



Exploring Teacher's Obstacles and Strategies toward the Implementation of English as a Medium of Instruction in Homeschooling

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Abstract

The rapid pace of globalization has led to the widespread adoption of English as a Medium of Instruction (EMI) in Indonesia. Extensive attention has been devoted to examining academic challenges, yet the complexities associated with integrating English as a Medium of Instruction (EMI) into homeschooling settings have remained largely unexplored. This case study delves into the utilization of EMI for teaching Science and Math within a homeschooling context. Through meticulous observation and interviews, this investigation reveals that two primary obstacles emerge: the comprehension of Science and Math terminology in English and students' proficiency in the language. In their daily classes, students typically engage with Science and Math concepts using Indonesian, which presents a significant hurdle when encountering English terminology. EMI classes, offered as extracurricular activities, attracted participation from third- and fourth-grade students. To address the linguistic challenge, the teacher implemented a strategy of code-switching, adeptly recontextualizing unfamiliar vocabulary using everyday language. Recognizing the diverse language competency levels among students, collaborative learning and grouping strategies were employed to enhance effectiveness in addressing these challenges. This approach fostered an environment where students could support one another, facilitating improved understanding and engagement with the material.

Keywords: *English as a medium of instruction, Homeschool, Obstacles and Strategies, Science and Math*

Abstrak

Percepatan globalisasi telah menghasilkan perluasan Bahasa Inggris sebagai bahasa pengantar di Indonesia. Tantangan akademis telah banyak dikaji, sedangkan tantangan yang terkait dengan implementasi Bahasa Inggris sebagai bahasa pengantar dalam homeschooling masih belum banyak dieksplorasi. Studi kasus ini meneliti implementasi *EMI* untuk mengajarkan Sains dan Matematika dalam konteks homeschooling. Melalui observasi dan wawancara, studi ini menemukan bahwa terminologi Sains dan Matematika serta kemampuan bahasa siswa menjadi dua kendala utama. Di kelas sehari-hari, siswa belajar Sains dan Matematika dengan menggunakan bahasa Indonesia, yang membuat mereka kesulitan untuk memahami istilah-istilah

dalam bahasa Inggris. Kelas *EMI* ditetapkan sebagai kegiatan ekstrakurikuler, yang menarik partisipasi siswa dari kelas tiga dan empat. Mengingat tantangan yang ada, guru menggunakan praktik alih kode sebagai sarana untuk mengatasi kosakata yang tidak dikenal, oleh karena itu, guru mengkontekstualisasikan kembali kata tersebut dengan menggunakan bahasa sehari-hari. Penerapan strategi pembelajaran kolaboratif dan pengelompokan digunakan untuk secara efektif memenuhi tingkat kompetensi bahasa yang beragam yang dimiliki oleh para siswa.

Kata kunci: Bahasa Inggris sebagai bahasa pengantar, Homeschool, Hambatan dan Strategi, Sains dan Matematika

INTRODUCTION

Basting a staggering 1.45 billion speakers, English is a globally recognized lingua franca, facilitating communication among individuals from diverse linguistic backgrounds. It also holds the status of an official language in a remarkable 67 countries worldwide (Blank, 2023). Furthermore, the rapid phenomenon of globalization has played a significant role in the proliferation of English as a Medium of Instruction in educational domains. The implementation of English as a medium of instruction has been widely adopted throughout the nation, including Malaysia, Thailand, Vietnam, Korea, Japan, China, Philippines, India, Pakistan, and Nepal (Lamb et al., 2021; Manh, 2012; Sah, 2022; Waswa, 2020; Yahaya et al., 2009). English as a Medium of Instruction refers to the utilization of the English language for the purpose of imparting academic knowledge in regions where the majority of individuals do not have English as their first language (L1) (Dearden, 2014; Macaro, 2019). In addition, the term English as Medium of Instruction (henceforth, EMI) refers to the use of the English language to teach subjects other than English (Penthisarn & Phusawisot, 2021). The primary goal of the implementation of EMI is to prioritize the instructional content's meaning rather than the form of the English language Ibrahim (2001). It implies that acquiring a second language might occur simultaneously or unintentionally.

