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Questions in English Medium Instruction Undergraduate Lectures in a Sri Lankan University: Why are they important?

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Abstract. Introduction of English Medium Instruction (EMI) is linked to language development, mainly in countries where English is not the mother tongue of the majority of the population. It is believed that teacher questions that trigger teacher-student interaction, especially dialogic interaction in an EMI classroom, can help students' content and language development. Hence, this study investigates the types of questions lecturers ask, and the patterns of interaction developed in the lecture deliveries in English Medium Instruction (EMI) undergraduate lectures of a Sri Lankan university. It also looks into the underlying reasons for such practices. Six lectures delivered by two lecturers were recorded for this purpose and they were transcribed verbatim. The lecture transcripts were analysed to find the questions lecturers asked and the subsequent pattern of interactions developed. Interview with lecturers informed the underlying reasons for the existing questioning patterns. The majority of the questions asked by the lecturers were rhetorical in nature, and only a limited number of non-rhetorical questions, which could create meaningful interactional episodes of dialogic nature, were found. This study enlightens that lecturers should be trained to ask non-rhetorical questions in order to develop interaction if the objectives of EMI are to be achieved.

Keywords: Teacher questions; English medium instruction; Teacher-student interaction; Dialogic interaction

1. Introduction

English Medium Instruction (EMI) can be defined as a method which uses English to teach academic subjects in countries where English is used as a second or foreign language. That is, the first language of the majority of the population in those countries is not English (Macaro, Curle, Pun, An & Dearden, 2018). EMI is, in different contexts, closely identified with different names; "Bilingualism", "Content and Language Integrated Learning (CLIL)", or "Immersion programmes". Macaro et al. (2018) elaborate that in North America

the form of teaching through English or another language is sometimes called "immersion", "content-based learning", "content-based language learning", or "content-based language education". In Europe, generally, it is prominent in the name of "CLIL", "integrating content and language in higher education" or "English-taught programmes".

EMI has grown globally in all phases of education and educational settings (Dearden, 2015; Macaro et al., 2018). Many countries in Europe and Asia have switched to EMI for various reasons. In Sri Lanka, the main reason for implementing EMI is said to be expanding employment opportunities since the government sector cannot accommodate all the graduates into its system, and therefore, urges the graduates to seek employment from the private sector, for which it is generally assumed that English language proficiency is a necessity. For the same reason, Sri Lanka's major donor agency, the World Bank, is keen on introducing EMI in secondary and tertiary levels of education. Moreover, the University Grants Commission (UGC) of Sri Lanka has very recently requested the universities to switch to EMI for external degree students too (University Grants Commission (UGC), Circular number, 01/2021 of 15 January 2021).

EMI is used in tertiary institutions in Sri Lanka to teach different subjects/courses to undergraduate and postgraduate students, while L1 instruction is also widely available for courses, especially in the Arts and Humanities stream (Navaz, 2012). All universities have a mandate to develop the English language competency of the students by means of teaching them through the medium of English. EMI was introduced in tertiary sector from the inception of the undergraduate studies, especially in STEM (Science, Technology, Engineering and Medicine) related courses in the early 1940s and later it was expanded to Management and Humanities too. Individual universities decide on the medium of instruction of courses in humanities but, in general, for the courses in STEM there is no choice in any Sri Lankan universities and the courses are held entirely in English.

The objective of introducing English medium instruction in Sri Lanka is said to enhance the students' language proficiency by getting them immersed in the learning situations through the medium of English. Nevertheless, the researcher's experience in the Faculty of Science (referred to as FS), where the study was conducted, informs that students after studying a degree in EMI for three to four years, in the case of a general degree or a degree with specialization respectively, have not reached the required language competency when they graduate. For example, in the year 2018, out of 97 second year students who sat for the second year second semester English Language examination, around 20% failed. Even though students are exposed to limited hours of English as a Second Language (ESL) programmes, 120 hours for two years, they spend nearly 1000 hours a year in their EMI programme, which usually lasts for three years for a general degree programme.

One of the reasons that could be linked to poor language proficiency of the students who studied in EMI is connected to the lack of opportunities given in lectures for the students to use the target language. According to Swain's (1985; 1995) output hypothesis, opportunities given to ESL (English as a Second Language) learners to practise the language are important for language

development. This is similar to the view of sociocultural (Vygotsky, 1978) and social constructivist perspectives which propose that interaction can enhance students' cognitive development (both content and language) (Mercer, 1995). Social constructivists (Mercer, 1995; Staarman & Mercer, 2010) argue that teacher-student interaction is important for learning in the classroom. Further, interaction is necessary for creating a suitable learning environment that promotes learners' language and content development (Hall & Verplaetse, 2000).

For learning the content and developing the language knowledge of the students through EMI, lecturers should provide opportunities for students to involve in interaction with lecturers throughout the lecture. This could be achieved, in the study context, by way of asking questions and answering questions. Generally, in the EMI classes in Sri Lanka, the focus is to convey the content abruptly without due consideration for language. As a result, it can be assumed that the intended outcome of language development has become a question. In Sri Lanka, each year around 20,000 students are admitted into different EMI courses out of just over 30,000 annual intakes into different universities. Hence, employment opportunities at the private sectors are highly limited for the graduates, and lack of language proficiency of the graduates has been considered an important reason for this unemployment issue.

One of the objectives of introducing EMI in Sri Lanka is language development that it becomes imperative to assess the outcome of EMI. Macaro et al. (2018) consider that more research is needed to find evidence to prove that EMI is useful for language improvement and content learning. However, no previous studies have been carried out in Sri Lanka with regard to measuring the effectiveness of EMI in developing language proficiency, except for the studies conducted by the present researcher on the perception of students in the EMI classes (Navaz, 2013) and on developing a framework for analysing lecture discourse (Navaz, 2012; 2020). The studies that were undertaken outside Sri Lanka have focused on the policy level changes and the perception of teachers and students in learning through EMI (Macaro, et al., 2018; Ekoç, 2020; Xie & Curle, 2020). Only a few studies have ventured into the discourse level details (Hu & Duan, 2018; Macaro, 2020; Martín del Pozo, 2017). Hence, the questions lecturers ask in tertiary level content classes are not much investigated in Asian countries. Therefore, this study arises from the argument that teacher questions are important in ESL content classes for developing the language competency through lecturer-student interaction.

At the backdrop that studies have rarely been conducted in Sri Lankan tertiary or secondary level classes concerning the teacher questions or teacher-student interaction, this study is considered important. Moreover, the EMI has been implemented in Sri Lanka as well as Asia without due consideration for measuring its perceived benefits of language and content development. Therefore, this study looks into, at a small scale, if the EMI lectures are favourable for students' language development at a faculty of a Sri Lankan university. For this purpose, a few number of lectures were analysed to identify the discourse level details – questions lecturers ask and the kinds of interaction those questions develop in the classroom.

Hence, this study will have the following research questions:

1.1 Research questions

1. What types of questions do lecturers ask in EMI science classes?
2. What types of interactional episodes are developed in the lecture discourse?
3. What are the underlying reasons for the present questioning behaviours and what suggestions could be made to improve the outcomes of EMI?

