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RESEARCH PAPER

English for Specific Purposes in Bangladeshi Engineering and Medical Education: A Needs Analysis

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ABSTRACT

This study identifies the English language needs of undergraduate engineering and medical students in Bangladesh, focusing on the written academic and professional genres required by national regulatory frameworks. Both programmes use English for instruction and assessment, yet most students enter from Bangla-medium schooling. Existing English provision is often generic, and discipline-specific needs remain under-researched. This qualitative needs analysis combines document analysis of the BAETE accreditation manual and BMDC MBBS curriculum, a synthesis of published genre analyses, and a review of empirical studies of Bangladeshi students' English. The frameworks require written reports, clinical records, and engagement with research literature, yet neither specifies English instruction. The MBBS course structure includes no English course. Published studies report substantial difficulties with disciplinary English and generic, inadequate English courses. Students' disciplinary genre writing remains largely unexamined. Institutions should introduce genre-based ESP courses built around these genres. Regulators should also specify how communication outcomes are assessed.

KEYWORDS English for Specific Purposes, Needs Analysis, Genre Analysis, Engineering and Medical Education, Bangladesh

Introduction

The status of English in Bangladesh is ambiguous. It is the only state language mentioned in Article 3 of the 1972 Constitution and due to the drive for promoting Bangla in public life since the independence of Bangladesh, the functional status of English in national life has been decreasing (Hamid &Erling, 2016). However, English continues to be the language of access to higher education, international scholarship and career advancement. English is considered as a tool to build a knowledge-based society and it is prescribed as a compulsory subject in all the streams in the National Education Policy 2010 (Ministry of Education, 2010). The conflict between the national language ideology and the global need for English has suggested that the English language education in the country has been affected for five decades (Hamid &Erling, 2016; Rahman & Pandian, 2018b).

No one is more affected by this than the engineering and medical professions. English is the primary language in textbooks, lectures, exams, lab notes and research in both fields. According to the medical undergraduate curriculum published by Bangladesh Medical and Dental Council, the medium of instruction for the medical undergraduate program is English and the curriculum was updated as a competency-based curriculum for students enrolled in the 2021-2022 session (Bangladesh Medical and Dental Council [BMDC], 2021). The Board of Accreditation for Engineering and Technical

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Education (BAETE, 2019) requires outcome-based education in engineering programmes awarded accreditation, and requires that the programmes demonstrate the attainment of twelve defined attributes, such as the ability for engineers to communicate effectively in reports, design documentation and presentations on complex engineering activities. Disciplinary English is thus expected from students in both fields from their first year, where they will read, write and eventually publish. However, the majority of these students come from Bangla-medium secondary schools where English is a general school subject. Results from 30 years of research indicate that secondary English instruction is mostly examination-oriented, grammar-oriented, and poorly communicative (Hamid & Baldauf, 2008; Rahman et al., 2019; Rahman & Pandian, 2018a). This shift to English-medium higher education therefore presents a significant language divide, as observed in the universities in Bangladesh, especially in private universities where English is the medium of instruction (Hamid et al., 2013; Rahman & Hu, 2025). Global studies on English-medium instruction (EMI) also reveal that content teachers usually do not intervene in the students' language issues, which they believe will be picked up as a by-product of the content taught (Dearden, 2014; Macaro et al., 2018).

The gap is answered by English for Specific Purposes (ESP). ESP is not general English; it is teaching what Dudley-Evans and St John (1998), and Hutchinson and Waters (1987) call the communicative needs of the target situation(s) of the learner. It is based on needs analysis, which is the systematic process of identifying learners' needs in English and what they need to learn to acquire (Brown, 2016; Long, 2005). However, very little research work has been done in Bangladesh on tertiary English provision for engineering and medical students, and the available studies are mostly based on questionnaires and proficiency tests but not on the genres that students have to produce (Hossain et al., 2010; Rahman & Jelane, 2021). Existing studies on ELT in Bangladesh have focused mainly on primary and secondary CLT projects, language policy, and attitudes towards EMI, and needs analysis of disciplinary communication based on texts has been limited.

This study fills in that gap. It performs a qualitative needs analysis of English in Bangladeshi engineering and medical education based on three types of evidence: the national regulatory documents that specify the abilities of the graduates of this educational system; published genre analyses that outline the norms of the types of texts the regulatory documents call for; and published empirical studies of Bangladeshi students' English. In particular, the study investigates the English genres and communicative tasks that the regulatory requirements of engineering and medical education call for, the rhetorical and linguistic conventions that these genres and communicative tasks require, what is known about how well students are able to meet these demands, and how well the provision meets the demands identified. The study provides evidence, based on regulatory documents and disciplinary genres, rather than stakeholder opinion, for the development of discipline-specific ESP courses in Bangladesh, and a replicable model of document-based needs analysis for similar EMI contexts in South Asia.

Literature Review

Needs analysis in English for Specific Purposes

Since the inception of ESP in the 1960s, needs analysis has been an integral part of the field. In 1978 Munby presented his Communication Needs Processor which was the first systematic model, which detailed a learner's target communicative events as an

external process to the learner, and which ignored the conditions of learning. Hutchinson and Waters (1987) countered this with a distinction between target needs, which they had divided into necessities, lacks, and wants, and learning needs, which they felt must be addressed by a course by taking into consideration what a learner has to do and how he or she can learn to do it. All these developments were synthesized by West (1994), who demonstrated the expansion of the scope of needs analysis from target situation analysis to deficiency, strategy and means analysis.

