

Factors affecting student comprehension in EMI classrooms: Teachers' perceptions

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ABSTRACT

English-medium instruction (EMI) has become popular in educational settings worldwide and has attracted scholars' attention, prompting them to investigate factors influencing student comprehension in EMI classrooms. This paper identifies the factors influencing students' use of English in EMI classrooms, which has become a significant issue within the field. The study's data were collected based on the results of interviews with English language teachers in Astana, and a thematic analysis was performed. It was determined that task comprehension, the teacher's level of English skills, and comprehension of terminology and lessons affect the students' English language comprehension according to teachers' perceptions. It was found that the identified factors can have both positive and negative effects. This study aligns with broader issues on the internationalization of higher education and the growing prevalence of English as a global language. It synthesizes research findings to identify key factors influencing student understanding in EMI classrooms from the teachers' perspective, providing key insights and recommendations for further research.

Keywords: English language teachers, English-medium instruction (EMI), reading and listening skills, task and lesson comprehension, thematic analysis

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INTRODUCTION

English-medium instruction (EMI) refers to the use of English as the primary language for academic instruction and has emerged as a recent development in educational practices (Hammou & Kesbi, 2023). The increasing adoption of EMI in teaching science subjects is observed in Pun et al. (2022) across specific regions worldwide. While terms like immersion, Content and Language Integrated Learning (CLIL), and bilingual education are often associated with similar approaches, this study primarily focuses on EMI. Despite their interrelatedness, these terms differ in their educational objectives compared to EMI. For example, CLIL aims to cultivate language proficiency and subject knowledge, whereas EMI primarily concentrates on delivering subject content without prioritising language skills (Dearden, 2014). Thus, in this context, EMI is defined as "the use of English to teach academic subjects, excluding English itself, in regions where English is not the dominant language" (Macaro et al., 2018). The research indicates that while EMI can offer significant linguistic and cognitive benefits, it also presents several barriers for both students and teachers (Dearden, 2014; Macaro, 2018). For students, the dual task of comprehending subject content and improving English language skills can be overwhelming, potentially affecting their academic performance and overall learning experience (Aguilar &

Rodrigues, 2012). Teachers need to adapt pedagogical strategies to meet the students' varied levels of English proficiency (Costa & Coleman, 2013). This need for effective pedagogical strategies has also been emphasized in previous research (e.g., Nogaibayeva et.al., 2023)

Today, English has become the global language of business, making the study of EMI increasingly important. EMI offers several benefits, including enhanced English language proficiency, expanded career opportunities, cross-cultural exchange, and preparation for higher education. These advantages are particularly valuable for students from non-English-speaking backgrounds, as they equip them with the linguistic and communicative skills needed to succeed in a globalized job market. Moreover, EMI fosters cross-cultural understanding, promotes a global mindset, and prepares students for further studies in English-speaking institutions by strengthening their academic and professional communication skills (Figure 1).

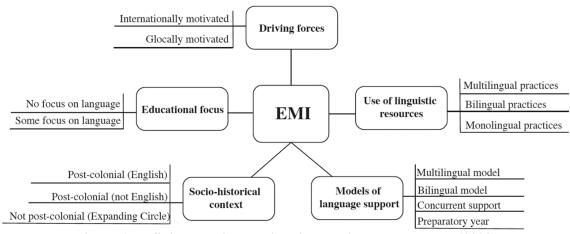


Figure 1. Defining English medium instruction by Rose et al. (2023)

Rose et al. (2023) defined EMI as the process of teaching and learning academic subjects in English in educational institutions where English is not the primary language of communication. EMI allows students to improve their language proficiency and academic performance by immersing them in an English-speaking environment. Figure 1 illustrates the concept of EMI and highlights the importance of achieving relative equivalence across different educational settings. Despite its potential benefits, implementing EMI in non-English-speaking countries presents several challenges. One major issue is that non-native English-speaking students may struggle to comprehend both the subject matter and the language of instruction simultaneously. Additionally, teachers who lack proficiency in English may face difficulties in effectively delivering content, which can hinder students' understanding of the curriculum. Furthermore, assessing students' comprehension of subject material and their English proficiency remains complex. Socioeconomic disparities among learners can also influence access to English language learning resources and support, further exacerbating inequalities in EMI settings.