2. Literature review

At the bottom of the argument that teacher-student interaction initiated by teacher questions can be helpful for language as well as content development in the EMI contexts, this review is focused initially towards teacher questions and their importance. Then the review is carried out to show the importance of interaction in content classes, especially the literature showing the influence of EMI on language development, in general, is reviewed. Besides, the studies that investigated the influence of interaction on language development are also touched on.

2.1 Questions

2.1.1 Importance of questions

The importance of questions in tertiary level EMI has been poorly researched (Chang, 2012; DaFouz & Sánchez-García, 2013). Some of those studies that stressed the use of questions in academic lectures are of Crawford Camiciottoli (2008), Csomay (2002), Fortanet (2004) and Morell (2004). These researchers looked at the discourse features present in academic lectures. Recently, attention has been given to EMI classes for investigating questions for their ability to generate interaction. Sánchez-García (2010) explains that questions are the key tools in generating interaction in lectures.

Marton and Tsui (2004) claim that interaction gets momentum through the use of questions while Hu and Li (2017) assert that teacher questions play a key role in activating students' content schemata, scaffolding learning activities, and facilitating concept development while bringing the language development. They describe that EMI aims to meet two goals – subject learning and English proficiency. Hu and Li (2017) stress that teacher-student interaction initiated through teacher questions provide opportunities for students to "engage in the extended receptive and productive use of English to develop their competence in the language" (p. 186). In addition, Chang (2012) elaborates that question has long been recognized as an important interactional device employed by teachers to activate and facilitate teaching and learning processes.

2.1.2 Types of questions

In any classroom, the most common types of questions are 'closed' and 'open-ended' and 'display' and 'referential' questions (Brock, 1986; Chaudron, 1988). Closed-ended questions usually bring 'yes' or 'no' answers, while open-ended questions pave way for longer responses. Display questions warrant an answer which is already known to the questioner, usually the teacher, while referential questions request information from the respondents which is not known to the teacher (Brock, 1986).

Research on the questions teachers ask shows that about 60 percent require only recall of facts, 20 percent require students to think, and 20 percent are procedural in nature (Blosser, 1975). Blosser proposes among others a category called probing questions. This category of questions is important because it has several functions and that students can be encouraged to interact at a deeper level.

2.1.3 Questions in EMI classes

In Sri Lankan secondary or tertiary level EMI classes, research on teacher questions was rarely conducted. The present researcher in previous studies (Navaz, 2012; 2020) on discourse analysis categorised the questions into four novel categories which are described later in the methods section. In the absence of studies in the Sri Lankan context, the review is focused on other EMI contexts where English is used as a second language of the learners.

Morell (2004) identified four types of questions in EMI lectures. They are display, referential, rhetorical and indirect questions. Her rhetorical questions do not warrant a response from the students, while the indirect questions are similar to classroom management questions which require a response not necessarily verbal (as cited in Navaz, 2012). Morell (2004) in a similar vein argues that referential questions, which are open-ended, bring more contributions from students. However, the common finding is that in lectures mostly display questions are asked.

In a study conducted at the South Korean university among the engineering undergraduates, Choi, Tatar and Kim (2014) found that the authentic questions asked by the lecturers had brought many different answers from the students and also motivated them to answer the questions which in turn enhanced their communication skills. Further to this, DaFouz and Sánchez-García (2013) identified in Spanish EMI lectures that lectures across different disciplines contained more display questions and also they concluded that when more teacher questions were asked, student answers also increased.

In another study in two Chinese universities, Hu and Li (2017) revealed that irrespective of the instructional medium in EMI classes, the majority of the questions are lower-order questions. They had categorized the questions according to Anderson and Krathwohl's (2001) revision of Bloom's taxonomy. Anderson and Krathwohl (2001) revised taxonomy of educational objectives includes categories such as remember, understand, apply, analyze, evaluate and create.

Larson and Lovelace (2013) also used this revised taxonomy and identified questions in science lectures of a public university in the USA. To simplify the analysis, they grouped questions into two major categories based on their cognitive level (lower-order thinking: remember and understand; higher-order thinking: apply, analyze, evaluate and create). The findings revealed that most questions asked by instructors did not require higher-order thinking skills to develop a response, and the majority of the questions were rooted in the remembering and understanding levels of Bloom's Revised Taxonomy (Anderson & Krathwohl, 2001).

In a study in a CLIL setting at secondary school content classes by Llinares and Pascual Peña (2015), teachers asked more fact questions. Their analysis was

based on Dalton-Puffer's (2007) classification of academic questions that include questions for facts, questions for explanation, questions for reasons, questions for opinion and meta-cognitive questions. Llinares and Pascual Peña (2015) pointed out that "higher-order questions or complex questions will contribute both to engaging students to use complex structures and to promoting more engagement with the academic content and deeper learning" (p. 18). This claim was already established by other researchers who corroborated this view by stating that complex questions tend to trigger complex students' answers (see Dalton-Puffer, 2007; Nassaji & Wells, 2000). It is also asserted that the linguistic complexity of teacher-student interaction is important because it provides opportunities for students to listen to, process and produce language and develop their competence in the language.

Despite the importance of higher-order questions, Hu and Duan's (2018) study among 20 Chinese universities revealed that the majority of teacher questions and student responses were cognitively and linguistically simple. As a result of the study, the researchers are sceptical that EMI would achieve its dual goals of facilitating students' subject learning and improving their English proficiency envisioned by policymakers.

Hence, it is the common criticism that in content classes teachers ask fact-based inquiries instead of asking questions that engage in higher-order processes (Larson & Lovelace, 2013). Similarly, in Sri Lanka, the common criticism is that teacher questions are mostly of display type or rhetorical in nature even though no any reported studies are available except the studies on discourse analysis by the present researcher (Navaz, 2012; 2020). Hence, it becomes necessary to investigate the existing situation before a meaningful conclusion or recommendations are made with regard to the possibilities of language learning in EMI classes in Sri Lanka. At this backdrop, this study investigates the types of questions asked by the lecturers in science based undergraduate lectures in a small faculty of a Sri Lankan university with the assumption that interactions initiated through teachers' questions could help learners with their language development. At the next stage, the review is focused on the importance of interaction for language development with an emphasis on how the EMI lectures influence language development.

2.2 Interaction

The sociocultural theory proposed by Vygotsky (1978) stipulates that interaction between teacher and learner is important for learning in L1 or L2 classrooms (Mercer, 2001). Similarly, social constructivists (e.g. Mercer, 1995; Staarman & Mercer, 2010) claim that teacher initiated interactions are important for learning in which teacher has an important role in ensuring the construction, acquisition and transmission of knowledge. Moreover, Walsh (2011) considers that classroom interaction is important for students' language development and such interaction should be paid attention. Many researchers (Gibbons, 2015; Gupta & Lee, 2015; Haneda, 2005; Haneda & Wells, 2010) believe that the academic skills, as well as second language of the ESL learners, can be developed through interaction. Thus, more evidence is being found that interaction favours students' content knowledge and their English language proficiency (Georgiou, 2012; Stoller, 2004).