Recent studies have been aimed at methodological rigour. Long (2005) stated that many needs analyses had been based on self-report of learners, and suggested that it is useful to use more than one source or method, such as expert informants, documents and analysis of authentic texts. Serafini et al. (2015) conducted a review of published needs analyses and noted that many of these were still unclear in their methodological transactions, suggesting greater sampling, triangulation, and reporting. Over the years, Brown (2016) and Basturkmen (2010) have developed a more comprehensive view of the needs analysis as a continuous process which shapes all aspects of course design, from objectives to course materials to assessment.

This methodological shift has also come with the question of the specificity of ESP. General study skills courses, however, are not well equipped for developing students' disciplinary literacy, as the conventions of academic writing in different disciplines are very different, Hyland (2002) noted. Belcher (2006) highlighted that ESP should respond to the perceived needs and envisioned professional futures of learners, and L. Flowerdew (2013) pointed out that text analysis has emerged as an important component of needs analysis since texts contain observable evidence of the products that learners must create.

Genre analysis as evidence of target needs

Swales's (1990) genre approach provided the analytical tool that made text-based needs analysis possible. Swales defined a genre as a class of communicative events sharing a set of communicative purposes recognised by a discourse community, and he introduced move analysis to describe how texts realise those purposes through sequences of rhetorical moves and steps. His Create a Research Space (CARS) model of research article introductions, consisting of establishing a territory, establishing a niche, and occupying the niche, has been applied and extended across disciplines (Swales, 2004). Bhatia (1993) extended genre analysis to professional settings, showing how legal and promotional genres follow conventions shaped by their professional communities.

Genre research has produced detailed descriptions of the texts engineering and medical students must master. In medicine, Nwogu (1997) identified a sequence of moves across the sections of medical research papers, while Salager-Meyer (1994) showed that hedging varies systematically across medical genres and rhetorical sections. Taavitsainen and Pahta (2000) traced the historical development of the medical case report, demonstrating how its conventions reflect changing norms of clinical reasoning and professional communication. Ferguson (2013) reviewed English for medical purposes and concluded that medical students need both academic literacy for reading and writing research and professional literacy for clinical documentation.

Research articles, in engineering and the physical sciences, also exhibit variations of the Introduction–Methods–Results–Discussion (IMRD) structure, which is also discipline-specific. Kanoksilapatham (2005) identified the rhetorical structure of

biochemistry research papers and Posteguillo (1999) discovered that computer science research papers show significant differences from the standard IMRD structure, thus requiring analysis for each discipline in particular. Hyland (2004) demonstrated that the use of citation, hedging and self-mention varies with discipline and related to the epistemology of each. Kassim and Ali (2010) also revealed that in the context of students' future life, engineering employers in Malaysia showed specific interest in oral communicative activities like meetings and presentations that engineering ESP should focus on. In methodology, Moreno and Swales (2018) have worked out the details of the move analysis: how to identify moves and how to connect rhetorical functions with linguistic forms.

Student writing and the thesis genre

The undergraduate project report (or thesis) can be the most difficult extended piece of disciplinary writing produced by students and is a link between the student and expert genres. Paltridge (2002) noted several different types of theses (traditional IMRD and topic-based) and detected a lot of disconnections between thesis-writing guidance and actual writing. Samraj (2008) compared master's thesis introductions across disciplines and noted that they showed differences in the moves and citations, which are indicative of the norms of their respective disciplines. Bunton (2005) demonstrated that the structure of thesis conclusion chapters varies from one discipline to another, with some science and technology theses addressing only the study itself, and not broader implications.

Second language writers' research shows that a specific rhetorical move is difficult for students to master. New writers often do not identify a research gap, do not summarize previous research, but rather critique the work, and do not interpret the findings sufficiently to present them (Swales & Feak, 2012). J. Flowerdew (1999) discovered that the academics in Hong Kong had problems with discussion sections, hedging, and the less formulaic sections of the research article. The rhetorical conventions of these genres have been made explicit in genre-based pedagogy as a method that has been demonstrated to facilitate L2 writers' awareness and control of genre (Cheng, 2006; Hyland, 2007).

English language education and EMI in Bangladesh

The study of English in Bangladesh has been mostly focused on primary and secondary schools. Hamid and Baldauf (2008) have raised doubts about the capacity of CLT to save an ELT system that suffers from inconsistent policy, and the following studies have revealed the continuing challenges such as inadequately trained teachers, large class sizes, examination-oriented teaching, and the gap between communicative curriculum plans and classroom practice (Rahman et al., 2019; Rahman & Pandian, 2018a). Hamid (2010) referred to weak teacher capacity as a consequence of policy discourses of "English for everyone" which were accompanied by no investment, whereas Hamid and Erling (2016) claimed that the changes in the political priorities have resulted in inconsistent English-in-education policy. Rahman and Pandian (2018b) described the overall situation in LEP as unplanned and fragmented.

