Education Landscape

In Bangladesh, there are several institutions for textile engineering. The most renowned college for textile engineering is the Bangladesh University of Textiles (BUTEX). Other renowned institutions include Dhaka University, Rajshahi University, Khulna University, some polytechnic institutions, and some private institutions. They offer modules for textile engineering in their curriculum.

The comprehension of sophisticated technological concepts in such schools is largely

affected by the medium of instruction. Most of these programs employ Bengali as the main medium of instruction. Some universities also follow a program in English to meet international standards and give students access to international research work (Rahman, 2021). However, in general, Bengali is the most dominant language that results in a contradiction in educational achievement, as students find it difficult to grasp sophisticated technical terms and international literature in English.

1.4.3 Barriers within the Educational System

The textile engineering education system in Bangladesh experiences various challenges. Firstly, there exist language barriers in the technical literature and research work, which are primarily conducted in English. It should be noted here that since the students learn in Bengali, they hardly get exposure to global innovations and practices in other countries; therefore, there lies a gap between local and global competency levels (Ahmed, 2019).

Further, the syllabuses in many higher educational institutes are also thought to be outdated to some extent and lack relevance to the technical developments taking place at present. It has become the need of the hour to update the curriculum on a regular basis with the latest developments, which include automation, smart fabrics, and sustainable practices (Sultana, 2020). It has become essential to evaluate the standard curriculum on a regular basis because of the rapid development in the textile industry with the help of technology.

Furthermore, the lack of on-the-job instruction for students is another challenge. Although many schools offer academics, there is still a limitation because not all schools provide internships or ensure experience for students within the textile industry. This is a drawback that may impair preparedness for the workforce, as skills learned or experience obtained are essential for textile engineers. They need a systematic approach for the elevation of this situation.

1.4.4 Governo-economic and Policy Impact

The country's policies also have an impact on the educational environment and the strategies that need to be employed in textile engineering. With Technical education being given due importance by the National education Policy of Bangladesh, the use of English as a medium of instruction helps in making students more employable and able to compete with others at an international level (Ministry of Education, 2010). The policies also acknowledge the fact that it is important for students to know English in order to operate advanced technology and equipment used at an international level in textiles.

The objective of the Bangladesh Technical Education Board involves improving technical and vocational education to produce skills according to market demand in the local and foreign labor market. They have attempted to collaborate with industry players to implement a change in the curriculum and research areas (Shirin, 2019). Despite the above developments, these policies have a poor implementation system due to budget limitations, resource shortages, and shortages of highly qualified teachers in schools.

These challenges must be addressed so a competent workforce can meet the needs of Bangladesh's rapidly changing textile engineering industry. Overall, our own textile engineers would be better placed to succeed in this country and internationally if we focus on developing them through modernization in education, education in languages, and access to experience.

2. Methodology

Statistical or qualitative analysis methods: A scoping review methodology guided by Arksey and O'Malley's framework is adopted and reported in line with the PRISMA-ScR guidelines. To define the scope, the Population–Concept–Context (PCC) model was applied. The population comprised textile engineering students and teachers in Bangladesh. English Medium Instruction (EMI) practices informed by English for Specific Purposes (ESP) and English for Academic Purposes (EAP) were the concept focus, and the higher education institutions

offering textile engineering programs were the context.

The relevant literature published between 2010 and 2025 across Scopus, Google Scholar, and policy archives was systematically searched. Keywords such as English Medium Instruction, Textile Engineering, ESP/EAP, and Bangladesh higher education were included. The initial yield was approximately 120 documents. They were then screened for relevance based on titles, abstracts, and full texts. Inclusion and exclusion criteria were applied—such as focusing on higher education, English-language instruction, and textile engineering—and 55 documents were chosen for analysis. Within which were empirical studies, comparative EMI research, and national policy papers.

Using a structured extraction form that captured study characteristics (title, author, country, discipline, design), population details, and key findings related to EMI, data charting was done. Six thematic clusters were synthesized: cognitive and disciplinary literacy, pedagogical innovation, academic writing and research visibility, EMI literacy and learner perception, evaluation and assessment technologies, and global/policy dimensions. A comprehensive mapping of how EMI intersects with textile engineering education in Bangladesh is the thematic synthesis allowance.

Literature Review

Teaching Language and Pedagogy

Furthermore, one of the most critical factors contributing to the success of students within the context of institutions of higher learning altogether is the presence of language skills. Numerous studies have established the link between students' skills and their performance within the subjects, most especially those taught in a language not native to the learners. Mazzucato et al. (2018) supported the claim that students who show better skills in English tend to perform better than those with lower skills in their educational evaluations. The relationship appears even more paradoxical, especially in countries where English is not the official language, where learners still struggle to comprehend technological terms and difficult

definitions expressed through the rules of English. The idea was supported through a meta-analytical study carried out by Chen & Starosta (2018), which revealed that the English skills of the students significantly influenced their performance as well as engagement in educational activities, which enhanced communication between the students and the lecturers.