Despite the extensive research on EMI, a gap remains in understanding the factors that influence student comprehension from teachers' perspective in the context of Kazakhstan. Most of the existing studies have focused on students' perceptions and academic outcomes, overlooking teachers' firsthand experience with students in the classroom (Klaassen, 2001; Tatzle, 2011). However, teachers' perceptions are crucial for identifying the challenges of enhancing student comprehension in EMI classrooms, as highlighted by Nogaibayeva (2023). In addition, Murphy et al. (2018) examined the effect of using both L1 and L2 on students' comprehension in science classes, finding that teacher interaction patterns and questioning strategies significantly influence student comprehension in EMI classrooms. Given that non-linguistic science subjects such as mathematics and physics are taught in English in Kazakhstan, further research is needed to examine these interactional dynamics to better support student comprehension in EMI classrooms.

We interpret the term "perceptions" in a broader sense, incorporating teachers' "beliefs, assumptions, and values" (Tsui, 2003, p. 61). Given that numerous studies in teacher education have demonstrated the significant impacts of teacher beliefs on their teaching decisions and practices (Tsui, 2003; Zhang & Liu, 2014), we aim for our exploration of EMI teachers' views on students' English language comprehension to offer insights into the comprehension challenges encountered by students in EMI settings.

Some teachers believe that students' language deficiencies have become a critical factor influencing comprehension in EMI classrooms. In contrast, others relate this issue to English language teachers or opt to deliver the content in the student's first language (L1) (Abduldayev et al., 2024). However, Pun and Thomas (2020) suggest that the teachers' use of L1 can effectively enhance students' comprehension, particularly for those who struggle with English. Their study underscores the importance of L1 as a support mechanism in EMI classrooms.

Similarly, Lin and He (2017) highlight the role of translanguaging—the fluid use of multiple languages can serve as a bridge to overcome communication barriers, foster creative thinking and stimulate learning. On the other hand, students' comprehension issues in EMI classrooms are not solely attributed to language proficiency. Research suggests that the teachers' English oral proficiency also plays a significant role in students' understanding (Chang, 2010; Civan & Coskun, 2016). Bradford (2013) found that over 80% of students express dissatisfaction with their lecturers' speaking abilities, further emphasizing the impact of teachers' language proficiency on student learning. Teachers can adopt various instructional strategies to address these challenges to improve student comprehension. Research indicates that pedagogical approaches, such as simplifying language, incorporating visual aids, and promoting active learning, significantly enhance students' understanding of lesson content (Kim et al., 2017). Therefore, factors affecting student comprehension in EMI settings are multifaceted, encompassing both students' English proficiency and teachers' oral communication skills.

Furthermore, active listening is crucial for students to absorb knowledge in EMI classrooms, significantly impacting their comprehension of lectures. Nonetheless, many students report difficulties with listening, which negatively affects their ability to follow lessons and, consequently, their overall academic performance (Kagwesage, 2013; Phuong & Nguyen, 2019). Kagwesage (2013) found that students often struggle to understand complex academic content, hindering their ability to engage with lectures effectively. Similarly, Phuong and Nguyen (2019) highlight that deficiencies in listening skills significantly impact students' academic outcomes. Alanshory (2014) further supports this finding, reporting that 77% of students identify listening as a barrier to learning, while 98% of EMI instructors recognize students' struggles in comprehending academic content in English. These studies indicate that listening proficiency is a major challenge in EMI settings and a critical factor influencing student success.

Additionally, vocabulary is an important component of language acquisition and is thus considered to directly impact students' ability to understand and work with complex texts. According to Nagy and Townsend (2012), acquiring academic vocabulary is important in improving students' comprehension. Insufficient vocabulary is a significant hurdle for learners in comprehending EMI lectures, as noted by Chang (2010). Rogier (2012) similarly emphasized students' difficulties with understanding EMI lessons due to a lack of vocabulary knowledge. These issues are further compounded by specialised vocabulary used in EMI contexts, which differs significantly from general English. Keuk and Tith (2013) also acknowledged this issue, stating that the combination of limited vocabulary and unclear contexts makes it challenging for students to grasp the lesson content and express their thoughts. These findings emphasize the fact that students understand the general idea, but the meaning of specific terms may hinder them from having incomplete comprehension. Research conducted by Hellekjær (2010) among Norwegian and German students found that they struggled to read texts or take notes in EMI classes due to encountering unfamiliar words. Moreover, many students invest additional time deciphering textbooks and materials, aided by dictionaries or translation tools, because of their restricted grasp of academic and specialized terminology (Phuong & Nguyen, 2019).