The tertiary level has been the focus of research mainly concerning EMI. However, a study by Hamid et al. (2013) showed that there was a mismatch between the actual practices of the teachers and students of the private Bangladeshi University and the university policy of using English as its medium of instruction indicating the

dichotomy between the ideology and practice. According to Rahman and Hu 2025, the rise of English-medium instruction in private higher education has been fuelled by the forces of the market, not coherent language planning. There are very few studies that have focused specifically on engineering and health science students. For this reason, Rahman and Jelane (2021) conducted a survey of engineering students and English teachers to identify those students who didn't get proper attention in the existing English courses. The medical students in Hossain et al. (2010) demonstrated a lack of the use of English in their medical studies, while Williams et al. (2024) reported that English in public midwifery programmes was not tailored and not medical English. These studies report actual challenges, but consider perceptions, proficiency, and provision, not necessarily texts students are required to read and write.

According to the literature, there are three gaps. First, there has been a focus on attitudes at the school level in Bangladeshi ELT, and the tertiary English needs have not been studied in detail. Secondly, in those instances in which tertiary needs have been discussed, these have been based on perceptions, rather than on the regulatory and disciplinary texts that define the products students are expected to produce, as noted by Long (2005) and Serafini et al. (2015) in their examination of research on needs analysis. Thirdly, no research has been carried out that has related the communication outcomes, required by the engineering and medical regulators, with their genre conventions and with the existing evidence of students' English. The present study aims to fill these gaps by conducting a multi-source needs analysis of engineering and medical English in Bangladesh using text-based approach.

Conceptual and Theoretical Framework

Theoretical foundation: genre theory and disciplinary literacy

The present study is based on genre theory elaborated in the ESP tradition. Swales (1990) theorised genres as communicative events that belong to discourse communities, Share a broadly agreed public goal, mechanisms of intercommunication, and specialised lexis and genres. According to this perspective, the research article is not the neutralish container for content, nor is the case report, the design document, or the medical record. They are socially recognised practices by which communities of knowledge build, validate and enact their knowledge. This view was expanded by Bhatia (1993) who demonstrated that experts in a professional community use conventions in more strategic ways than novices do, and that novices have to learn the conventions first.

The idea that learning disciplinary English is socialisation into a community's discursive practices rather than mere grammar and vocabulary suggests this point. The argument proposed by Hyland (2004) is that disciplines form knowledge through a different process, and therefore make different rhetorical choices valued within medicine as compared to those valued within engineering. If students are not familiar with these conventions, their general English proficiency level doesn't matter - they are at a disadvantage. Therefore, genre theory provides the basis for two assumptions that are at the heart of this study: First, the target needs of engineering and medical students were identified by examining the genres that are needed by the education and regulatory bodies for these disciplines; and second, when these needs are compared to the evidence of the students' current competences, it is possible to determine what students need to learn.

Conceptual framework: target, present, and learning situation analysis

The study is based on the needs analysis model of Dudley-Evans and St John (1998), which combines the previous models into three interconnected components. Target Situation Analysis (TSA) is used to determine the tasks, genres and language in which the learner will be required to function in their academic or career environment, which are what Hutchinson and Waters (1987) termed necessities. Present Situation Analysis (PSA) describes learners' present skills, while the comparison of the present and target situation shows the learners' lack. Learning Situation Analysis (LSA) focuses on the situation in which learning takes place, the resources available to do so, and the learning provision, such as learning curricula, learning materials and institutional constraints. Table 1 shows how each component is operationalised.

Table 1
Operationalisation of the needs analysis framework

Framework component	Guiding question	Evidence source	Analytical method
Target Situation Analysis	Which genres and tasks must students handle in English, and what do they demand?	Regulatory documents; published genre analyses	Document analysis (Bowen, 2009); genre synthesis
Present Situation Analysis	What is known about students' ability to meet these demands?	Published empirical studies of Bangladeshi students	Integrative review (Grant & Booth, 2009)
Learning Situation Analysis	What English provision do the frameworks specify?	Regulatory documents; published studies of provision	Document analysis; integrative review

The three components are analysed separately and then integrated. A need is considered unmet when a genre or communicative task is required by the regulatory frameworks, when published evidence indicates that students struggle with it or when no evidence of students' competence exists, and when existing provision does not address it. This triangulated logic responds directly to Long's (2005) call for multiple sources and methods in needs analysis.

The framework also accommodates the distinction between shared and discipline-specific needs. Following Hyland's (2002) argument for specificity, engineering and medical requirements are analysed separately before their findings are compared. Needs common to both fields, such as reading research literature or hedging claims, indicate a shared English for Academic Purposes core, while needs unique to one field, such as design documentation or clinical records, indicate discipline-specific ESP content. The framework therefore links evidence directly to course design decisions.

Material and Methods

Research design

This qualitative needs analysis employs three methods. Document analysis examines the national regulatory curricula and accreditation criteria that govern engineering and medical education. Genre analysis draws on published move-analytic research to profile the conventions of the genres these documents require, such as research articles, clinical case reports, and project reports. Published empirical studies of Bangladeshi students' English are then reviewed to establish what is known about students' present abilities. The findings are mapped onto Dudley-Evans and St John's (1998) Target, Present, and Learning Situation Analysis framework.

The study adopts an interpretivist stance, treating texts as social artefacts whose conventions reflect the practices of disciplinary communities (Swales, 1990). Because every source is publicly available, the design avoids reliance on new self-reported perceptions, a limitation frequently noted in needs analysis research (Long, 2005; Serafini et al., 2015), and allows the analysis to be checked and replicated.