At the same time, there is a positive link between linguistic fluency and the acquisition of information. English is the most common language understood by a large amount of educational literature in many disciplines, and most specifically in sciences, technology, engineering, and mathematics (STEM). Therefore, a lack of it would hinder students from following and acquiring important research and resources, which would lower their capacity to effectively participate in their fields of choice (Kirkpatrick, 2010). Thus, English language proficiency is crucial to the success and attainment of educational excellence, analytical acumen, and knowledge in higher learning institutions.

Education Exposure to Globalization

The globalization of educational programs has thus spurred an increasing global need for English in higher education. Institutions of higher learning are thus steadily becoming an intersection of cultures owing to their programs of attracting international students, as well as collaborative programs and research enterprises across continents; English is thus becoming the widely accepted language in the world of education, particularly in STEM fields. An estimate published by the Institute of International Education (2019) points towards there being over 5 million students presently studying abroad in programs that are largely rooted in English-speaking nations and are taught in English. There seems to be a recognition of English as a global language in education where research information is shared (Wächter & Maiworm, 2014).

“And this is particularly important in the scientific disciplines: English is a monarch there.

The prevalent rhythm of the scientific community’s communication about scientific advances is established by scientific publications, scientific conferences, and collaborative science in general – nearly all of which occur in English. Having English-speaking students provides them with the opportunity to interact with the community of professionals in the world of science and technology, which leads to better career development opportunities in their lifetimes” (as quoted in Venkatraman & Handoko, 2020). Schools play a very important role in addressing this trend to compete effectively in an arena that is globally oriented.

The role of English in Engineering Education

English has played a considerable part in the evolution of engineering education as well. English language skills have gradually been considered mandatory in the engineering curriculum of the modern world because English has functioned as a medium of communication between various parties involved, such as engineers, customers, and others who speak different languages. In this regard, mechanisms such as Erasmus Mundus in Europe and Global Engineering Education Exchange include English as the medium of instruction and facilitate the participation of engineering students in cross-boundary projects.

International evidence here shows the relevance of English language in engineering teaching. Germany and the Netherlands were, in the recent past, conducting numerous engineering courses in English at the university level to make their education and their graduates suit the needs of the global world, which requires more research opportunities (De Boer et al., 2020). Apart from providing the students with the required technical knowledge, these engineering courses prepare the graduates to be employed in international companies where English is the business language.

In addition, the English language facilitates the spread of knowledge and technology. Engineering graduates must be competent in English because technical writing, specifications,

and technical manuals are mostly in English (Morrison, 2020). The engineering sector is moving towards digitalization and innovation; along with this, these emerging trends and technologies demand English language proficiency among engineers in order to keep up with the challenges.

The Globalization of Education in Bangladesh

A need arises for the translation of the Bangladeshi education system into the global format in order to increase the identity of the country in the global education sector. Stressing English as the medium of education in the country's universities of the country, in areas such as textile engineering, is an effective strategy in increasing the result levels of the students and enabling them to overcome global challenges (Rahman, 2021). Incorporating English Language study courses into the existing courses of study would ease the problems of students to a great extent and increase students' understanding of the tough technical subjects (Khan, 2020).

Apart from this, there should also be a consideration of the requirements of internationalization in government policies on technical education. In administrative measures, there should be emphasis on collaboration with foreign universities, student exchange, and joint research endeavors, which would lead to channels of information distribution and development of skills (Ministry of Education, 2010). With the interaction and engagement of Bangladesh in worldwide education networks, there has been a greater demand for prioritized learning of English to increase competitiveness levels and innovation in the textile and engineering fields.

Hence, it is obvious that English has paramount importance in higher education and particularly in engineering disciplines. In the light of such a transformative setting, understanding the

linguistics of achievement, in addition to the linguistics of proficiency, will be crucial. It paves the way for tomorrow's graduates in Bangladesh. If Bangladesh integrates education and regulations through English, the country will earn its international importance, which will empower the students with the capabilities they want to fit on the ladder of globalization.

3. Results

Use of English as a Medium of Instruction in Textile Engineering Education in Bangladesh

Bangladesh's textile engineering industry plays a vital role in the economy, and there is an immense need to incorporate English for various purposes. According to the growing global economy, there is an urgent demand to provide qualified engineers through graduate training with English proficiency. This section examines seven major contributory factors that demand the inclusion of English at different levels in textile engineering education in Bangladesh.

3.1 Internationalization of the Textile and Apparel Industry

Number of Workers in the Textile and Garments Sector

Figure 2 shows that approximately 5 million workers are employed in Bangladesh's textile and garments sector. The overall trend in workforce numbers has been upward, with significant growth over the years. Although the number of factories in the sector drastically declined in 2013–14, the number of workers did not decrease proportionally. This discrepancy may be attributed to the closure of smaller factories employing fewer workers while larger factories continued to drive the industry's growth. The R^2 value of 0.9696 (as shown in Figure 2) indicates a strong correlation and suggests that this upward trend in workforce numbers will continue significantly over the next five years.