EMI has been widely adopted across various educational levels, from preschool to university, and has even been implemented in regions where English may be perceived as a language associated with historical oppression (Ducker, 2019). EMI is increasingly acknowledged as an innovative approach to simultaneously acquiring a second language alongside other academic subjects. Thus, nations impacted by this approach have developed educational programs integrating EMI into pedagogical practices. The Office of the Basic Education Commission (OBEC) in Thailand took the initiative to establish English Programs, commonly referred to as E.P. schools or bilingual schools, back in 1995 (Penthisarn & Phusawisot, 2021). In 2002, the Malaysian government introduced the English for Teaching Mathematics and Science (ETeMS) program with the aim of enhancing students' English language proficiency (Nor et al., 2011). Meanwhile, EMI was introduced in 2003 in Indonesia concurrently with the educational initiative *Sekolah Berstandar Internasional* (International Standard School) (Lamb et al., 2021).

The utilization of EMI has been discovered through numerous studies. Hakim (2021) found that the implementation of EMI in higher education has been shown to have several positive effects. These include the enhancement of academic competence, improvement in English proficiency levels, and increasing learning motivation. However, the effectiveness of using EMI could be improved if all parties involved fully understand the fundamental prerequisites for utilizing EMI within an academic setting.

Unfortunately, the prevalence of EMI utilization is observed to be more significant in the context of higher education. The survey examined that 54 nations worldwide have implemented EMI courses and programs in higher education institutions around the globe (Lin & Lei, 2021). The association of EMI with higher education primarily stems from the necessity of international language study and proficiency in English. This proficiency is crucial for effectively accessing information on the Internet, comprehending specialized content in books and scientific papers, and engaging in meaningful communication with foreign colleagues in conferences and forums where English is predominantly utilized (Ernawati et al., 2021). The EMI program is widely recognized as a valuable avenue for university students to enhance their domestic and international employment prospects. It allows them to engage in educational exchanges within their own country and overseas, broadening their horizons and expanding their skill sets. As stated by Ibrahim (2001), several universities in Indonesia, namely the University of Indonesia, Trisakti University, Atmajaya Catholic University, and Petra Christian University, have adopted EMI for their international programs. The utilization of EMI in universities has been found to have several advantages for both students and instructors. These advantages include facilitating bilingualism, enhancing motivation to acquire proficiency in the English language, augmentation of language exposure, and providing opportunities to develop English language skills and literacy (Ibrahim 2001).

The phenomenon of EMI has witnessed a significant surge in prevalence, extending its reach to tertiary education institutions. Paris et al. (2022) discovered that EMI impressively improves students' English ability, particularly their reading skills, through exposure to reading textbooks and watching YouTube; nonetheless, the students had more exposure to Thai than English. In a recent study conducted by Ernawati et al. (2021), the researchers aimed to investigate the perceptions of primary school teachers and students regarding EMI. The researchers discovered that despite the students' restricted vocabulary and challenges with pronunciation, both teachers and students agree that the implementation of EMI has the potential to enhance language abilities and speaking confidence. According to Owu-Ewie & Eshun (2015), the utilization of EMI in primary and junior high schools in Ghana involved various language practices, including translation, code-switching/mixing, simultaneous use of both languages, and the application of safe-talk strategies. Despite that, the teacher emphasized the utilization of the native language on a more frequent basis.