Data sources and selection

Table 2
Sources analysed

Evidence strand	Sources	Role in the analysis
Regulatory documents	BAETE (2019) accreditation criteria; BMDC (2021) MBBS curriculum, course-level sections; National Education Policy 2010 as context	Define required genres and tasks; reveal specified English provision
Published genre analyses	Swales (1990, 2004); Nwogu (1997); Salager-Meyer (1994); Taavitsainen and Pahta (2000); Kanoksilapatham (2005); Posteguillo (1999); Hyland (1998, 2004); Paltridge (2002); Samraj (2008); Bunton (2005); Kassim and Ali (2010)	Describe the conventions of the required genres
Empirical studies of Bangladeshi students	Hossain et al. (2010); Rahman and Jelane (2021); Williams et al. (2024); Hamid et al. (2013)	Establish present abilities and existing provision

Regulatory documents. The documentary corpus comprises the two national frameworks that define graduate outcomes for the programmes studied. For engineering, the accreditation criteria of BAETE (2019) were analysed, including its twelve graduate attributes, knowledge profile, and curriculum requirements. For medicine, the course-level sections of the MBBS curriculum (BMDC, 2021) were analysed, including its objectives, learning outcomes, course structure, assessment regulations, and generic medical humanities topics. The National Education Policy 2010 (Ministry of Education, 2010) was consulted as context. These documents were selected because they are binding on all accredited engineering programmes and all medical colleges respectively, so they define the target situation for the whole national cohort rather than for a single institution.

Published genre analyses. Studies describing the rhetorical structure and linguistic features of the genres named in the regulatory documents were selected purposively. Inclusion required that a study analyse authentic texts in medicine, engineering, or the natural sciences, or in the student thesis genre, using move analysis or a comparable genre-analytic method. Foundational and widely cited studies were prioritised because their descriptions have been tested in subsequent research.

Empirical studies of Bangladeshi students' English. Studies were identified through searches of Google Scholar, Bangladesh Journals Online (BanglaJOL), and publisher databases, using combinations of the terms *Bangladesh*, *English*, *engineering students*, *medical students*, *needs analysis*, and *English-medium instruction*. Inclusion required that a study report original empirical data on the English language abilities, difficulties, or English provision of Bangladeshi tertiary students in engineering, medicine, or an allied health field. Following Grant and Booth's (2009) typology, this component is an integrative review rather than a systematic review: its aim is to assemble the best available evidence on the present situation, not to produce an exhaustive count of studies.

Analytical procedures

Document analysis. The regulatory documents were analysed through qualitative content analysis following Bowen's (2009) iterative process of skimming, thorough reading, and interpretation. Each clause referring to communication, language, literacy, records, reports, presentations, or research literature was extracted and coded for the genre or communicative task it required, the mode (written or spoken), and any specification of how the outcome was to be taught or assessed. The course structure and assessment regulations were examined for English language provision and for the forms of written performance on which students are assessed.

Genre synthesis. For each genre identified in the documents, published genre analyses were synthesised to describe its typical move structure and the linguistic features associated with its moves, particularly hedging (Hyland, 1998), citation practices (Hyland, 2004), and the distinction between formulaic and argumentative sections. The resulting genre profiles formed the Target Situation Analysis.

Review of present-situation evidence. Each empirical study was summarised for its participants, methods, and principal findings on students' English and on English provision. Findings were then coded against the genres and tasks identified in the target situation, so that each target need could be matched with the available evidence of students' abilities, or with the absence of such evidence.

Integration. Findings from the three strands were integrated in a needs matrix. Engineering and medical findings were compared to distinguish shared from discipline-specific needs.

Trustworthiness

The criterion of trustworthiness was dealt with in relation to Lincoln and Guba (1985). Credibility was bolstered by the triplication of three independent sets of evidence and by the efforts to connect each regulatory comment that was made to specific clauses, attributes or regulations that readers could check in the public documents. The dependability and confirmability were enhanced by having clear selection of the candidates as well as having a detailed report of analysis procedure for replication. Transferability was facilitated by providing a detailed description of the regulatory context so that readers in other EMI systems were able to make their own assessment of relevance of the findings. Because the author was a university teacher in Bangladesh, he was able to provide contextual knowledge; the claims in regard to students' abilities were kept within the boundaries of what has been reported in publications.

Ethical considerations

This study analysed only publicly available documents and published research and did not involve human participants or personal data. Formal ethical approval was therefore not required. All sources are cited in full.

Results and Discussion

Learning situation: what the regulatory frameworks require and provide

The engineering framework treats communication as a core graduate outcome but leaves its language unstated. BAETE (2019) requires every accredited programme to

demonstrate twelve graduate attributes. One of these requires graduates to communicate effectively on complex engineering activities, which the manual specifies as comprehending and writing effective reports and design documentation, making effective presentations, and giving and receiving clear instructions. Another requires graduates to identify and analyse complex problems using research literature, and the knowledge profile includes engagement with the research literature of the discipline. Programmes are expected to show the culmination of their outcomes, preferably through a final-year design or capstone project extending over a year. Yet the criteria nowhere name English, specify a language course, or describe how communication should be taught. They require only an adequate number of humanities and non-engineering courses, leaving English provision entirely to individual institutions.