Interaction in the classroom is generally considered a dialogue between the teacher and students. Recently, the dialogic interaction which is a variant of interaction has come into the teaching arena. Generally, the interaction between the teacher and students can be of two types: Dialogic and Non-dialogic, the latter is also known as authoritative. In dialogic interaction, the teacher and students explore ideas together and also generate new meaning. Dialogic interaction acknowledges multiple voices in the classroom (Matusov, 2009) as teachers ask students their views regarding the topic or phenomenon under discussion (Scott, Mortimer & Aguiar, 2006). Dialogic interaction, at this point, can be defined simply as a mutual dialogue that takes place between the teacher and students. In other words, it is an interaction in which both the teacher and students mutually contribute to the discourse with a view to exploring or developing a concept in a lesson (Navaz, 2020). The questions asked in dialogic interactions are non-rhetorical and the teacher cannot predict what responses students would give. The term 'dialogic teaching' was introduced by Alexander (2006) as a teaching approach and previously had gained attention as dialogic discourse based on the research of Scott et al. (2006).

2.2.1 EMI and language learning

With an understanding that interaction is important for language learning, studies in EMI context tried to investigate the influence of EMI on language learning (Hernandez-Nanclares & Jimenez-Munoz, 2015; Humphreys & Mousavi, 2010; O'Loughlin & Arkoudis, 2009; Rogier, 2012).

Rogier (2012) investigated the students in universities in UAE after four years being in the EMI programme and found that there was a statistically significant improvement in all four of the English-language skill areas that are tested by the IELTS exam. The most development occurred in the area of speaking, followed by reading, writing and listening. On the other hand, in the study conducted by O'Loughlin and Arkoudis (2009), greater improvement was found for listening and reading skills and the least average improvement was in writing skill.

However, studies that tried to investigate the effect of EMI on the language proficiency of the students took place mainly in study abroad contexts where students were learning along with the native speakers. Therefore, the assumption that EMI would develop language instantaneously has been subject to scrutiny. Several recent studies have come out with a conclusion that the effect of EMI would not reach the students as enhanced language proficiency because of various reasons such as the method of lecture delivery, students' language proficiency, lecturers' language proficiency, etc. (Lei & Hu, 2014). Chapple (2015) states that "the idea that merely taking a content class taught in English will lead to substantial linguistic gains is dubious" (p. 4). Among other reasons, the level of English language proficiency students possess becomes prominent in his study. He argues that students with poor language proficiency struggle to follow the course and language learning becomes a question.

Hu and Duan (2018) argue, as a result of a study in a Chinese university, that the present question and answer sequence would not help achieve the goals of subject learning and improving language proficiency. They dictate that teacher training is necessary to train the teachers to use higher-order questions in classes. The training should focus on interactional strategies so that EMI teachers

could encourage the students for interactions. The same view was echoed by Ament and Pérez-Vidal (2015) and Sánchez-García (2018) that language awareness should be brought to the content teachers in EMI classes.

Despite the fact that interaction in content classes could develop language has been a well-established assertion in primary and secondary level classes (Dong, 2002; Gibbons, 2003; Haneda, 2005; Haneda & Wells, 2010), studies are yet to be conducted at tertiary level EMI classes where students learn in ESL or EFL contexts. Of the few available studies that investigated interaction and language learning in tertiary level EMI classes, Morell (2004) at the University of Alicante found that the lectures which were identified as interactive were found to be promoting learning and communication. Kumar (2003), in another study at B. P. Koirala Institute of Health Sciences in Nepal, experimented with interactive lectures along with the traditional lectures of monologic nature. Students who participated in the interactive lectures positively evaluated the lecture for their enhanced communication skills, though several methodological drawbacks were found in this study (see Navaz, 2012 for a review).

With the fact that only a limited number of studies have investigated that interaction influence language learning, this study investigates the questions and interactions developed in the EMI lectures as a preliminary step for investigating the influence of EMI on language learning in Sri Lanka. Hence, the following methodology was adopted.

3. Method

3.1 Research site and participants

The study was conducted at the Faculty of Science (FS) of a Sri Lankan university, which is one of the sixteen universities in Sri Lanka. The Faculty of Science is a small faculty with an annual intake of fewer than 200 students admitted to Bachelor of Biological Science or Mathematics degrees. This study was a follow-up of the researcher's doctoral study and subsequent work (Navaz, 2012; 2020) which developed a framework for analysing lecture discourse in the same faculty.

This study was based on the discourse analysis approach and mostly belonged to qualitative orientation. The data for this study came from the lecture discourse of six lectures delivered by two lecturers from Biology and Mathematics streams. In selecting the lecturers, a convenient sampling method was used, as only the senior lecturers who taught the second year students were considered for the study.

In the faculty, there were 12 senior academic staff members attached to the three departments: Biology, Mathematics and Chemistry at the time of data collection. Initial approval was obtained from the dean of the faculty and she informed the three heads of the departments, asking them to inform the staff to volunteer for the study. For this study, out of the four senior lecturers, who were approached, two of them consented to be observed and their lectures to be recorded.

For the present study, the informed consent was obtained from the two lecturers while the students were explained the purpose of the study by the researcher. Formal research ethical bodies were yet to be established in the university. The

details of the lecturers who participated in the study are given in Table 1. The lecturers were identified as BL and ML for Biology and Mathematics respectively. Both of them had teaching experience in EMI classes for around 10 years at the time of data collection, while their educational qualifications varied.

Table 1. Lecturers' background information

Lecturer	Sex	Age	Degree	EMI Course	Teaching Experience in Years
BL	F	35–40	Mphil in Biology	Animal Physiology	13
ML	M	30-35	PhD in Physics	Electricity	10

The population of the faculty is just over 500 students at any year. In the faculty, Tamil and Sinhala are the students' mother tongue. Their language proficiency was elementary to pre-intermediate according to the CEFR (The Common European Framework of Reference for Languages) at the time of their entry to the faculty. The student participants of the study belonged to two second year classes in Mathematics and Biology related subjects, taught by the two lecturers. Their numbers were 30 and 25 respectively. They all followed a general degree programme in Science and the duration of the degree is three years. The selection of students was dependent on the classes taught by the lecturers and therefore could be treated as convenient samples.

3.2 Data collection and analysis

Three lectures of each lecturer, each an hour of duration, were recorded using a voice recorder which the lecturers carried with them. The lectures were identified as M1, M2, M3 and B1, B2 and B3 for Mathematics and Biology lectures respectively. The researcher was present in the lectures sitting at the back of the classroom to avoid unusual behaviours of the students. The lectures were recorded during the middle of the semester. The recorded lectures were transcribed verbatim and analysed manually looking for questions. The teacher questions of all types were identified at the first stage. Following Hu and Li (2017) and Hu and Duan (2018), any utterance identified as interrogative, imperative, or declarative which elicited a verbal response was considered a question. In addition, an unanswered utterance of the same type with lecturers' wait-time was also considered a question. Then at the next stage, those questions that built into interactional exchanges[1] or episodes[2] were considered non-rhetorical questions irrespective of the length of the exchanges. In addition, the lecturers had given a wait-time of around five seconds minimum for a non-rhetorical question and all of them were answered by the students in this study. All the others were treated as rhetorical questions which did not bring students' answers. The lecturers answered the questions themselves or just passed on.