Furthermore, the integration of EMI has garnered significant attention and adoption in Indonesia's educational landscape. According to Nur et al. (2023), the implementation of EMI has been carried out in the eastern region of Indonesia. They discovered that the participants exhibited favorable attitudes towards EMI and recognized its significance in enhancing students' proficiency; however, students' proficiency continues to pose a significant challenge in implementing EMI. Moreover, the application of EMI has been expanded to encompass homeschooling. Qomariah et al., 2022 stated that the objective of EMI in home school is to facilitate students to communicate simply within their school and home environments with basic English that is adapted to the student's level of comprehension and requirements, and it is taught repeatedly. In addition, they evaluated the implementation of EMI and found that the program's output and outcome were excellent, as evidenced by the student's academic performance.

However, certain obstacles may arise during the implementation of EMI. EMI is considered to have the potential to weaken nationality values, divide people, and produce societal gaps (Dearden, 2014). Ibrahim (2001) additionally listed five

challenges that hinder the implementation of EMI. Firstly, the challenge of achieving a balance between the utilization of English and Bahasa. Secondly, there is a lack of a supportive atmosphere for the acquisition of English in Indonesia. Thirdly, there is a noticeable deficiency in the English language skills demonstrated by students and teachers. Fourthly, the reduced contextual aspect of classroom communication may impede the effectiveness of student participation. Lastly, the limited range of activities may impact student performance. Consequently, educators ought to ascertain the optimal pedagogical approach for instructing students by discerning the potential challenges that may develop throughout the implementation of EMI.

EMI can give numerous advantages to students as it enhances communication, fosters the exchange of ideas, and improves their English through exposure. Therefore, implementing EMI in primary or secondary education could prove advantageous for students as it would enable them to acquire knowledge in various subjects while also gaining proficiency in the English language. Unfortunately, there is a scarcity of scholarly studies addressing the utilization and challenges associated with EMI in the context of homeschooling. Therefore, the current research goals are:

1. To investigate the implementation of EMI in the context of homeschooling.
2. To explore the obstacles associated with integrating EMI to teach Science and Math in homeschool.
3. To explore the strategies associated with integrating EMI to teach Science and Math in homeschool.

METHODS

This study employed a qualitative case study. This research aimed to examine challenges and strategies associated with integrating EMI to teach Science and Math within a homeschooling context. Creswell (2014) mentioned that case study is a prevalent research method utilized in various disciplines, particularly evaluation. A case study was chosen to allow the current study to look closely at the implementation, obstacles, and strategies in adopting EMI used by the participant.

This research was conducted at an elementary home school in Yogyakarta during the second semester of the 2023/2024 academic year. The study was taken in this home school because they facilitate the students to learn Science and Math through EMI in the extracurricular. The participant of this research was an English teacher who participated in extracurricular activities. She had taught for one year using EMI in the classroom.

The data was gathered through observation and semi-structured interviews with open-ended questions. The observation was used to determine how EMI was utilized in the classroom and formulate interview questions. The semi-structured interview was suitable to (1) get qualitative, open-ended data; (2) investigate participant perspectives, emotions, and convictions regarding a particular subject matter; and (3) obtain comprehensive data concerning personal matters or sensitive issues (DeJonckheere & Vaughn, 2019). The interview was conducted in Indonesian to facilitate the participant's efficient articulation of her thoughts. The interview was conducted via Zoom interviews. The participant was queried regarding her perspectives on EMI and the difficulties related to the implementation of EMI in homeschooling to teach Science and Math subjects.

The data was derived through observation and interviews. The data gathered underwent examination through a five-step process outlined by Bell & Aldridge (2014). These processes involved (1) listening to the audio recordings and transcribing the interviews, (2) classification of the collected data, (3) revisiting the transcript and

verifying data, (4) generating a summary based on the information, 5) writing the interpretation and summary of the collected data. Following data collection, participants were requested to review the summary of interview data as proposed by (Hitchcock & Hughes, 1995). The data were classified according to the research on the obstacles and strategies of implementing EMI in homeschooling. The data that were deemed irrelevant and redundant were excluded. Ultimately, the findings were utilized to derive conclusions. The researcher employed member checking as a method to ensure the validity of the data collected. Birt et al. (2016) stated that member checking, also called participant or respondent validation, is a valuable technique used to assess the credibility of research findings. The English teacher is provided with data or results to review for accuracy and alignment with both her own experiences and the interview results

RESULTS AND DISCUSSION

Specifically, this section was intended to provide further details regarding the implementation, challenges, and strategies employed to address English as a Medium of Instruction in the context of homeschooling for the subjects of Science and Mathematics.