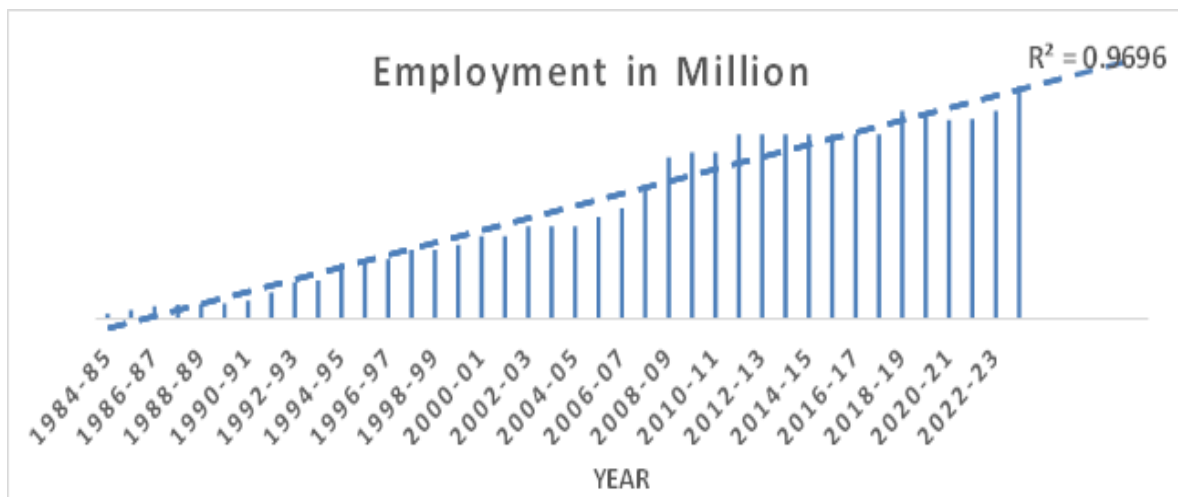


Figure 1: Growth curve of Employment in the textile sector in Bangladesh

Source: Authors' compilation from the BGMEA and their sources.

The development of the textile business across the borders of national markets has changed the way manufacturers, suppliers, distributors, and retailers communicate. Bangladesh has emerged as one of the major textile and garment exporters, which naturally has compelled engineers to interact with foreign customers, join international supply chains, and sign contracts with foreign partners. At the same time, according to a report by the International Textile Manufacturers Federation, if companies in the textile industry want to have seamless interaction and successful collaboration on the global market, their English communication skills have to be spot-on.

Proficiency in English allows engineers to gain an understanding of and communicate technical details, quality standards, and timelines of production, which are normally in English. As the supply chain keeps growing and complicating the processes, so too does the demand for engineers knowledgeable and skilled in assurance, compliance, and sustainable practices in textile production continue to increase (Chen & Poon, 2016). Thus, the internationalization of the textile and apparel industry requires an English-speaking workforce for improved communication and collaboration with a view to stimulating its growth and competitiveness.

3.2 Knowledge and Research Access

Regarding textile engineering, English is generally considered to be the principal language of science, technology, and innovation in various research disciplines across the globe. A substantial part of all available research papers, textbooks, and papers presented in conferences related to textile engineering is published in English, rendering it imperative to have an understanding of the language to access the vast knowledge available in it. According to Yang et al. (2020), the need-to-know English is linked to the ability to understand the latest innovations in the textile industry.

Bangladeshi engineers, like engineers in developing countries, have immense difficulties in keeping up with the latest developments in other corners of the world owing to the unavailability of resources that would enable them to read the latest technical literature in Bengali (Shakib & Rahman, 2020). Textile engineering students must be able to read English to refer to international literature on research, practical experience, materials science, and production processes in order to incorporate them following local practices when there is limited dissemination of research in the native tongue. To develop creativity and technical ingenuity, it is relevant to keep updated in the world of English resources.

3.3 Career Prospects

Today's competitive labor market views English fluency as an essential qualification for organizations, particularly within Bangladeshi textile engineering graduates. This ability to communicate technology concepts in clear ways enables work with diverse groups: a need concurrently felt by manifold multinationals and innovative fashion brands also, according to Rahman (2021). This is especially because organizations have begun to operate on global standards of quality control and production systems with cross-segment communication.

It has also been established that engineers with a good proficiency in English enjoy one of the best competitive advantages in job applications both nationally and internationally (Naz & Rahman, 2018). Furthermore, most of the textile engineering job advertisements published worldwide require proficiency in English. This is a reflection on its importance in the recruitment process. Apart from finding better employment opportunities, graduates with English language competence are at a better advantage to earn more and enjoy career advancement opportunities as well (Sultana, 2019). In this age of globalization, where employment patterns are largely affected, proficiency in English becomes a deciding factor in the job market of Bangladesh for textile engineers.