A colleague of the researcher assisted in the identification of questions. These questions that initiated interactions were categorised into two types: Concept Development Questions and Knowledge Testing Questions. Further explanation of these question types are given below. In addition, the two lecturers were

[1] Question-answer-feedback/evaluation is known as an exchange. Usually a teacher question, student response and teacher feedback (e.g. can you explain further) or evaluation (e.g good)

[2] One or several exchanges that occur at one point in a lecture make an episode.

requested to reflect on their own lecture delivery and asked about the reasons for teacher questioning patterns and also other related information.

3.3 Developing an identification system for lecturers' questions

Initially, questions were classified as rhetorical and non-rhetorical questions. In the observed lectures, lecturers asked many questions and answered themselves or did not expect any answer from the students. These types of questions are known as rhetorical and the opposite is non-rhetorical. The latter type of questions was developed into either interactional exchanges and or interactional episodes. The number of rhetorical and non-rhetorical questions was counted in the observed lectures.

At the next stage, questions were categorised into two novel categories. This categorisation of questions is based on the previous study by the researcher (Navaz, 2012). In the previous study, the researcher had categorised the questions into four types. They were (i) Knowledge Testing Questions (KTQs): they test the memory of the students and include both rhetorical and non-rhetorical questions and are explained further below; (ii) Knowledge Application Questions (KAQs): these questions test on how the knowledge or theory is applied in a practical situation; (iii) Concept Development Questions (CDQs): they are important type of questions which helps develop a lesson, as explained below; (iv) Classroom Management Questions (CMQs): they are not connected with the lesson but they deal with management and organisation of lessons and other academic activities like submitting assignments, arranging a practical class, etc. They are similar to the classroom procedural questions. e. g. Did you submit the assignment?

In the present study, unlike the four categories in the previous study, the researcher identified two categories only: KTQs and CDQs. The reason for making two categories is based on the analysis in the previous study (Navaz, 2012). There were not many questions in the category of CMQs, out of the 12 lecture discourse of one-hour duration each was analysed, there were only 3 CMQs. Further, KAQs are similar to the KTQs and can be put together. Therefore, in the present study, the questions were categorised into two. 1. Knowledge Testing Questions (KTQs) and (2) Concept Development Questions (CDQs). Each of these categories is explained below. In the process of identification of these questions, to check the reliability of the categories, the assistance of a junior colleague of the researcher was obtained. She was explained the categories and asked to identify the questions from the lecture discourse. The categories identified were compared with the researcher for consistency. As there were only two categories to identify, there was not much difficulty in identifying the question types.

When these two categories (KTQs and CDQs) are compared with Anderson and Krathwohl's (2001) Bloom's revised taxonomy of educational objectives that include the categories such as remember, understand, apply, analyze, evaluate and create, the KTQs cover the first three categories, while the CDQs cover analyse, evaluate and create.

3.3.1 Concept Development Questions (CDQs)

The importance of this question type comes from the value of the interactional episodes they are able to generate. When teachers ask questions which involve students to analyse a situation, evaluate a point or create or develop a concept, students can develop longer interactional episodes which are useful in terms of understanding a concept. Hence, as this question type helps the teacher and students involve in co-constructing the lesson and developing interactional episodes, the questions of this type support the students to practise the language and develop language further. These questions are similar to open-ended referential questions and also similar to Bloom's synthesis questions.

e.g. *You know anything about PCR technique? (..) What do you know?* (From Biology lecture)

These questions are asked by the lecturers as open-ended questions to get different views of the students in order to develop a particular concept or a theme. "The teacher asks conceptual questions to elicit students' ideas and facilitate productive thinking, invites and welcomes students' responses and questions […]" (Chin, 2007, p. 817). Also, it is believed that during guided discussions, teachers primarily ask conceptual questions to elicit student thinking (van Zee, Iwasyk, Kurose, Simpson & Wild, 2001).

3.3.2 Knowledge Testing Questions (KTQs)

Within the scope of this study, questions that test students' (i) ability to remember, (ii) understand and (iii) apply are included into KTQs. These three parameters are the lower levels of Anderson and Krathwohl's revised taxonomy of educational objectives. The following questions identified in the discourse collected can be given as examples:

(i) Ability to remember: when the teacher asks a factual recall question: e.g. *Can you remember from the molecular genetics what (is) central dogma?* (From Biology lecture)

(ii) Understand: check their understanding of the ongoing lesson: e.g. *What is Biology?* (From Biology lecture)

(iii) Apply: apply the theory they learnt: e.g. *Now let us take the half cycle to find the I average. Ok I average the second way to find the I average is equal to you know that how to - zero to t 'ov' by two –er what is that -I_o sine omega t over zero to t by two dt. Right? Can you workout? The same way? (..)).* (From Mathematics lecture).

These questions are similar to display questions and require short answers and are similar to factual recall questions, which ask the students to name, identify, recall, define, etc., and the emphasis is on memory or observation (Ellis, 1993).

4. Findings

In the sub-sections that follow, the research findings are presented in accordance with the research questions.

4.1. What types of questions do lecturers (or students) ask?

The careful analysis of the six lecture discourse exposed that the most predominant questions asked by the lecturers were rhetorical in nature. Lecturers did not expect the answer from the students when they ask this type of questions. Nor did they give a wait-time for them to answer. Lecturers asked

these questions and answered themselves or went on continuing the lecture. In addition to plenty of rhetorical questions, there were a few non-rhetorical questions too. These questions initiated teacher-student interaction and developed into interactional episodes. Hence, they were categorised using the two types of questions that are used in this study. Across all six lectures, there were only around 31 non-rhetorical questions compared to 590 rhetorical questions as shown in Table 2.

The observation revealed whenever the lecturers wanted to get an answer from the students, they adopted some strategies. Those strategies were giving adequate wait-time, repeating the questions, naming the student, etc. When the lecturers gave enough wait-time, students tended to answer them. Students' answers were limited to two to three words per utterance generally but in observed mathematics lecture, they were longer.

Table 2. Types of questions across the lectures

Lectures	No. of Non-Rhetorical Questions (that developed Episodes)	No. of Rhetorical Questions	Types of Non-Rhetorical Questions
Mathematics – Lecture 1 (M 1)	7	111	7 KTQs
Mathematics – Lecture 2 (M 2)	6	124	6 KTQs
Mathematics – Lecture 3 (M 3)	3	85	3 KTQs
Biology – Lecture 1 (B 1)	3	65	3 KTQs
Biology – Lecture 2 (B 2)	7	80	7 KTQs
Biology – Lecture 3 (B 3)	5	125	4 KTQs; 1 CDQ
Total	**31**	**590**	**30 KTQs; 1 CDQ**

4.1.1 Types of non-rhetorical questions

The non-rhetorical questions that initiated interactional exchanges were identified from the lecture discourse. The questions lecturers asked in this type were mostly Knowledge Testing Questions (KTQs). Most of the time, these questions were asked to check students' memory, comprehension of the content matter and to apply the theory. The last one occurred, especially in mathematics lectures. The lecturer asked the students to apply the theory learnt in a novel situation and also for deriving equations. These functions are related to Anderson and Krathwohl's (2001) revised taxonomy of educational objectives, as mentioned earlier. The number of KTQs were 30 across the lectures, while there was only one Concept Development Question (CDQ), which is believed to be contributing to the development of the conceptual knowledge of the students (Yip, 2004) found in the observed lectures. Table 3 indicates these numbers.