Regarding EMI lesson comprehension, the findings of Tran et al. (2020) indicate that among 233 participants, only 1.7% fully understood the lesson, while 83.2% could grasp more

than 50% of the content. The same study highlights students' challenges in understanding vocabulary in textbooks and lectures and difficulties in writing paragraphs using appropriate vocabulary and critical thinking skills. However, listening and comprehending lectures appear to be relatively less problematic.

Despite this, students often struggle to understand English-language textbooks and course materials due to their limited vocabulary and academic knowledge (Al-Bakri, 2013; Keuk & Tith, 2013; Le, 2015). These challenges frequently necessitate time-consuming strategies, such as dictionary use and translation, which can impede efficient learning. Additionally, test-taking presents a major obstacle, as many students struggle to comprehend exam questions and articulate their ideas effectively due to gaps in language proficiency (Sivaraman et al., 2014; Le, 2015). Difficulties in spelling academic terms further hinder students' ability to express themselves clearly, ultimately contributing to lower academic performance (Le, 2015).

This study examines the factors influencing students' comprehension of EMI lessons from the teachers' perspective. The following questions guide the research: 1) What are EMI teachers' perceptions of the factors affecting students' comprehension? 2) What factors influence students' comprehension of written English tasks in EMI lessons? 3) What factors affect students' comprehension of spoken English, particularly in terms of their participation and responses during EMI lessons?

METHOD

This study follows Braun and Clarke's (2006) six-step thematic analysis methodology, which includes (1) familiarizing with the data, (2) generating initial codes, (3) searching for themes, (4) reviewing themes, (5) defining themes, and reporting findings. Semi-structured interviews were conducted with seven EMI teachers from Astana to collect data. The participants included chemistry, physics, and biology teachers working in schools in Astana. Each interview lasted approximately 20–30 minutes. The semi-structured format allowed for in-depth exploration of the research problem by enabling follow-up questions to clarify and expand on participants' responses.

The interview questions focused on teachers' perceptions of students' comprehension in EMI classrooms. The core questions included: 1. Main question: How do you assess students' comprehension of subject content? Probing questions: a. Do students report difficulties in understanding your spoken English? b. Do students report difficulties in understanding written texts provided during lessons? 2. Have you encountered students who performed poorly on tasks or exams due to difficulties in understanding written or spoken instructions in English? 3. What do students find more challenging to comprehend: written instructions/texts/tasks or spoken instructions/tasks?

The interview responses were transcribed and analyzed using the six-step thematic analysis approach. The process began with data coding, followed by categorization, and finally, systematization of results to identify key themes related to students' comprehension challenges in EMI classrooms.

FINDINGS AND DISCUSSION

Findings

In-depth teacher interviews were fully transcribed and analyzed to address the research questions. Following Braun and Clarke's (2006) thematic analysis methodology, an initial coding process was carried out, leading to the identification of key themes. The analysis revealed four main themes: "Task Comprehension", "Teacher's Level of English", "Lesson Comprehension", and "Terminology". These themes were further categorized based on their relevance to reading and listening skills. For example, the "task comprehension" theme was examined separately for reading and listening skills.

The results indicated that each theme could positively and negatively affect students' comprehension, depending on the skill assessed. A five-column table was developed to present these complex findings clearly and structured. The first column shows the themes identified in

the thematic analysis. The second column includes respondents' answers supporting each theme. The third column indicates whether the response has a negative (-) or positive (+) effect on the student's reading and listening skills. This structured approach provides a comprehensive understanding of the identified themes and their implications. The detailed results are presented in Table 1.