3.4 Teaching and Learning Materials

One major issue being faced by textile engineering students is the lack of technical educational resources that are accessible in the Bengali language. English is the key to effective communication in the modern world; most technical textbooks, learning publications, and online educational resources used nowadays in textile engineering are in English, emphasizing the importance for students to achieve language proficiency to comprehend these resources. Online courses and webinars-availability and the whole process is performed in English; this mainly encapsulates non-proficient English speakers around learning new things.

As per the survey conducted by the Bangladesh University of Textiles, approximately 85% of the

students reported that they had no issues with accessing proper educational materials in the Bengali language, thus emphasizing the need for immediate English language proficiency for the students to fill that requirement (Bangladesh University of Textiles, 2022). English acts as the medium for the consumption of knowledge, which will help the students in engaging with the international platforms of conferences, publications, among other services that not only enhance their learning process but also increase their horizons.

3.5 Partnerships with Global Institutions

Other Bangladeshi universities have also aimed for increased collaboration in education and research in textile engineering with foreign universities. In some of these collaborations, English is needed as the medium to complete various trainings and communications (Islam, 2019). Programs that allow students to pursue a joint degree, participate in an exchange program, or undertake a research project will often be in English and involve collaboration between foreign institutions and local universities.

These types of relations enhance the transfer of knowledge, make it easier for faculty and students to exchange ideas, and foster collaborative research projects, thereby improving the educational institution is in question. The requirement of English in the Bangladeshi textile sector is very crucial. Education System In present times, working for international collaboration with various organizations certainly requires teachers and students alike to be well-versed in the universal language, which is English, and therefore it becomes quite crucial for English to be an integral module within the textile engineering education system of Bangladesh. This particular approach can greatly increase the level of expertise and further fuel education that meets global standards.

3.6 University Competitiveness and Global Rankings

With an increasing number of universities competing to gain a higher ranking and attract international students, the scenario in higher education is becoming competitive worldwide.

The medium of instruction is directly linked to the ranking of an international institution. Providing textile engineering programs in English language would help universities in Bangladesh gain a higher rank in international rankings.

Moreover, international recognition also enhances students' marketability in the labor market. For instance, Malaysia, Singapore, and others, which have successfully assimilated English into their education systems, have made remarkable progress in international university rankings and attracted numerous foreign students, as cited in a report by Mohammad Hassan & Lee Yuk Khoo in 2021. Indeed, in order for Bangladesh to become an international center for first-class textile engineering education, emphasis on English literacy and international education excellence is inevitable.

3.7 Improved Teaching and Learning Efficiency

The use of the English language among teachers and students increases the quality of education and also helps in the acquisition of new technological and teaching practices. The need for language proficiency among teachers in order to have effective learning is a critical necessity since all international educational programs and digital learning platforms operate in the English language (Rahman & Hossain, 2021). Moreover, learning processes such as project-based and collective homework work well in a context such as school, where the language of communication is English.

Moreover, advancement in educational facilities like internet-based database retrieval, international research facilities, and e-learning technology is achievable through proper mastery of the English language (Khan & Rahman, 2021). Better pedagogies increase student engagement and motivation, hence creating an immersive

learning platform through which knowledge is shared. English Literacy in teaching practices and learning outcomes of educators and students in textile engineering education is crucial.

Parameters such as globalization in the textile industry, the ability to gain information from technology, and enhanced job opportunities make the inclusion of English in the education of textile engineering in Bangladesh relevant. Since the students are learning more from the world and contributing to the improved position of their universities globally by collaborating globally and raising their universities' position in the competition, learning English has also become a priority since this skill adds value to this manner.

4. Discussion

Challenges to the integration of English in textile engineering education

The application of English proficiency in textile engineering studies in Bangladesh tackles several issues clustered around challenges that hamper effective implementation. The issues of concern arise from the effects of the barriers created by the mentioned factors. These factors include the effects of the issues of language barriers, lack of teacher capacity, curriculum deficiencies, cultural factors, and financial factors.

4.1 Linguistic Awareness in a State of Neglect amongst Students and Teachers

This imposes a significantly large amount of pressure on both students and faculty members of textile engineering courses as well. There are challenges from professionals speaking other languages: Most professionals speaking other languages do not specialize in research for academic purposes." "Most professionals do not possess quality written communications skills."