Table 3. Types of non-rhetorical questions across all 6 lectures

Types of questions initiated the interaction	Number
KTQs	30
CDQs	1
Total	**31**

Examples for different questions can be found with the interactional episodes in the next section. When the questions that built on interactional episodes across the streams of biology and mathematics were identified, there was no difference in the number of questions asked across the lectures. In both lectures, 15 and 16 questions were found respectively, as shown in Table 4.

Table 4. Total number of questions that developed interactional episodes across the two streams

Stream	Total number of questions	Types of questions
Biology Lectures 1, 2 & 3	15	14 KTQs, 1 CDQ
Mathematics Lectures 1, 2 & 3	16	16 KTQs

4.2. What types of interactional episodes are developed?

The analysis of questions informed that lecturers asked more rhetorical questions and a few non-rhetorical questions. Hence, all the questions did not lead to interactional episodes. It was found that only non-rhetorical questions built into interactional episodes. In this study, it is considered that CDQs led to Concept Development Episodes (CDEs) and KTQs made Knowledge Testing Episodes (KTEs). That is, the KTEs were developed as a result of lecturers asking KTQs.

In the analysed lectures, there was more number of KTEs across the lectures compared to the CDEs of which only one was found. The CDEs are important for language development because CDEs involve students in expressing their thoughts and enhance students' creativity. Further, the basic consideration is that for a lecture to be dialogic, it should have interactional episodes of the concept development category. Concept Development Episodes (CDEs), in comparison, have the potential to incorporate the students' views into knowledge building. Compared to the other type of episode, CDEs give students opportunities to create longer utterances in meaningful communication. In the examples below, in the first episode (4.2.1), the lecturer asks non-rhetorical question and students try to answer from their own perception. This is in contrast to the episode given under KTE (4.2.2) in which the lecturer asks the students questions to be answered from their memory of previous lessons.

4.2.1 Example for CDE- Biology Lecture 3

The episode below is taken from the Biology lecture 3 where the lecturer gives enough wait-time (..) and in addition repeats the questions in order to get the answer from the students. These two strategies are important for making students involve in interaction. In this episode, the lecturer asks a non-rhetorical question and expects an answer from the students. Even though students' answers are shorter, the lecturer and students build the concept "PCR technique" and therefore this episode can be considered a CDE. The transcription conventions for the episodes are given in the footnote.[3]

[3] T- lecturer, M1, M2… - male students, F1, F2 – female students, (..) wait-time/ long pause lasting 2-6 seconds.

T: You know anything about PCR technique? (..) What do you know?
M2: ((inaudible answer))
T: You can talk louder
M2: New DNA synthesis
T: New DNA synthesis. PCR is a new DNA synthesis. What else do you know?
M3: Artificial DNA replication.
T: Artificial DNA replication. (.) OK. From this side.
F8: Three steps in PCR techniques
T: From
F8: Three steps in PCR.
T: Ok. First of all you tell what is PCR. What do you know about PCR?
F8: in DNA synthesis in
T: Occurring in three steps.
F8: Yeah
T: Ok! Anything else?
F: ((inaudible))
T: Those three steps. Ok! Anything else?
F5: DNA multiplication
T: DNA?
F5: Multiplication
T: Multiplication
T: Ok. So over all we will say DNA synthesis (..) in three steps process. (..) Ok processes.

4.2.2 Example for KTE – From Biology Lecture 2

In another example from Biology lecture 2, the lecturer asks a question that is to be answered from students' memory. When the lecturer uses a question that does not require students to think or synthesise the answer, the outcome would be a recitation script. Here, the students' answers consist of one or two words and these kinds of answers, it is alleged, would not help students' language development, as discussed earlier.

T: So from different organisms you don't have to depend only on e-coli now because of this replication (.) site you can use different types of bacteria to transform. Ok? You know why it is needed? Why? (.) Why this - this is needed? (.) Ah?
SAI (F8): to produce
T: produce
F8: restriction
T: Why this origin of replication needed?
M4: to replication xxxx ((inaudible))
T: Ah?
M4: To start the replication
T: Ah? For the replication of the plasmid. Even though you are transferring into the bacteria the bacteria cannot help the plasmid to replicate. It should has –it should have its own replication to make it multiple copies. Ok? that's why it carries origin of replication. Ok? (.) you didn't get that point. So in addition to that we have another type of replication point here.

Here, the lecturer asked a question as if she was revising the lesson. Similarly, in Mathematics lecture below, students answered the lecturer's questions based on their previous knowledge.

4.2.3 Example for KTE – From Mathematics lecture 2

In this episode, the lecturer asks a question to which students can answer from their previous knowledge and it creates an interactional episode. Even though students make longer utterances, in the episode we can find more equations and content related vocabularies. It is claimed that such longer utterances could not help the general language development of the students. The length of Biology students' answers is shorter when compared to mathematics students, 3 to 5 vs 15 to 20. The reason may be the easiness with which Mathematics students can answer questions because their discourse involves a lot of terms or content related vocabularies.

T: We have two equations. What are they?
M8: Total impedance equal to Fifty ohms. We have a R squared plus omega 1 plus all three squared
T: Yes
M8: Second one is hundred ohms equal to R squared plus omega two into all three squared. (.) We know R, omega 1, omega 2
T: Yes.
T: And the relation between omega and t is equal to what? (.)
Mn: Omega is two Pi over T.
T: Ih? ((L1 questioning way)) Yes the same thing. What is that?
Mn: T is equal to two Pi ((overlapped by T))
T: T is equal to two Pi over omega. Otherwise omega is equal to two Pi over?
M5: T
ML1: what [[text omitted – name of the student MM7]] [..] what here↑? if you have any additional suggestion please.
MM7: [[clarifies with the lecturer in L1 when the lecturer was near the student]] phase two <L1 il oru> (one at) parallel <L1 warAthuthAne> (a parallel won't come in Phase two?)
ML1: no– no– no– no
MM7: ⌊ phase two <L1 warathu ippa> (won't come) (⌊ overlap)
ML1: when we– when we connected– like– this is like a single circuit right↑? <L1 Athila kulappam ontru irukkuthAn AnA ithula illai> (there is a chance for confusion there but not here). Ean entru theriyumA↑? (you know why) <L1 Neenga> parallel <entru ninakkeiriyal> (you think it is parallel). <L1 Ithu oru (this is a) single circuit [……]

In this episode, the lecturer switched to Tamil language in order to make the interaction comfortable for students. Generally, the use of L1 in the classroom may facilitate comprehension of the content matter, whereas it may not be useful for language development. Nevertheless, the effect of code switching on students' language development was not looked into within the scope of this study.