1. Teacher perspectives toward EMI to teach Science and Math

The implementation of EMI in the subjects of Science and Math within the context of homeschooling is purposefully designed to cater to students who primarily speak English as their first or second language. According to the teacher's remarks, it was observed that the cohort of students who opted to participate in the Science and Math extracurricular activities consisted of individuals who had previously received instruction in English at their respective schools, as well as those who regularly employed English as their primary means of communication in their daily lives.

Data 1

From my perspective, using English as a medium of instruction in academic situations could be an aid for students who prefer to receive materials in English. It also offers several benefits for students, such as receiving verbal and written information that is provided in English, developing their English skills, and allowing them to learn various subjects in English with sources that are much wider and more accessible. (Teacher)

According to the teacher, this extracurricular activity has been observed to be beneficial for students who find it easier to comprehend concepts in Science and Math when they are taught in English. Additionally, EMI enhanced English language exposure for students. The integration of EMI has proven beneficial in fostering the development of students' English skills. The teacher also highlighted that EMI could facilitate the accessibility of resources for students across a wide range of subjects, extending beyond the confines of Science and Mathematics.

Furthermore, the observation revealed that the instructor exclusively employed English as a medium of instruction during the course. The instructor aimed to provide her students with ample opportunities to engage with the English language by utilizing comprehensive English instruction. Despite the fact that the extracurricular activity was purposely designed for students who primarily speak English as their first or second language, there was a student who still struggled to speak English. Hence, she allowed the student to communicate in Bahasa. Subsequently, the teacher reiterated his previous

statement in the English language. The program facilitated the students' exposure to accurate vocabulary and pronunciation, thus enhancing their vocabulary.

Furthermore, the teacher in this class served as a facilitator, assisting students with experiments and providing information about the subject matter. She preferred to provide students with additional opportunities to engage in practice, experimentation, and collaborative discussions with their peers. Moreover, the extracurricular participants comprised students from the third and fourth grades, occasionally requiring the teacher to address distinct subject matters, presenting her with challenges.

2. Obstacles

There were two main obstacles that the English teachers in homeschooled faced when implementing EMI. These two obstacles are Science and Math terminology and students' language proficiency.

a. Science and Math terms

Learning Science and Math presents several challenges, including internal factors such as interest, motivation, and self-confidence, as well as external factors such as many unfamiliar terms, a lack of enthusiasm for mastering the concept, being less careful, and failing to understand the purpose of the problem (Putra et al., 2020; Sairo et al., 2015). In addition, Husarida & Dollete (2019) stated that teaching Math and Science is challenging because it requires calculation, comprehension of concepts and principles, and understanding Math's relationship to other subjects; consequently, many instructors and students find it difficult. Furthermore, when using EMI to teach Science and Math, students are expected to learn exclusively using English. Consequently, students will be overwhelmed in learning Science and Math since there are many terms that students never heard before. Additionally, students learn Science and Math using Indonesian in their regular classes. The students will be more conversant with Indonesian terms than English ones.

The teacher expressed that encountering various terms within the materials posed a significant challenge. Even though the students who joined the extracurricular were already exposed to English, they still had problems with unfamiliar terminology.