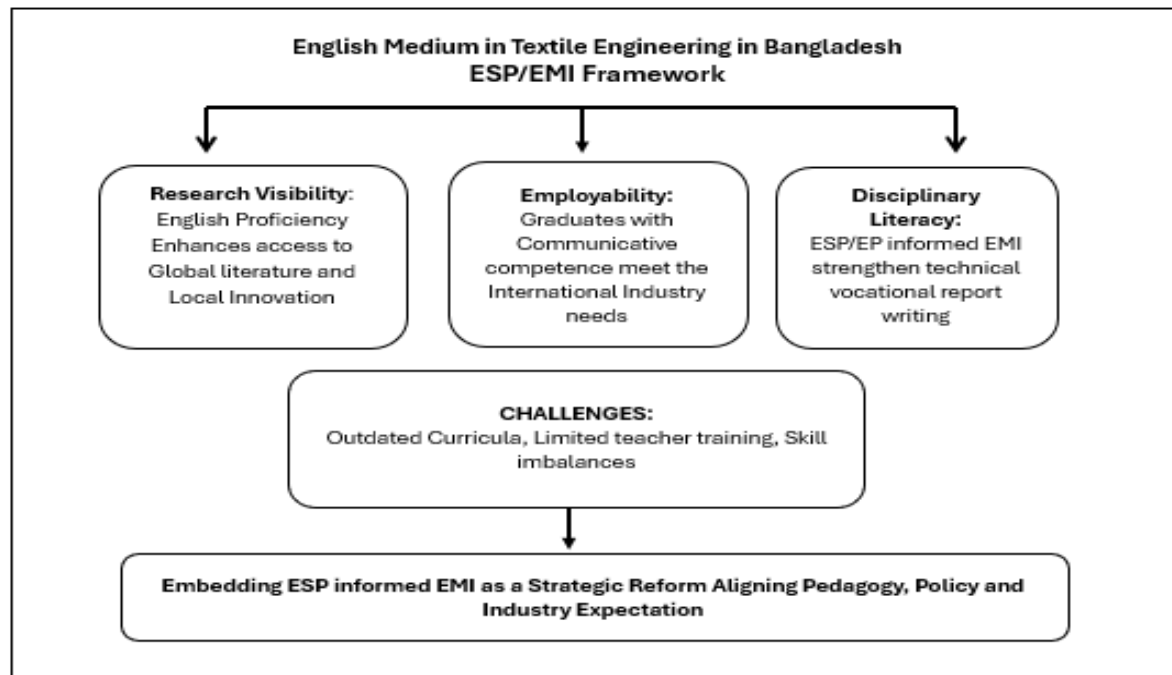


Figure – 2: English Medium Instruction in Textile Engineering Education in Bangladesh

“They must interpret diverse technical information, seeing that they must comprehend intricate business processes and intricate systems.” According to Jasmin et al. (2020), “Students listening to or reading key concepts, ideas, and instructions from academics in their non-native language can make it difficult for them to comprehend.”

Additionally, if the lecturers are foreigners, it becomes difficult for them to deliver the curriculum in time. English lecturers, as competent as they are in English, may find it difficult to convey their technical concepts accurately (Mok, 2018). Afterwards, as languages are a significant part of the learning sessions, the teacher might end up hating the student, and the student might end up hating the teacher because of it, which causes a decrease in the level of productivity and efficiency.

4.2 Inadequate Teacher Preparation

One of the greatest difficulties for the integration of English in textile engineering education is the lack of teacher training. In Bangladesh, there is a shortage of competent professors in the subjects of textile engineering as well as English communication. Not only do most faculty members lack the skills taught in English classes,

but also the knowledge essential for imparting quality English classes, which may result in less student interaction.

This goes for the groups of tutors because they hardly spend time in their home country, and if they did, they would not get quality professional training in English. In other instances, technical capacity building fails to address language building and thus maintains the challenge of tutors as instructors of intricate subjects (Salam & Haque, 2021). The outcome makes education in English essential. Its absence prepares students poorly for the curriculum and the global textile industry.

4.3 Challenges in Curriculum Design

The existing curriculum regarding textile engineering education in Bangladesh might not be adequately competent to deliver English as a medium of instruction. Most of these courses were structured on Bengali as a subject, and therefore, course curriculum and English language proficiency could very much not be integrated. If English language teaching and learning remain not directly focused on and integrated within a curriculum, students would continue to face challenges in learning technical content.

The absence of textbooks and learning materials that address the new syllabus makes it challenging to achieve effective learning guidelines for English instructions (Rahman et al. 2020). In a bid to equip students with quality education that can enable them to address professional requirements for effective performance, there is a need to address the much-needed adjustments to the necessary learning materials such as textbooks and online tutorials-according to the English Language.

4.4 Cultural and Social Factors

The sociocultural issues associated with the topic at hand influence significantly the willingness of people in embracing English as an official language of education in Bangladesh instead of Bengali. An ambiguous position thus emerges in relation to the historical background of the English language, linking its heritage of colonialism among some social groups in society, which perceive English as a “foreign” or “elite” language (Hussain, 2022). Such an ideology may foster resistance towards the application of the language in educational institutions because learners may feel that Bengali would be a better language in which to learn.

As well, the dynamics of mastering English proficiency can also affect the level that students are eager to learn or engage with English during their period of study. You become exposed to some skills that could contradict what you possess and dissuade you from being close to others, who would want to adapt to an English-intensive learning environment (Rashid & Saha, 2021). This enacts the need to address the cultural and societal sentiment to become more embracing in establishing a learning environment that is accepting, enthusiastic about studying English in textile engineering.

4.5 Economic Limitations

The leading barriers are economic in nature, especially the cost of doing a course in English in textile engineering education. Educating educators and creating English-language teaching resources would be costly, along with infrastructural changes that may need to be made. It is too expensive for many higher learning

institutions to either establish and or to maintain such programs; hence, progress has been minimal.