4.3 What are the underlying reasons for the present situation and how can it be improved?

The reasons are discussed under three themes that emerged out of the discussions with the lecturers.

4.3.1 Focus on content delivery

The lecturers were asked about the reasons for asking more rhetorical questions in lectures. These questions are asked without expecting an answer from

students. The lecturers mentioned that even though they are aware of the importance of asking questions in general during lecture delivery, they are unable to spend more time on questions for the reason that they fear they may lose time to be spent on completing lessons. They were also concerned about completing the syllabi on time. Lecturers themselves had the idea that what they were doing was satisfactory for them. The point they raised is that the lectures cannot be conducted interactively throughout with several questions and answer sequences, because they feared the interactive sessions would consume the time available for conveying the content. Wells and Arouz (2006) have already established that a lecture cannot be interactive or dialogic throughout the lecture.

In the observed lectures, lecturers usually did not give wait-time for students to answer. Whenever they gave wait-time, the students tended to answer. However, the Biology lecturer mentioned that even though she had given more wait-time, students did not answer her. The lecturer was sceptical about students' ability, especially their language proficiency to answer questions. But, when the lecturer was indicated of the interaction that took place in the lesson with the students, she agreed that some students were able to interact. It emerged that focus on content delivery was the reason for not giving wait-time.

4.3.2 Pedagogical requirement

Students' language proficiency and shyness could be some of the reasons for their reluctance to interact in the classroom. However, it cannot be assumed that all the students in the class lack language proficiency. It was made explicit in the study that lecturers could make use of the questions to develop and sustain longer interaction with the students. Lecturers should try to develop dialogic kind of interaction in lectures for its benefits for language development. In addition, necessary skills and training should be given to lecturers for this.

The lecturers did not have an idea of the types of questions they asked in lectures. For them, questions are one part of the lecture delivery. When they were briefed about the types of questions and their importance, they showed interest in them. This situation indicates that there is a gap in the knowledge of the lecturers about the types of questions to be asked and strategies for developing interaction.

4.3.3 Nature of the discourse needed

In comparison with the biology students, the mathematics students' answers were lengthy. The underlying reason given by the lecturers can be connected to the nature of the discourse needed. That is, in mathematics discourse, students mostly use the keywords or the content related vocabularies but in biology, they may need to use general words like nouns and verbs and need more language proficiency to use the language.

5. Discussion

This study is important considering the present status of EMI in Sri Lanka as well as in Asian countries. In Sri Lanka, English Medium Instruction (EMI) has reached an exponential growth presently and also it has become a fashionable term for learning in primary, secondary and tertiary sectors in Sri Lanka. EMI was introduced with a view to enhancing the language proficiency of the

students by getting them to learn the content through English. However, due to lack of consideration of pedagogy for EMI, the intended outcome of EMI has become a question.

The results of the study revealed that at FS, lecturers generally ask rhetorical questions. Of the observed six lectures, lecturers asked 621 questions, and of which only 31 (5%) were non-rhetorical questions. They are similar to genuine questions. The genuine questions were identified when the lecturers waited for the answer from the students. Of the 31 questions that developed interactional exchanges, there was only one Concept Development Episode (CDE). CDEs help in the construction of knowledge involving students' contribution. In the analysed lectures, except for a single CDE, all the others were KTEs.

The findings of this study have many similarities with previous studies. Similar to the previous studies, teachers' questions were linguistically and cognitively simple. The type of questions and the pattern of interactional episodes indicate that the lecture deliveries favour mostly monologic patterns. Hu and Duan's (2018) study among 20 Chinese universities revealed that the majority of teacher questions and student responses were cognitively and linguistically simple. The same finding was reported by Larson and Lovelace (2013). Their study revealed that most questions asked by the instructors did not require higher-order thinking skills to develop a response, and the majority of the questions were rooted in the remembering and understanding levels of Bloom's Revised Taxonomy (Anderson & Krathwohl, 2001). Hu and Li (2017) also found that, in EMI classes, the majority of the questions were lower-order questions. They also had categorized the questions according to Anderson and Krathwohl's (2001) revision of Bloom's taxonomy. In this study, of the questions asked, the majority belong to KTQs which use lower order questions according to Bloom's revised taxonomy. Hence, the results of this study are in consistent with Teo (2016) who found that teachers asked more display type questions in a pre-university programme in Singapore. In this present study too, lecturers asked many rhetorical questions which are similar to display questions for which the teacher knew the answer but students did not attempt to answer. Morell (2004) too found plenty of display questions in her observed lectures.

Close discussion with the lecturers revealed that even though they asked questions to check the comprehension of the students, they did not feel it was important to wait for students' answers. It is because of the limited time allocated for lectures, usually one hour for each lecture. Lecturers felt that if they spent more time, they would not complete the lectures. The lecturers were not aware of the fact that through interaction they could develop the language of the students.

The results of the present study inform us that lack of non-rhetorical questions, especially the absence of CDQs in lectures, indicate that the lecturers need to be trained to ask CDQs as well as maintain longer interactional episodes that are useful for students' understanding of the content as well as language development. Dalton-Puffer (2007) and Nassaji and Wells (2000) describe that, as mentioned previously in the literature review section, linguistic complexity of teacher-student interaction is important because it provides opportunities for

students to listen to, process and produce language and develop their competence in the language.

In this study, however, the teachers' inability to ask higher level questions, such as Concept Development Questions (CDQs), cannot be linked to lack of language proficiency of the lecturers. It should be considered as lack of awareness of the lecturers of the importance of questions or the necessary pedagogy to use questions in lectures.

BL mentioned: "*we can't keep on asking questions otherwise we can't complete the lesson within the limited time*". (interview with BL)

This view endorses the claim made by Cammarata and Tedick (2012). They claim that research on immersion teaching has consistently shown that immersion teachers tend to focus on subject matter content at the expense of language teaching.

This study brings to light the existing situation of EMI at this faculty. The findings could be used to gauge the lecturing situations in other universities in Sri Lanka and in South East Asia where English is taught as a second or foreign language and the content courses are taught by the non-native speaker teachers. However, precautions should be made considering the limitations of the study which are mentioned below in conclusion. This study provides the EMI teachers an idea of their own lecture delivery and informs the educational authorities that there is a gap between what is expected out of EMI and what is achieved. As it was mentioned previously, EMI was introduced in ESL contexts to harness the dual benefits of understanding the content and developing the language. One way these aims could be achieved is through proper teacher training, especially for delivering the lectures. As Larson and Lovelace (2013) mention, due consideration should be given for pedagogy of lecture delivery in EMI contexts. Within the scope of the study, difficulties of students in participating in classroom interactions were not focussed. Students' language issues, shyness and cultural barrier of asking or answering questions could affect their participation in classroom interactions. A previous study by the researcher (Navaz, 2013) discussed these factors. This study indicates that there are possibilities for language development with appropriate training for lecturers in asking questions and using strategies for involving students in classroom interactions.