Data 2

Even though the students are quite proficient in English, a brief explanation in Bahasa is still needed for some concepts in Science and Math. Another issue is that elementary students require more intense assistance during the process of learning and have more limited vocabularies (compared to native speakers and higher-level students), which leads to extra work for clarifying meaning. (Teacher)

As stated by the teacher, students frequently struggle to fathom Science and Math terms and require additional support when learning these subjects using EMI. It was the most challenging aspect of implementing EMI in the classroom. Language in Science and Math is likely to have an extensive vocabulary, ranging from the most commonly used terms in English in naturalistic situations to phrases used in academic discourse (Coxhead, 2000). Dewi et al. (2018) also mentioned that mathematical vocabulary consists of terms unique to mathematics, such as equations and algebra. Moreover, daily language also has a distinct meaning in Math concepts such as factor; in daily language, it means factor is a variable that affects something, while in math, it means one of two or more numbers that divides into a whole number without leaving a remainder.

Data 3

...for example, they do not know the term abacus, so I explained it in Bahasa as "sempoa"...(Teacher)

Data 4

...even as simple as the name of the day in math, they know the order and pronunciation, but in spelling, there are a lot of missing words or repetitions, like Wednesday with a double "d"... (Teacher)

Data 5

...in Science, it is not the spelling, but they are not familiar with the terms, like cell for electricity; they think of cells in the body... (Teacher)

Several terminologies, such as abacus and cell, may cause difficulties for the students. The term abacus here was an uncommon word in daily life; therefore, students were unfamiliar with the meaning of the word. Another issue was that students misunderstood words, such as the word cell, which they believed only referred to cells on the body. Additionally, students still have trouble writing the correct spelling. Even though they are fluent in English, they frequently misspell common words such as Wednesday. In conclusion, the issue in Science and Math was caused by an external factor involving unfamiliar terminology.

b. Students' language proficiency

The second obstacle was the language proficiency of the students. Since students who enrolled come from third and fourth grades, they perform at various proficiency levels. Additionally, there was one student who struggled to comprehend English. It affected the entire teaching and learning process. The combination of two classes refers to mixed-ability or mixed-level class. Mixed-ability level teaching involves collaborating with pupils with distinct personalities, skills, interests, and educational requirements (Ansari, 2013). In addition, Al-Subaiei (2017) mentioned that mixed-level classes provide engaging learning environments because they comprise a large variety of skills, attitudes, and points of view.

The respondent stated that the combination of the two grades created significant challenges due to their level of proficiency.

Data 6

...students have diverse backgrounds, including their English level of proficiency, which leaves teachers no option to develop their language skills while at the same time teaching materials of Science and Math along the process...(Teacher)

Data 7

...compared to grade 3, grade 4 have a much broader vocabulary because they also have a background that often uses English and even in everyday life with their parents... (Teacher)

Since the students have diverse language backgrounds, the teacher must consider how to teach both classes simultaneously or separately, depending on the student's classes. Baker (2002) in (Svärd, 2007) noted that it can be challenging to maintain the attention of all pupils in mixed-ability classes. Their motivation may be low, and the

teacher may become frustrated due to insufficient time to assist the inferior students. Nonetheless, the teacher managed the entire class during the observation. With only five students in the class, she could administer the class effectively. She was attentive not only to pupils who were actively engaged but also to those who were not. Therefore, the mixed or mixed ability class implemented in this homeschool must be accompanied by a way out so that students with a better understanding can acquire knowledge and those still falling behind can adapt to Science and Math learning.

3. Strategies

The teacher used code-switching to address Science and Math terminologies while employing collaborative learning to accommodate students' language proficiency.

a. Code- Switching

The inclusion of unfamiliar terminology in the materials may elicit feelings of frustration among students. Hence, the instructor must devise strategies to facilitate comprehension of the subject matter, such as providing additional explanations of critical concepts or translating them into Indonesian. The respondent stated that she used code-switching to address unfamiliar Science and Math vocabulary. Bokamba (1989) noted that code-switching refers to the act of integrating words, phrases, and sentences from two separate grammatical systems inside the same speech event but maintaining different borders between sentences. In addition, Waris (2012) mentioned that code-switching is one of the alternative methods to speak two or more languages simultaneously. In the implementation of EMI, this strategy is viewed as an effective way to explain terms to the students at the level of phrases, words, and sentences.