The medical framework makes English the medium of instruction but provides no English course. The MBBS curriculum (BMDC, 2021) states that the medium of instruction is English and that entry requires a science-stream Higher Secondary Certificate; it sets no separate English language requirement. Its course structure lists the subjects of each of the four phases, and none is an English language course. Communication appears as one of sixteen generic medical humanities topics, taught in the second phase alongside the doctor–patient relationship and bedside manner, with each humanities session lasting one and a half hours. The curriculum's written demands are, however, considerable. Its objectives require graduates to communicate clinical information accurately and concisely, both by word of mouth and in writing, to colleagues and other professionals. Its learning outcomes require graduates to record accurate medical histories, keep accurate, legible, and complete medical records, communicate by spoken, written, and electronic methods, and critically appraise studies reported in the medical literature. Its appendices set out the outline of a prescription and of medical and fitness certificates. Assessment is also heavily written: short-answer and structured essay questions carry 70 percent of the marks in each written paper, and students submit written summaries of integrated teaching sessions.

Both frameworks, then, treat English as an assumed medium rather than a taught competence. They define communicative outcomes precisely but are silent on the language through which those outcomes are achieved. This pattern reflects the common-core assumption that Hyland (2002) critiqued, the belief that general language ability transfers automatically to disciplinary communication. It also mirrors the wider pattern in Bangladeshi English education, in which policy aspirations are not matched by planned implementation (Hamid, 2010; Rahman & Pandian, 2018b), and the international EMI pattern in which content teaching proceeds on the assumption that language will look after itself (Dearden, 2014; Macaro et al., 2018).

Target situation: the genres required and their conventions

Read together, the two frameworks define a clear set of target genres (Table 3). Some are academic: research articles that students must read and appraise, project reports and theses, and written examination answers. Others are professional: engineering design documentation and technical reports, and clinical records, referral communication, prescriptions, and certificates. Both fields also require oral genres, notably presentations, and instructions in engineering.

Table 3
Target genres and tasks required by the regulatory frameworks

Field	Genre or task	Regulatory basis	Mode
Engineering	Technical reports and design documentation	BAETE graduate attribute on communication	Written
Engineering	Presentations; giving and receiving instructions	BAETE graduate attribute on communication	Spoken
Engineering	Reading and analysing research literature	BAETE attribute on problem analysis; knowledge profile	Written (reading)
Engineering	Final-year design or capstone project report	BAETE curriculum criterion	Written
Medicine	Medical histories and medical records	BMDC learning outcomes on consultation and health informatics	Written
Medicine	Clinical information to colleagues (e.g., referrals)	BMDC course objectives	Written and spoken
Medicine	Prescriptions; medical and fitness certificates	BMDC curriculum appendices	Written
Medicine	Critical appraisal of published studies	BMDC learning outcome on critical appraisal	Written (reading)
Medicine	Examination answers; session summaries	BMDC assessment regulations; integrated teaching	Written

Published genre analyses show that these genres make two different kinds of demand. The first is control of formulaic, highly conventionalised structure. Clinical records, prescriptions, and certificates follow fixed templates, and the methods sections of medical research articles report study design, participants, ethical approval, and statistical procedures in a tightly conventionalised order (Nwogu, 1997). The medical case report also presents a familiar pattern of significance, history, findings, investigations, management, outcome, and literature, which are the conventions that emerge in parallel with norms of clinical reasoning (Taavitsainen&Pahta, 2000).

The second demand is rhetorical – the ability to build and assess arguments. In discussion sections, the research article writer must interpret the results, compare them to other studies, and qualify his or her claims (Swales, 1990, 2004), and in research article introductions, the writer must establish a territory, find a niche, and occupy it (Swales, 1990, 2004). These moves are realised in different ways in disciplines. In biochemistry, articles are generally structured in a familiar sequence of IMRD (Kanoksilapatham, 2005) while computer science articles tend to deviate from that sequence (Posteguillo, 1999). Expert writers make interpretative claims by using systematic hedges (Hyland, 1998; Salager-Meyer, 1994) and, in the hard disciplines, favouring citation forms that highlight findings more than the individual researcher (Hyland, 2004). In addition, student project reports and theses present further demands such as explaining the value of a study and developing student conclusions in different subject areas (Bunton, 2005; Paltridge, 2002; Samraj, 2008). This argumentative requirement is also present in engineering design documentation, as it needs to explain and defend design decisions based on the requirements. The focus of the regulatory elements on presentations and instructions is aligned with the findings of the workplace studies, which indicate that oral communicative events are highly valued in the engineering work (Kassim& Ali, 2010).

Present situation: what is known about students' English

Where evidence from Bangladesh exists, it is consistent in showing that there is a significant mismatch between these requirements and learners' capabilities. Hossain et al. (2010) evaluated 191 third year medical students from two government and one private medical college with regard to English used in the study of anatomy. In sum, on

average, only approximately 48 percent was correct, with three-quarters of the students in the two middle difficulty bands on a five-band scale and difficulty with Latin and Greek-derived terms reported. Systematic instruction based on the principles of terminology was recommended by the authors instead of instruction on individual words. Rahman and Jelane (2021), surveying 99 engineering students and 15 English teachers across several universities, found that students needed all four skills, that existing English courses did not adequately address these needs, and that the number and duration of English classes were insufficient.