6. Conclusion

This study was undertaken at a small faculty of a Sri Lankan university to investigate the questions asked by lecturers in EMI classes. Questions are important for generating interactions in lectures and that students' involvement in interactions could be helpful for language development. At the backdrop that the Sri Lankan EMI context has not been investigated at a great deal, especially with regard to the discourse level analysis, this study could be considered important to unearth the discourse level details of EMI lectures, albeit with the following limitations in mind. Only a few samples were used in this study and the study was confined to a small faculty in Sri Lanka which lies away from the metropolitan areas. Hence, future studies that investigate lecture discourse should consider other streams of studies such as humanities and management

and use larger samples. Also, it will be necessary to carry out research to investigate the lecture discourse in other universities which lie in the metropolitan areas where the student population may vary. This study, as a pioneer one in investigating discourse in EMI classes in Sri Lanka, sheds lights on the details of present discourse in the faculty and informs the teachers and authorities that due consideration for pedagogy concerning lecture delivery should be made when implementing EMI. That is, education authorities should consider training EMI teachers/lecturers as a mandatory requirement if the dual benefits of learning the content and developing the language are to be achieved. Hence, future studies are needed to investigate the discourse of the EMI lectures further in Sri Lanka as well as further afield, especially in Asia.

7. References

Alexander, R. (2006). *Towards dialogic teaching: Rethinking classroom talk.* York: Dialogos.

Ament, J. R., & Pérez Vidal, C. (2015). Linguistic outcomes of English medium instruction programmes in higher education: A study on economics undergraduates at a Catalan university. *Higher Learning Research Communications*, *5*(1), 47-68. http://dx.doi.org/10.18870/hlrc.v5i1.239

Anderson, L. W., & D. R. Krathwohl. (2001). *A Taxonomy for learning, teaching, and assessing: A revision of Bloom's taxonomy of educational objectives*. New York: Longman.

Blosser, P. E. (1975). *How to ask the right questions.* Arlington: National Science Teachers Association.

Cammarata, L., & Tedick, D. (2012). Balancing content and language in instruction: The experience of immersion teachers. *Modern Language Journal*, *96*(2), 251–269. https://doi.org/10.1111/j.1540-4781.2012.01330.x

Chang, Y. Y. (2012). The use of questions by professors in lectures given in English: Influences of disciplinary cultures. *English for Specific Purposes*, *31*(2), 103-116. https://doi.org/10.1016/j.esp.2011.08.002

Chapple, J. (2015). Teaching in English is not necessarily the teaching of English. *International Education Studies*, *8*(3), 1-13. https://doi.org/10.5539/ies.v8n3p1

Chin, C. (2007). Teacher questioning in science classrooms: Approaches that stimulate productive thinking. *Journal of Research in Science Teaching*, *44*(6), 815–843. https://doi.org/10.1002/tea.20171

Choi, J., Tatar, B., & Kim, J. Y. (2014). Dialogic interactions in the English-mediated classroom: A case study of a social science class for engineering students in Korea. *Asian Social Science. 10*(16). 123-130. https://doi.org/10.5539/ass.v10n16p123

Csomay, E. (2006). Academic talk in American university classrooms: Crossing the boundaries of oral-literate discourse? *Journal of English for Academic Purposes, 5*(2), 117–135. https://doi.org/10.1016/j.jeap.2006.02.001

Dafouz, E., & Sánchez García, D. (2013). 'Does everybody understand?' Teacher questions across disciplines in English-mediated university lectures: An exploratory study. *Language Value, 5*(1), 129-151. https://doi.org/10.6035/languagev.2013.5.7

Dalton-Puffer, C. (2007). *Discourse in Content and Language Integrated Learning (CLIL) classrooms.* Amsterdam, The Netherlands: John Benjamins.

Dearden, J. (2015). *English as a medium of instruction-a growing global phenomenon*. London: British Council. Retrieved from https://www.britishcouncil.org/sites/default/files/ e484_emi_cover_option_3_final_web.pdf

Dong, Y. R. (2002). Integrating language and content: How three biology teachers work with non-English speaking students. *International Journal of Bilingual Education and Bilingualism, 5*(1), 40–57. https://doi.org/10.1080/13670050208667745

Ekoç, A. (2020). English Medium Instruction (EMI) from the perspectives of students at a technical university in Turkey. *Journal of Further and Higher Education, 44*(2), 231-243. https://doi.org/10.1080/0309877x.2018.1527025

Fortanet, I. (2004). The use of 'we' in university lectures: Reference and function. *English for Specific Purposes. 23*(1), 45–66. https://doi.org/10.1016/s0889-4906(03)00018-8

Georgiou, S. I. (2012). Reviewing the puzzle of CLIL. *ELT Journal, 66*(4), 495–504. https://doi.org/10.1093/elt/ccs047

Gibbons, P. (2003). Mediating language learning: Teacher interactions with ESL students in a content-based classroom. *TESOL Quarterly, 37*(2), 247–273. https://doi.org/10.2307/3588504

Gibbons, P. (2015). *Scaffolding language, scaffolding learning: Teaching English language learners in the mainstream classroom* (2nd ed.). Portsmouth, NH: Heinemann.

Gupta, A., & Lee, G.-L. (2015). Dialogic teaching approach with English language learners to enhance oral language skills in the content areas. *International Journal of Language and Linguistics, 2*(5), 10-17. https://digitalcommons.odu.edu/teachinglearning_fac_pubs/19

Hall, J. K., & Verplaetse, L. S. (Eds.). (2000). *Second and foreign language learning through classroom interaction*. Mahwah, NJ: Lawrence Erlbaum.

Haneda, M. (2005). Some functions of triadic dialogue in the classroom: Examples from L2 research. *The Canadian Modern Language Review/La Revue canadienne des langues vivantes, 62*(2), 313–333. https://doi.org/10.1353/cml.2006.0003

Haneda, M., & Wells, G. (2010). Learning science through dialogic inquiry: Is it beneficial for English-as-additional-language students? *International Journal of Educational Research, 49*(1),10–21. https://doi.org/10.1016/j.ijer.2010.05.003

Hernandez-Nanclares, N., & Jimenez-Munoz, A. (2015). English as a medium of instruction: Evidence for language and content targets in bilingual education in economics. *International Journal of Bilingual Education and Bilingualism*, *20*(7), 883-896. https://doi.org/10.1080/13670050.2015.1125847

Hu, G., & Duan, Y. (2018). Questioning and responding in the classroom: a cross-disciplinary study of the effects of instructional mediums in academic subjects at a Chinese university. *International Journal of Bilingual Education and Bilingualism, 22(*3), 303-321. https://doi.org/10.1080/13670050.2018.1493084

Hu, G., & Li, X., (2017). Asking and answering questions in English-medium instruction classrooms: What is the cognitive and syntactic complexity level? In J. Zhao & L. Q. Dixon (Eds.), *English medium instruction in Chinese universities: Perspectives, discourse and evaluation.* (pp. 184-203). New York: Routledge.