Themes	Reading skills	+/-	Listening skills	+/-
Task comprehension	No, it never happened. Students did not ask for clarification of (the content) what was written in English, they asked for clarification of the instruction. Resp 2 Students knew that they had problems in terms of vocabulary, but they did not understand the instructions. Is that a reason to get a low score? Yes, it is. It is a reason for getting low scores. There were 2-3 students in every classroom who faced this problem. A student to whom I translated the instructions got high results because he had very limited (English). Resp 2 I translated the instructions for the examinations and complemented them with pictures. Resp 3 Do students tell you that they do not understand the written texts you give them? (It) happened sometimes. I often took this written text simply from ready-made textbook questions, for example. I know that everything was grammatically correct, but the students didn't understand them. Because perhaps the text was not adapted for them. They were for native speakers, but we used them for (our) students (non-native speakers). Resp 4 He did not understand, for example, only	+ -	Yes, when you told them the instructions, sometimes they didn't understand it correctlyummand they can do the tasks wrong Resp 1 There was no such case in grade 10. Resp 6	+
Teacher's English Proficiency	because he did not speak English. Maybe. Resp 5 I have never met such a situation. Before giving them written work, I will instruct them. Here it says that you do this this way. Instruction is mandatory. Resp 5	+	I am always looking for feedback on this issue. It came from 1-2 students; it happened like that. Depending on the 8th grade. Now that a student is in the 8th grade, it is normal for him not to know English well enough. Resp 5	-
	No, it never happened. When I gave the written work, I tried to make it easier for them right up to as intermediate even if there were just a few words, I tried to change them, especially these some words. Resp 6	+	Did students tell you that they don't understand your spoken English pronunciation? No, this has never happened. Resp 6	+
	Confusing words. If I used the word "occur" for example, they often didn't use it in other subjects. "Teacher, this word is not clear to me. This word in this sentence is unclear." Resp 7	-	Did students tell you they don't understand how you speak English? No, there was no such thing. Resp 7	+
Terminology	but the student could not do the task correctly because he did not understand the new terminology. Resp 1	-	Confusing words. If I use the word "occur", for example, they often don't use it in other subjects. "Teacher, this word is not clear to me. This word in this sentence is unclear." Resp 7	-
	I asked about 'voluntary, involuntary' during the exam instead of this. So, they started, as if we didn't know this word, we didn't cover this word, and it's true. But	-	Speaking in terms of terminology within the novel. The book itself was adapted accordingly, as the	+

Table 1. Defined themes and matched response

	precisely because they didn't know the translation of some words, they would have done it 100%, well, okay, 90% of the children made a mistake in this task. Resp 6 Because they simply did not know certain words or terminology, they cannot complete tasks. Resp 6	-	terminology in the book is given separately, in a simplified form. Resp 5 [And why is it easier for them orally?] You say (things) orally, you explain. And you speak Russian, Kazakh, instead of English. You speak Russian and Kazakh, but in writing, they read and did not understand. Resp 1	+
Lesson	[Would it be difficult to write?] It would be difficult to write. [Why is it more difficult to write?] For example, if you paraphrase new terminology words, for example, you replace them with another word. Resp 1 It's like a new thing, for example, when I	-	(It is difficult for students to	_
Comprehension	say, when I speak, when I openly say, for example, I meant it like this, he understood. And if I give him the task, he looks at (the text) and reads and may not understand. Resp 2		comprehend) oral instructions because (students') listening skills (are weak). Resp 4	
	When you say something, they fly in the clouds. And when they read more they may be distracted but return to the text. And it's easier for them to understand what to do. Resp 4	+	It may be more difficult to understand oral instructions/language because (students) may (have hindrance to) say "I didn't understand" (teacher's) oral language. Teachers may not notice it (that some students do not understand well). Therefore it was more difficult to analyze it, whether the child understood it or not. Resp 5	-
	Maybe it's oral; writing is at hand now, but it will take a little time to read you need to learn it orally; you need to catch it right away, and there will be a time in writing. Resp 7	+	I think it's more important to explain to students (instructions, tasks) so they can hear it because they may fail to read them. It's better to explain (instructions and tasks orally) because you use gestures in the process of explaining. For example, when you divide (the class) into two, you will use gestures to explain. Resp 6	+
	Because the writing is in front of your eyes. You can make a translation at any time. Resp 5	+	It might be difficult to understand oral instructions, (whereas) written tasks/instructions were accessible, and reading will take a little time. You need to understand oral instructions immediately, whereas you will need extra time in written instructions. Resp 7	-
	But it's more difficult to write Well, if you compare, I certainly didn't make such a comparison, but I thought it would be more difficult (writing). Resp 6	-	For example, when I said and explained something, the students understood. If I just gave students a written task, they just looked at (the text) and read it, and may not understand. Resp 2	+
	Writing takes time. I thought writing was convenient for them. Resp 7	+	-	