Moreover, students of lower socioeconomic backgrounds might face further difficulties in access to learning materials, such as textbooks and e-learning courses, to help them develop better English language proficiency. Systems are already requiring families with little income to keep their children in environmental isolation at home, but the options open up existing disparities in education while curtailing paths to success for students and, ultimately, gnaw away at the muscles of education.

But, with the inclusion of English as a part of the textile engineering educational system offered in Bangladesh, there arise some issues that have to be dealt effectively. Such issues include linguistic barriers, inadequately prepared faculty members, issues pertinent to curriculum development, factors associated with culture, as well as financial factors. Quality education must come from all concerned within the realm of educational settings, right down to the government.

5. Ways to Overcome Obstacles

In line with the challenges of implementing English as a medium of instruction in Bangladeshi textile engineering education, several strategic approaches could be considered: language advocacy programs, teacher training programs, curriculum updates, use of technology, and policy advocacy. All these strategies put together provide a holistic learning environment that facilitates not only faster acquisition of the English language but also improvement in advertisement performance of learners.

5.1 Initiatives to Support Linguistic Resources

Soon after, one of the important first steps toward better student language proficiency would be to institute language support programs. Even 101 courses designed to serve a single major, in this case, engineering, can sharpen critical reading, writing, speaking, and listening abilities that students will use in their own coursework. Such intensive or long-term courses could be

offered over the summer, or as part of an integrated degree program, so that students are able to improve their language proficiency without detracting from their studies in the technical field of study (Choudhury & Yashmin, 2021).

Providing language immersion experiences, such as study abroad programs or partnerships with English-speaking schools, will allow students to practice and improve their language skills in real-life situations. Collaboration with various national and international English language institutions can be done through workshops or exchange programs to create more exposure for students academically and professionally.

5.2 Faculty Development

Faculty development Programs specific to the education sector should form part of the postgraduate curriculum for teacher educators and researchers and focus on presenting the skills which are important for beginners to redirect their studies, since they are imperative for effective English education. In this respect, continued professional development programs should be arranged with the dual aim of enhancing the participants' English language skills and pedagogical content knowledge pertaining to technical fields. English language classes for teachers designed to teach the educators who prepare your students about this information make all the difference in terms of confidence and effectiveness in presenting this information in English. Moreover, a community of practice among educators could foster peer learning and resource sharing, leading to overall improvements in instructional quality. Bringing experienced teachers from universities in Anglophone countries to lead training sessions or contribute to workshops has much value to bring about insights into effective pedagogy in teaching and learning in English.

5.3 Reforming the Educational Policy

In addition to these matters, a major makeover in the education curriculum would also be needed to achieve integration of English in textile engineering. To prevent inundation of the kids, a progressive course toward English study would

be recommended by teachers. The introduction of various subjects through English study would begin with less complicated matters and advance further once proficiency in English is achieved.

Moreover, making it bilingual, i.e., presenting the material in Bengali and English, would assist in making this transition smoother for the students and allow them to understand difficult concepts without hindrance due to the language barrier itself (Hossain, 2019). However, technology, with its genesis in engineering studies and utilization of engineering terminology, along with language facilities, would be of great use in helping those students succeed.

5.4 Integration of Technology

Indeed, it is an irrefutable fact that technology has a vital role to play in advancing English learning skills. Online resources, including e-learning platforms, online resources, and AI-enabled learning technologies can greatly improve students' skills in languages related to technical disciplines. Online resources such as Coursera, edX, and Khan Academy provide an opportunity to acquire skills in technical courses as well as English simultaneously (Alam & Huque, 2021).

The application of digital technologies that enable interactive learning (such as applications for languages, grammar correction, or even online workshops) will make the study materials more interesting for the students. Targeted learning through the application of AI technologies will enable the development of personalized language learning according to the level of the students. Strategies that include the creation of resources for the students, especially those in engineering, will help them improve their language effectively using the advancement of technology.

5.5 Advocacy for Policy

Making a case at a federal level would ensure a proper climate regarding English language learning in institutions of higher learning. The government should explore possible ways that would help make educational institutions in this country significantly impact English language

learning positively to a great extent in a drastic manner (Sharma, 2021).

These might involve sponsoring language support services, sponsoring rewards for professional development opportunities, and forming partnership agreements with leading English language institutions for exchange and faculty development. In addition, the incorporation of English language competence assessment systems within the educational structure would also assist in evaluating the level of progress being made by the students and encourage them to develop their competencies (Mitu and Khatun, 2020). Anyone wishing to develop technical education within Bangladesh is required to develop comprehensive language policies that recognize English as a vital part of higher education and thereby enhance the entire educational system in Bangladesh.

Through the establishment of language assistance programs, faculty training, curriculum reform, technology adoption, and policy advocacy, Bangladesh can effectively tackle the challenges of conducting teaching in English in textile engineering education. This approach not only enhances students' language proficiency but also prepares them for successful careers in the increasingly interconnected world of textiles.