Evidence from allied health education points in the same direction. Williams et al. (2024) found that English in public midwifery diploma programmes was taught mainly by guest lecturers trained in general or business English, without a standardised curriculum, and with no content tailored to healthcare. The one ESP programme they identified, developed for midwifery students, was regarded as the most promising model. More broadly, Hamid et al. (2013) showed that English-medium policy in Bangladeshi higher education is not consistently matched by English-medium practice, which suggests that students' exposure to disciplinary English may be lower than institutional policy implies.

The most striking finding, however, is an absence. None of the Bangladeshi studies reviewed analysed the disciplinary genres students actually write: their reports, design documents, case write-ups, or clinical records. Evidence on students' rhetorical control must therefore be drawn from international research, which consistently shows that second language writers find the less formulaic, argumentative parts of academic genres most difficult. Novice writers often fail to establish a research niche, summarise rather than evaluate previous work, and present results without interpreting them (Swales & Feak, 2012), while even experienced second language academics report particular difficulty with discussion sections and hedging (J. Flowerdew, 1999). Whether Bangladeshi engineering and medical students share these difficulties, and to what degree, has not yet been established empirically.

Integration: shared and discipline-specific needs

Integrating the three strands identifies the needs summarised in Table 4. Each need is required by at least one regulatory framework, is either shown by published evidence to be difficult for students or has not been examined at all, and is not addressed by any specified English provision.

Table 4
Needs matrix: shared and discipline-specific English needs

Need	Type	Target situation	Present situation	Learning situation
Disciplinary terminology	Shared; acute in medicine	Records, reports, and examinations in English	Widespread difficulty in anatomy English (Hossain et al., 2010)	No English course in MBBS structure
Reading and appraising research literature	Shared	BAETE knowledge profile; BMDC critical appraisal outcome	Reading needs reported (Rahman &Jelane, 2021); appraisal not studied	Not specified
Research argumentation: niche, interpretation, hedging, citation	Shared	Project reports and research-based outcomes	Not studied in Bangladesh; documented difficulty for L2 writers internationally	Not specified

Reports and design documentation	Engineering	BAETE communication attribute	Courses judged inadequate (Rahman &Jelane, 2021)	Left to institutions
Presentations and instructions	Engineering	BAETE communication attribute	Speaking needs reported (Rahman &Jelane, 2021)	Left to institutions
Clinical records, referrals, prescriptions, certificates	Medicine	BMDC objectives, outcomes, and appendices	Not studied	One generic communication topic

These findings support three broader conclusions. First, the needs are both terminological and rhetorical. Medical students' documented difficulty with disciplinary terminology (Hossain et al., 2010) sits alongside the rhetorical demands of research reading, report writing, and clinical documentation that the frameworks require. Current provision, where it exists, focuses on general skills, yet the clearest demands lie in disciplinary vocabulary and in the ability to construct, justify, and qualify arguments. This confirms the value of a genre-based approach (Cheng, 2006; Hyland, 2007), which makes the conventions of target genres explicit.

Second, the findings support a two-tier model of provision. Shared needs, such as reading and appraising research literature, structuring arguments, hedging, and citation, could form a common English for Academic Purposes core for both disciplines. Discipline-specific needs, such as engineering design documentation and clinical records, referrals, and case reports, require specialised ESP modules developed with subject specialists. This model reconciles Hyland's (2002) argument for specificity with the practical constraints of institutions that lack specialised ESP staff, and it is consistent with the promise that Williams et al. (2024) found in a discipline-specific programme for health students.

Third, the findings extend Bangladeshi ELT research beyond its focus on school-level CLT and EMI attitudes (Hamid et al., 2013; MRahman et al., 2019). They show that the gap between policy aspiration and implementation documented at the school level is reproduced in the regulation of professional education, where communicative outcomes are mandated but their linguistic basis is left unaddressed. They also show that regulatory documents, read alongside genre research, can yield concrete and verifiable evidence of needs, complementing perception-based studies (Long, 2005; Serafini et al., 2015).

Conclusion

This study has applied a needs analysis of English in Bangladesh context by conducting a text-based needs analysis of English in engineering and medical education in Bangladesh. It has found a significant mismatch between the disciplines required and what is being currently provided based on the analysis of national regulatory frameworks, synthesis of published genre research, and review of empirical studies with Bangladeshi students. The frameworks ask the graduates to write reports, design documentation, clinical records, communicate with the referral, read and appraise research literature, and present and instruct, but there is no specification of English in the frameworks and no English course in the MBBS course structure. The empirical evidence is still limited, and it suggests that students face problems in taking disciplinary English, and that the current English courses are generic and inadequate.

The study has three contributions: It provides empirical evidences of tertiary disciplinary English needs in Bangladesh which is not much explored. In terms of

method, it illustrates ways in which regulation documents and published genre studies may be used to carry out a systematic and replicable needs analysis without relying on self report. In practice, it provides a practical foundation for the design of an ESP course which meets the outcomes already mandated for institutions.

The study has limitations. It relies on published documents and studies, and the number of empirical studies of Bangladeshi engineering and medical students' English is small. The analysis of the MBBS curriculum was limited to its course-level sections, and subject-specific chapters may contain further communication requirements. Most importantly, no published study has analysed the disciplinary genres Bangladeshi students actually write, so the present-situation evidence on rhetorical ability is indirect. Future research should build corpora of students' reports, theses, and clinical write-ups and compare them with expert texts, examine oral communication in classrooms and workplaces, incorporate learners' own wants, and evaluate genre-based ESP courses designed from these findings.