Discussion

Task comprehension

According to the respondents, most students struggle to comprehend written tasks because they have a low level of English proficiency or because teachers give materials that are not adapted to their level of English. As a strategy to improve comprehension, Respondents 2, 3 and 4 reported translating the tasks into the students' mother tongue. This aligns with the findings of Pun and Thomas (2020), who advocate for using L1 for better comprehension. Lin and He (2017) also believe that translanguaging improves students' understanding of the lesson, engages them in the learning process, and helps them overcome language barriers. Regarding students' comprehension of oral instructions, the responses were divided. While some teachers believed that students understood oral English instructions well, others noted significant challenges in this era.

Teachers' English proficiency

The findings indicate that students' comprehension of written tasks is comparable to their ability to understand teachers' spoken English, which aligns with the outcomes of Tran et. al (2020). Teachers reported that written text comprehension was not a major problem for students because teachers adapted texts and provided detailed explanations to mitigate potential difficulties. However, challenges related to vocabulary constraints and background knowledge were consistent with the findings of Al-Bakri (2013), Keuk and Tith (2013), and Le (2015). Regarding listening comprehension, Respondents 6 and 7 stated that their students understood them well, whereas Respondent 5 highlighted students' comprehension difficulties due to their limited English proficiency. However, the current study's findings do not align with those of Chang (2010) and Civan & Coşkun (2016), who emphasized teachers' inadequate oral proficiency as a key factor contributing to students' low comprehension levels.

Terminology

All responses for reading comprehension unanimously state that a lack of familiarity with terminology in English led to difficulties or failure in understanding the texts (Rogier, 2012). Similarly, research works by Hellekjær (2010), Chang (2010) and Tith (2013) found that students with limited vocabulary struggled to comprehend the reading materials in English. To address this issue, teachers frequently employed translanguaging when students encountered unfamiliar words, helping them overcome communication barriers, initiate creative thinking and engage in the learning processes (Lin & He, 2017). Respondent 7 reported that students with restricted vocabulary also struggled to understand teachers' oral explanations, as stated by Chang (2010).

Lesson comprehension

Participants' responses depicted students' comprehension of written and spoken English in different aspects of the lessons. The majority demonstrated that students generally understood lessons in English. Regarding reading comprehension, four out of six respondents believed that students comprehend better by reading because the written texts, tasks or instructions can be referred to and translated if needed. These findings are confirmed by Tran et al. (2020), who reported that over 50% of lesson content was understood by 83% of research participants. Conversely, three out of five respondents believed that students understood better by listening, as teachers can use gestures to aid understanding. However, Alanshory (2014) found that two-thirds of students identified poor listening skills as a barrier to lesson comprehension, while 98% of teachers in the same study believed that listening comprehension was a major factor affecting students' poor lesson comprehension.

CONCLUSION

This study found that task comprehension, teacher's English proficiency, terminology, and lesson comprehension significantly affect EMI classrooms' reading and listening skills. The findings suggest that these factors, as perceived by the teachers, can positively and negatively affect students' English use. Thematic analysis revealed that these elements are not solely beneficial or detrimental but rather present a complex interplay of challenges and advantages. EMI offers substantial benefits and opportunities for students, from improving language proficiency and academic progress to broadening global networking. This study sheds light on the factors influencing student understanding in EMI classrooms from the teachers' perspective. By addressing existing knowledge gaps and implementing suggested future research directions, educators can work toward creating more supportive EMI learning environments. Despite providing valuable insights, this study also identifies several areas for further investigation. Future research should explore the issues related to limited access to resources and technical support in

EMI classrooms. In addition, teachers' preparation and competence in using digital media and technology to enhance student understanding need to be explored. Finally, assessment strategies should be studied to understand the multifaceted interaction between social factors, collaborative learning, and student performance in EMI classrooms.

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