The implementation of English as a medium of instruction in technical education has already resulted in vast improvements in students' success and employability in many countries. Most case studies on best practices are from India, Malaysia, and South Africa, as well as activities from Bangladesh.

Case Studies: International Perspective

Technical education in English is quite established in India. A key area that represents this is that English is a major mode of instruction in institutions like the Indian Institutes of Technology and National Institutes of Technology. A key aspect emphasized by Sinha et al. (2019) that has a significant impact on the employability of candidates in the field of IT and engineering is the teaching of English, which has resulted in a high level of performance by the candidates on a global platform.

One of the major examples concerning the use of English in technical education is Malaysia. The "Language for the Future" plan has been adopted by the Malaysian government to promote the use of English in higher education. (Vaughan & Haskins, 2020). Universiti Malaya and institutions like these have developed plans that help upgrade English titles, apart from providing these students with essential technical knowledge. This has resulted in increased competence among these students to work in international environments.

Regarding the South African scenario, the inclusion of the English language in technical education is associated with the broader policy of increasing access to education at the higher education level for different sections of society. As follows from the Higher Education Act of 1997, colleges are required to include English programs so that students can be provided with the necessary skills in the language for their work, as stated by Jansen (2021). It is only because of our institutions such as the University of Cape Town that we have strengthened English language pathways for students with limited exposure to the language.

Best Practices from Bangladesh

Some initiatives have also been taken in Bangladesh to successfully integrate English at the level of textile engineering. One such instance is that of the Bangladesh University of Textile (BUTEX), which has recently introduced English as the medium of its engineering courses. In association with international universities, BUTEX has planned its courses in such a manner that, apart from training students in technical areas, it has also included learning English in its curriculum, which has increased student participation and employment after completion of courses.

It's another successful initiative that will see many more polytechnic institutions emerge in the following years, especially those focusing on teaching teachers (in English, I must add). These initiatives have managed to positively influence the confidence levels as well as language capabilities of these instructors, which indirectly

benefits students in their time at these learning institutions (Ahmed & Hossain, 2021).

Furthermore, industrial relations have been important for improving textile engineering English language proficiency. In support of the argument, for instance, by partnering with the textile industries at the local and global level, English language institutes have been training students on the international work environment for enhanced proficiency in the language and job preparedness (Rahman, 2020).

Comparative Examination

When comparing the situation in Bangladesh to other developing nations grappling with similar challenges, it is possible to identify areas of similarity and differences in opportunities. Other nations such as Bangladesh, India, Malaysia, and even South Africa have grappled with challenges such as having a language barrier and lacking expertise in English among students and teachers. However, these nations have formulated policies and provisions that play a crucial role in supporting technical education considering English.

Emphasis in India was placed on creating the top engineering universities while also making investment in language training programs mandatory for the students (Singh & Kumar, 2020). On the other hand, although there have been promising initiatives in Bangladesh, consistency in terms of scope remains limited compared to the overall umbrella model of India.

In a similar vein, the policy oversight in Malaysia was employed to show a conducive atmosphere that arose for the acquisition of English, an approach which is contrary to the less believable synchrony evidenced in Bangladesh (Tan & Tan, 2020). This Malaysian initiative of establishing collaboration with the world's established English-speaking universities has now emerged as a landmark to improve quality and size in technical education when compared to Bangladesh.

In South Africa, diversity and accommodation (of non-native English speakers) were recognized and used as a means to make the education

system more open. This is particularly true for disadvantaged students who are deprived of early exposure to English. The inclusion of such programs where one acquires language skills in addition to technical skills can also benefit Bangladesh.

The similarity that provides the connection between the different countries is that the requirement for an understanding of English is highly important for employability purposes in the international graduate recruitment context. Although Bangladesh has begun with the inclusion of English in its own engineering educational institutions, perhaps an environment similar to that in India or even Malaysia would be required to enhance the process." These specific conditions within the context of different nations play an important role in the effective achievement of the requirement of English usage in technical education. The international case study of the success of the situation in the context of India, Malaysia, and South Africa perfectly identifies successful strategic actions, whereas the success stories of Bangladesh highlight that the process is already underway.

The results from the critical review in the study have some remarkable implications. They are in terms of the imperative and complexities of integrating EMI in textile engineering programs in Bangladesh. The need for EMI was clear in terms of making these students globally competitive and enabling access to research or preparing them for the marketplace. The challenges in this form have pointed out the barriers or existing gaps.

Finding the Right Balance between Global and Local Needs

To a significant extent, the textile industry in Bangladesh has been globalized. It is expected that students graduating from the college are able to communicate effectively in English to interact with different foreign buyers, suppliers, and partners. It is dominated by the Bengali language in universities for different cultural and practical reasons, on the other hand. It is important to achieve a balance between. Neither of them

should cause complete disruption to the other. EMI can be facilitated with bilingual models also.