Humphreys, P., & Mousavi, A. (2010). Exit testing: A whole-of-university approach. *Language Education in Asia,1*(1), 8-22. https://doi.org/10.5746/leia/10/v1/a03/humphreys_mousavi

Kumar, S. (2003). An Innovative method to enhance interaction during lecture sessions. *Advances in Physiology Education, 27*(1), 20–25. https://doi.org/10.1152/advan.00043.2001

Larson, L. R., & Lovelace, M. D. (2013). Evaluating the efficacy of questioning strategies in lecture-based classroom environments: Are we asking the right questions? *Journal on Excellence in College Teaching*, *24*, 105–122.

Lei, J., & Hu, G. (2014). Is English-medium instruction effective in improving Chinese undergraduate students' English competence? *International Review of Applied Linguistics in Language Teaching*, *52*(2), 99-126. https://doi.org/10.1515/iral-2014-0005

Llinares, A., & Pascual Peña, I. (2015). A genre approach to the effect of academic questions on CLIL students' language production. *Language and Education*, *29*, 15–30. https://doi.org/10.1080/09500782.2014.924964

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. https://doi.org/10.1017/S0261444817000350

Macaro, E. (2020). Exploring the role of language in English medium instruction, International *Journal of Bilingual Education and Bilingualism, 23*(3), 263-276. https://doi.org/ 10.1080/13670050.2019.1620678

Martín del Pozo, M. A. (2017). Academic discourse in English medium instruction contexts: A look at teacher explanations. *EPiC Series in Language and Linguistics 2,*12-118. https://doi.org/10.29007/cl6r

Marton, F., & Tsui, A. B. M. (Eds.). (2004). *Classroom discourse and the space of learning*. Mahwah, NJ: Lawrence Erlbaum.

Matusov, E. (2009). *Journey into dialogic pedagogy*. New York: Nova Science Publishers.

Mercer, N. (1995). *The guided construction of knowledge: Talk amongst teachers and learners.* Clevedon: Multilingual Matters.

Mercer, N. (2001). Language for teaching a language. In C. Candlin & N. Mercer (Eds.), *English language teaching in its social context: A reader* (pp. 243–257). New York, NY: Routledge.

Morell, T. (2004). Interactive lecture discourse for university EFL students. *English for Specific Purposes*, *23*(3), 325–338. https://doi.org/10.1016/s0889-4906(03)00029-2

Nassaji, H., & Wells, G. (2000). What's the use of triadic dialogue. *Applied Linguistics*, *21*(3), 376–406. https://doi.org/10.1093/applin/21.3.376

Navaz, A. M. M. (2012). Lecturer-student interaction in English-medium science lectures: An investigation of perceptions and practice at a Sri Lankan university where English is a second language [Unpublished PhD Thesis, University of Nottingham] Nottingham etheses. Retrieved from http://eprints.nottingham.ac.uk/12995/.

Navaz, A. M. M. (2013). A study on perception of lecturer-student interaction in English- medium science lectures. *Novitas-ROYAL (Research on Youth and Language), 7*(2), 117-136. https://files.eric.ed.gov/fulltext/EJ1167266.pdf

Navaz, A. M. M. (2020). Developing a framework for understanding lecturer-student interaction in English-medium undergraduate lectures in Sri Lanka: First step towards dialogic teaching. *International Journal of English Linguistics. 10*(6), 395-409. https://doi.org/10.5539/ijel.v10n6p395

O'Loughlin, K., & Arkoudis, S. (2009). Investigating IELTS exit score gains in higher education. *IELTS Research Reports. 10*, 1-50. Retrieved from https://www.ielts.org/-/media/research-reports/ielts_rr_volume10_report3.ashx

Rogier, D. (2012). The effects of English-medium instruction on language proficiency of students enrolled in higher education in the UAE. EdD Thesis, The University of Exeter. Retrieved from https://ore.exeter.ac.uk/repository/handle/10036/4482

Rose, H., Curle, S., Aizawa, I. & Thompson, G. (2019). What drives success in English medium taught courses? The interplay between language proficiency, academic skills, and motivation. *Studies in Higher Education*, https://doi.org/10.1080/03075079.2019.1590690

Sánchez-García, D. (2010). Classroom interaction in university settings: The case of questions in three disciplines (M.A. Thesis). Universidad Complutense de Madrid. Retrieved from http://eprints.ucm.es/12793/1/Davinia_Sanchez.pdf

Sánchez-García, D. (2018). Teacher questioning: Exploring student interaction and cognitive engagement in Spanish and EMI university lectures. *Porta Linguarum, Monográfico, (3)*3, 103-120. https://doi.org/10.30827/digibug.54304

Scott, P. (1998) Teacher talk and meaning making in science classrooms: A Vygotskian analysis and review. *Studies in Science Education, 32*(1), 45–80. https://doi.org/10.1080/03057269808560127

Scott, P. H., Mortimer, E. F., & Aguiar, O. G. (2006). The tension between authoritative and dialogic discourse: A fundamental characteristic of meaning making interactions in high school science lessons. *Science Education*, *90*(4), 605–631. https://doi.org/10.1002/sce.20131

Staarman, J., & Mercer, N. (2010). The Guided construction of knowledge: Talk between teachers and students. In K. Littleton, C. Wood & J. K. Staarman (Eds.), *International handbook of psychology* (pp. 75-104). Bingley: Emerald Group Publishing Limited.

Stoller, F. L. (2004). Content-Based instruction: Perspectives on curriculum planning. *Annual Review of Applied Linguistics*, *24,* 261–283. https://doi.org/10.1017/s0267190504000108

Swain, M. (1985). Communicative competence: Some roles of comprehensible input and comprehensible output in its development. In S. M. Gass & C. Madden (Eds.), *Input in second language acquisition* (pp. 235–253). Rowley, MA: Newbury House.

Swain, M. (1995). Three functions of output in second language learning. In G. Cook & B. Seidlhofer (Eds.), *Principle and practice in applied linguistics* (pp. 125–144). Oxford: Oxford University Press.

Teo, P. (2016). Exploring the dialogic space in teaching: A study of teacher talk in the preuniversity classroom in Singapore. *Teaching and Teacher Education, 56*, 47-60. https://doi.org/10.1016/j.tate.2016.01.019

University Grants commission (UGC). (2021). Circular number, 01/2021.

van Zee, E. H., Iwasyk, M., Kurose A., Simpson, D. & Wild, J. (2001). Student and teacher questioning during conversations about science. *Journal of Research in Science Teaching, 38*(2), 159–190. https://doi.org/10.1002/1098-2736(200102)38:2<159::AID-TEA1002> 3.0.CO;2-J.

Vygotsky, L. (1978). *Mind in Society*. London: Harvard University.

Walsh, S. (2011). *Exploring classroom discourse language in action.* Oxon: Routledge.

Wells, G., & Arauz, R. M. (2006). Dialogue in the classroom. *Journal of the Learning Sciences*, *15*(3), 379–428. https://doi.org/10.1207/s15327809jls1503_3

Xie, W., & Curle, S. (2020). Success in English medium instruction in China: significant indicators and implications. *International Journal of Bilingual Education and Bilingualism*, 1-13, https://doi.org/ 10.1080/13670050.2019.1703898

Yip, D. Y., (2004). Questioning skills for conceptual change in science instruction. *Journal of Biological Education*, *38*(2), 76–83. https://doi.org/10.1080/00219266.2004.9655905