Data 8

...the portion of code-switching is not a complete sentence, but only a few phrases, words, or sentences are very few... (Teacher)

Data 9

... I believe that, overall, only a few phrases or one or two sentences have code-switching or a percentage of seven out of ten.... (Teacher)

She stated that code-switching is the most effective method for handling Science and Math terms. She said that seven out of ten employment positions involve code-switching. She employed code-switching at various levels, including words, phrases, and sentences. In contrast, the observation revealed that code-switching was utilized infrequently. She only used it to assist students who had difficulty expressing their opinions.

Moreover, when her students struggled to understand some of the questions, she explained the lessons more simply or gave examples related to daily life. She stated that this was the best way to let her students use English in class because she wanted to minimize the use of L1. Additionally, when students speak in Bahasa, the teacher will translate their words into English. It helped the students to learn the language simultaneously. In line with this study, Nor et al., 2011 revealed that 25 of these 44 students enjoyed learning Mathematics and Science in English. However, the result showed that most pupils prefer L1 as the primary language of instruction.

Despite students' limited vocabulary in Science and Math, the primary objective of implementing EMI is to provide a conducive learning environment for students who prefer to use English as their language of instruction in Science and Math; therefore,

the focus is more on the content's meaning than grammar. Additionally, the teacher's use of code-switching as a recurring technique aimed to clarify the intended meaning of a word. Adi & Ambarini (2022) noted that supplementing English with their native language (code-switching) can be an option to improve communication with students learning English for Math in their native language so that they can better comprehend the subject matter. Therefore, the code-switching strategy that the teacher implemented in dealing with the Science and Math terms was suitable for the implementation of EMI for home school students.

b. Collaborative Learning

Since the mixed-ability class was implemented in this extracurricular challenge, the teacher had to find the best method to accommodate students' language proficiency. Bowman (1992) on (Svärd, 2007) stated that the significant issue that cannot be ignored is the approach to dealing with the mixed-ability class. To deal with students' language proficiency, she employed different activities suitable for their grades. In addition, the teacher implemented collaborative learning (CL) in the EMI class. CL provides the teacher with several opportunities to monitor students engaging in various activities, such as conversing with their peers, expressing their thought processes, posing inquiries, and engaging in discussions pertaining to their ideas and concepts (Cooper et al., 1984).

The respondent stated that dealing with mixed-level classrooms was difficult since she had to manage multiple materials simultaneously, so she preferred to use collaborative learning and different activities. On the observation, collaborative learning was being used in the experiment.

Data 10

...so, I give them tasks like writing, doing presentations, doing projects, and discussing for grade 4... (Teacher)

Data 11

...previously, there was material about money in grades 3 and 4, so I prefer to teach together in the same class...(Teacher)

The respondent mentioned that she used several activities such as writing, presentation, discussion, and projects in the daily basis class to help her manage the mixed-ability class. She employed a variety of activities because she intended the class to be practical and student-centered. Moreover, based on the observation that the teacher used grouping strategies for the experiments, she also employed grouping strategies. In the experiment, students were free to choose their partners. Barrantes (2019) stated that one of the techniques for dealing with mixed-level classes is employing the grouping strategy. The grouping could be divided based on students' proficiency level, age, or random grouping.

Moreover, the grouping strategies were also implemented in the daily learning when the materials differed. The teacher stated that, when the materials vary, she initially preferred to instruct grade three due to the additional support required by the students at that grade level. While teaching third grade, she gave fourth-grade assignments or discussions. In addition, she mentioned that if there were similar material that both students would be taught, she would opt to teach the class together. During the observation, the researchers instructed the students to collaborate in conducting experiments, as they were provided with identical materials.