The ESP/EAP Framework as a Solution

The review makes it very clear that ESP and EAP support are necessary for EMI to function as a two-way language translation process. ESP makes sure that the vocabulary and abilities that students in textile engineering have for that specific field are used. EAP guarantees the acquisition of skills in academic tasks like reading publications, writing reports, and presenting research findings. The two will turn EMI into a tool rather than a barrier between the study language and the language of the subject.

Pedagogical and Institutional Readiness

A bottleneck and an important factor is teachers' readiness. While teachers are not trained to teach in an EMI environment, learning English would be nothing but cosmetic implementation and would not be functionally and effectively done. One important point would be implementation in work-related areas, like lab work and industry tie-ups, in which learning languages would lead to a reality.

Lessons from Other Settings

International experiences from Germany, Malaysia, and the Netherlands, among others, have demonstrated an extremely necessary process. It is required for policies and infrastructure to be effectively implemented, allowing EMI to be adopted. For such inclusion in Bangladesh, an environment is necessary to relate curriculum practices entailing a mixture of Technology and Linguistics.

Briefly, EMI in textile engineering is much more than a language-based innovation. In this case, the purpose is to respond to the growing problem of globalization. With the injection of ESP-related EMI in the textile sector, Bangladesh will attempt to make improvements in its knowledge base in the textile sector. It will also improve the prestige of research work done in universities.

6. Conclusion

The key findings, reflecting both global and local dynamics, stress the need to provide textile

engineering education in English in Bangladesh. Proficiency in English has come to play an increasingly important role in enhancing the overall educational structure of the country as it seeks to consolidate its position in the global textile and apparel industry. Clothing is a vital part of Bangladesh's economy and comprises a share of foreign exchange earnings and employment. As this industry becomes increasingly international, a workforce fluent in English is needed for effective communication with foreign partners, interpretation of technical documents, and execution of joint projects. In addition, local situations such as an unprepared technical workforce and the problems caused by the current medium of instruction further highlight the need for the inclusion of English in the textile engineering curriculum.

Providing education in textile engineering in English constitutes an educational quality issue, therefore making the educational process meet international standards when taught in English. This enhances the ability to have a glimpse into the progress made in technology and can develop a skill set that aligns with industry development. With Bangladeshi institutes adopting English education, the students will experience increased access to global research and literature as well as novel solutions that function as the basis for every learning success.

The long-term outlook for English proficiency and textile engineering education has major implications. Since graduates will be more competitive in both the local and international job market, they will find that they have more opportunities in their field as a result of increased proficiency in English. English-speaking people will be more prepared to participate in world-changing activities, which would develop technology in this industry, and, therefore, they would contribute to an increased position among potential innovation targets in textile engineering innovation in Bangladesh. Improved proficiency will also lead to international partnerships. They would know how to reach service providers, industry, and innovation clusters on a global scale. They would also be able to know where on this planet they

would meet like-minded people who share ambition and vision. It would result in a transfer of knowledge that would eventually develop practices and allow modern technology in the textile industry in Bangladesh.

There must be a collaborative effort between the government and other educational and industry stakeholders to take advantage of these opportunities. The government has to launch the process of dealing with the broad aspect of language education policy to support English as the medium of instruction in technical subjects. This can be accomplished by devoting energy to the training of tutors, enhancing programs to help students with their languages, and establishing a system of grading to monitor students' progression. Over the years, institutions must enrich their training programs and offer more study options in terms of studying foreign languages with the help of technology.

In addition, the whole industry has quite a lot to do in collaborating with educational institutions of education in creating and designing internships and scholarships to improve English skills. It helps in bridging the gap between scholars and the world market, and it ensures that scholars receive training in accordance with challenges and skills in accordance with the requirements of the market.

To sum up, the incorporation of English into textile engineering education is not only a strategic response to the demands of the global market but also an imperative move towards enhancing educational quality and student employability in Bangladesh. Through this transition and by employing proactive measures to enable it, stakeholders could potentially

stimulate a more adept workforce, spur innovation, and lay the groundwork for the perennial sustainability of Bangladesh in the global textile value chain.

Future Research Directions

English Medium Instruction (EMI) in textile engineering education in Bangladesh is a multifaceted area of research and much remains unexplored. Future research should turn beyond policy analysis. It can capture classroom realities. How students and teachers navigate technical content in English is a crucial aspect. Strategies that balance subject knowledge with language support may also be investigated. Longitudinal studies of graduates can be performed in relation to EMI proficiency, employability, and international collaboration. Studies across regions of South Asia can be conducted to highlight similarities and differences in EMI adoption. Yet another area is experimental work on ESP/EAP-based curriculum design. It can try to identify effective ways to integrate technical vocabulary and disciplinary literacy. Closer attention to teacher identity and training is also necessary to clarify how educators adapt to their dual role as content experts and language facilitators. Finally, studies on digital and multimodal resources are another vast area. Hence, online platforms, simulations, and blended learning can uncover innovative approaches to making EMI more inclusive, ensuring it strengthens both technical education and human potential.

7. Author Declaration

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