Recommendations

The universities and medical colleges should provide genre-based ESP courses instead of or along with the existing generic foundation course in English for students based on the genres that are already included in their study programs for students in these institutions. The most effective structure will be a two-level structure. Language needs shared by both disciplines could be addressed through a shared core for English for Academic Purposes that includes reading and appraising research literature, structuring arguments, hedging claims, and integrating citations. Discipline-specific modules would then cover engineering reports and design documentation, while clinical records, referrals and case reports would be covered in the other.

In medical education, the terminology of the disciplines needs systematic consideration. Once again, instead of providing a list of words to learn, instruction should help students learn the principles of word formation with emphasis on the Latin and Greek roots that are common to many medical terms, and then the students learn how to understand the meaning of new words without depending on their teacher.

The provision of effective ESP is also reliant on the providers of the ESP. Administrative responsibility for curriculum planning and assessment of discipline writing should be shared, when discipline teachers and English teachers planning and assessing together, the language learning remains in the authentic writing practice and not rely on general academic writing. English teachers, meanwhile, should be trained in ESP and genre-based pedagogy, as are few teachers of English trained to teach the conventions of engineering or medical genres.

Last, but not least, the regulatory bodies have a role to play. A more explicit goal of the teaching and assessment of communication outcomes should be considered for both BAETE and BMDC, in addition to including it as a graduate attribute and learning outcome. Greater clarity of regulatory requirements on this would provide institutions with the mandate and incentive to consider English as a taught competence and not an assumed medium.

Declarations

Conflicting Interests

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Ethical Considerations

No human subjects or personal information was used in this study. It is based exclusively on published books that are accessible to the public (and publisher descriptions and epitexts) cited in the references. Ethical approval was not necessary.

AI Use Statement

Generative AI (ChatGpt and Grammarly) was used for language editing and condensing text. It was not used for the data collection, coding the corpus and drawing findings. All text generated by AI is reviewed and edited by the author, and the author is responsible for the article's content.

Data Availability Statement

The data analysed are all published data, as mentioned in the references. The 39 corpus books are listed verifying, with the verification sources. The coding frame and coded dataset are available on reasonable request from the author.

References

Bangladesh Medical and Dental Council. (2021). *MBBS curriculum 2021: Curriculum for undergraduate medical education in Bangladesh – updated 2020*. BM&DC.

Basturkmen, H. (2010). *Developing courses in English for specific purposes*. Palgrave Macmillan.

Belcher, D. D. (2006). English for specific purposes: Teaching to perceived needs and imagined futures in worlds of work, study, and everyday life. *TESOL Quarterly, 40*(1), 133–156.

Bhatia, V. K. (1993). *Analysing genre: Language use in professional settings*. Longman.

Board of Accreditation for Engineering and Technical Education. (2019). *Accreditation manual for undergraduate engineering programs* (2nd ed.). Institution of Engineers, Bangladesh.

Bowen, G. A. (2009). Document analysis as a qualitative research method. *Qualitative Research Journal, 9*(2), 27–40.

Brown, J. D. (2016). *Introducing needs analysis and English for specific purposes*. Routledge.

Bunton, D. (2005). The structure of PhD conclusion chapters. *Journal of English for Academic Purposes, 4*(3), 207–224.

Cheng, A. (2006). Understanding learners and learning in ESP genre-based writing instruction. *English for Specific Purposes, 25*(1), 76–89.

Dearden, J. (2014). *English as a medium of instruction: A growing global phenomenon*. British Council.

Dudley-Evans, T., & St John, M. J. (1998). *Developments in English for specific purposes: A multi-disciplinary approach*. Cambridge University Press.

Ferguson, G. (2013). English for medical purposes. In B. Paltridge& S. Starfield (Eds.), *The handbook of English for specific purposes* (pp. 243–261). Wiley-Blackwell.

Flowerdew, J. (1999). Problems in writing for scholarly publication in English: The case of Hong Kong. *Journal of Second Language Writing, 8*(3), 243–264.

Flowerdew, L. (2013). Needs analysis and curriculum development in ESP. In B. Paltridge& S. Starfield (Eds.), *The handbook of English for specific purposes* (pp. 325–346). Wiley-Blackwell.

Grant, M. J., & Booth, A. (2009). A typology of reviews: An analysis of 14 review types and associated methodologies. *Health Information and Libraries Journal, 26*(2), 91–108. https://doi.org/10.1111/j.1471-1842.2009.00848.x

Hamid, M. O. (2010). Globalisation, English for everyone and English teacher capacity: Language policy discourses and realities in Bangladesh. *Current Issues in Language Planning, 11*(4), 289–310. https://doi.org/10.1080/14664208.2011.532621

Hamid, M. O., &Baldauf, R. B., Jr. (2008). Will CLT bail out the bogged down ELT in Bangladesh? *English Today, 24*(3), 16–24.

Hamid, M. O., &Erling, E. J. (2016). English-in-education policy and planning in Bangladesh: A critical examination. In R. Kirkpatrick (Ed.), *English language education policy in Asia* (pp. 25–48). Springer.

Hamid, M. O., Jahan, I., & Islam, M. M. (2013). Medium of instruction policies and language practices, ideologies and institutional divides: Voices of teachers and students in a private university in Bangladesh. *Current Issues in Language Planning, 14*(1), 144–163. https://doi.org/10.1080/14664208.2013.771417

Hossain, S., Shamim, K. M., Shahana, N., Habib, M. A., & Rahman, A. (2010). Is English as a medium of instruction problem for undergraduate medical students? *Journal of Armed Forces Medical College, Bangladesh, 6*(2), 32–36. https://doi.org/10.3329/jafmc.v6i2.7272

Hutchinson, T., & Waters, A. (1987). *English for specific purposes: A learning-centred approach*. Cambridge University Press.

Hyland, K. (1998). *Hedging in scientific research articles*. John Benjamins.

Hyland, K. (2002). Specificity revisited: How far should we go now? *English for Specific Purposes, 21*(4), 385–395.

Hyland, K. (2004). *Disciplinary discourses: Social interactions in academic writing*. University of Michigan Press.

Hyland, K. (2007). Genre pedagogy: Language, literacy and L2 writing instruction. *Journal of Second Language Writing, 16*(3), 148–164.

Kanoksilapatham, B. (2005). Rhetorical structure of biochemistry research articles. *English for Specific Purposes, 24*(3), 269–292.

Kassim, H., & Ali, F. (2010). English communicative events and skills needed at the workplace: Feedback from the industry. *English for Specific Purposes, 29*(3), 168–182.

Lincoln, Y. S., & Guba, E. G. (1985). *Naturalistic inquiry*. Sage.

Long, M. H. (Ed.). (2005). *Second language needs analysis*. Cambridge University Press.

Macaro, E., Curle, S., Pun, J., An, J., &Dearden, J. (2018). A systematic review of English medium instruction in higher education. *Language Teaching, 51*(1), 36–76.

Ministry of Education. (2010). *National education policy 2010*. Government of the People's Republic of Bangladesh.

Moreno, A. I., & Swales, J. M. (2018). Strengthening move analysis methodology towards bridging the function-form gap. *English for Specific Purposes, 50*, 40–63.

Munby, J. (1978). *Communicative syllabus design*. Cambridge University Press.

Nwogu, K. N. (1997). The medical research paper: Structure and functions. *English for Specific Purposes, 16*(2), 119–138.

Paltridge, B. (2002). Thesis and dissertation writing: An examination of published advice and actual practice. *English for Specific Purposes, 21*(2), 125–143.

Posteguillo, S. (1999). The schematic structure of computer science research articles. *English for Specific Purposes, 18*(2), 139–160.

Rahman, M. H., &Jelane, M. M. (2021). Engineering students' EFL needs at the tertiary level of education in Bangladesh: Expectations and existence. *International Journal of Language and Literary Studies, 3*(2), 114–126. https://doi.org/10.36892/ijlls.v3i2.542

Rahman, M. M., & Hu, G. (2025). From hypernationalism to neoliberalism: A multi-level policy analysis of English medium instructional practices, management, and ideologies in Bangladeshi (private) higher education. *English Today*. https://doi.org/10.1017/S0266078424000221

Rahman, M. M., Islam, M. S., Karim, A., Chowdhury, T. A., Rahman, M. M., Seraj, P. M. I., & Singh, M. K. M. (2019). English language teaching in Bangladesh today: Issues, outcomes and implications. *Language Testing in Asia, 9*, Article 9. https://doi.org/10.1186/s40468-019-0085-8

Rahman, M. M., & Pandian, A. (2018a). A critical investigation of English language teaching in Bangladesh: Unfulfilled expectations after two decades of communicative language teaching. *English Today, 34*(3), 43–49.

Rahman, M. M., & Pandian, A. (2018b). The chaotic English language policy and planning in Bangladesh: Areas of apprehension. *Pertanika Journal of Social Sciences & Humanities, 26*(2), 893–908.

Salager-Meyer, F. (1994). Hedges and textual communicative function in medical English written discourse. *English for Specific Purposes, 13*(2), 149–170.

Samraj, B. (2008). A discourse analysis of master's theses across disciplines with a focus on introductions. *Journal of English for Academic Purposes, 7*(1), 55–67.

Serafini, E. J., Lake, J. B., & Long, M. H. (2015). Needs analysis for specialized learner populations: Essential methodological improvements. *English for Specific Purposes, 40*, 11–26.

Swales, J. M. (1990). *Genre analysis: English in academic and research settings*. Cambridge University Press.

Swales, J. M. (2004). *Research genres: Explorations and applications*. Cambridge University Press.

Swales, J. M., & Feak, C. B. (2012). *Academic writing for graduate students: Essential tasks and skills* (3rd ed.). University of Michigan Press.

Taavitsainen, I., &Pahta, P. (2000). Conventions of professional writing: The medical case report in a historical perspective. *Journal of English Linguistics, 28*(1), 60–76.

West, R. (1994). Needs analysis in language teaching. *Language Teaching, 27*(1), 1–19.

Williams, A., Stevens, J. R., Anderson, R., &Bogren, M. (2024). Challenges and opportunities of English as the medium of instruction in diploma midwifery programs in Bangladesh: A mixed-methods study. *BMC Medical Education, 24*, Article 523. https://doi.org/10.1186/s12909-024-05499-8