Furthermore, the teacher believed that employing different activities that were suitable for students' grades and language proficiency could help them improve their language acquisition. Moreover, Soika (2020) mentioned that collaboration is essential for addressing a vast array of skills and abilities in the classroom. The use of collaboration to accommodate a variety of skill levels in a single classroom was beneficial, as students shared their ideas through presentations. In addition, such collaborative activities can facilitate student idea-sharing, language exchange, increased empathy, and developed self-reflection. In addition, Laal & Ghodsi (2012) summarize the benefit of collaborative learning by Johnsons (1989) and Pantiz (1999). They are divided into four categories: social, psychological, academic, and assessment. The academic benefits of collaborative learning are 1) engaging students in learning, 2) improving critical thinking, 3) producing better results, 4) motivating students to learn, and 5) employing various assessment methods.

Collaborative learning helps the teacher handle the students' language proficiency and reduces classroom anxiety created by new and unfamiliar situations. Kessler et al. (1985). Thus, the students can learn and solve Science and Math exercises together. Therefore, using collaborative learning will assist the teacher in obtaining a better understanding of each student's learning style and performance, allowing her to manage her students better and provide more guidance.

Additionally, the teacher was asked whether students demonstrated improved performance when instructed in English versus Indonesian. Although she could not provide precise academic performance data from regular classes, she expressed confidence in students' grasp of the material and concepts. She affirmed their capability to apply acquired knowledge in both regular and extracurricular contexts.

Data 12

I cannot describe whether they perform better since I am not their Science and Math for their regular classes. But I can confirm that they are successful in comprehending the materials and creating links between the concepts and applications on a daily basis. (Teacher)

Moreover, the teacher noted that students demonstrated commendable success in applying English as a Medium of Instruction (EMI) in Science and Math, highlighting their ability to surpass the minimum required scores.

Data 1 3

...during the one year I taught, the students scored above the minimum requirement... (Teacher)

It demonstrated that incorporating EMI in extracurricular activities can assist students in learning Science and Math. Despite the mixed-level class and the varying levels of language proficiency among students, the teacher effectively managed the classroom dynamics by implementing group work and collaborative learning strategies. The implementation of these instructional approaches employed by the teacher has the potential to support students with varying levels of language proficiency. Furthermore, students were not solely engaged in acquiring Science and Math concepts and materials but also had the opportunity to develop their English language skills.

The obstacles that appeared in the implementation of EMI were Science and Math terms and students' language proficiency. These two obstacles created a real problem

in learning Science and Math since the students commonly used Indonesian in their regular classes. However, these two obstacles could be handled by the teacher. Code-switching is used to deal with the Science and Math terms. Code-switching could aid students by explaining unfamiliar terms in Indonesia so the students will quickly understand the concepts and theories. In addition, the employment of code-switching was limited to phrases and words.

Furthermore, grouping and collaboration were employed to deal with students' diverse language proficiency. Since the students who joined the extracurricular were third- and fourth-graders, they have different language proficiency. Therefore, grouping and collaboration were identified as effective teaching methods, and students exhibited outstanding achievements, particularly in extracurricular activities, surpassing the minimum required scores. In conclusion, the implementation of EMI in homeschooling to teach Science and Math classes is regarded as beneficial for students, as it not only facilitates language acquisition but also enhances engagement with other academic subjects.

DISCUSSION

The research findings indicate that incorporating English as a Medium of Instruction (EMI) in homeschooling serves the purpose of catering to students who prefer learning Science and Math in English. This approach not only imparts knowledge in various subjects but also contributes to the student's familiarity with the English language, as highlighted by (Khasbani, 2019). The interview results further emphasize that the implementation of EMI in homeschooling enables the development of students' English language skills. It aligns with Chou's (2018) perspective on EMI, emphasizing its role in enhancing speaking skills through improved lexical bundles, content knowledge, regular exposure to inputs, and ample practice opportunities, thereby reducing speaking anxiety. Additionally, the study suggests that the use of EMI fosters critical thinking and boosts students' confidence, ultimately enhancing their overall learning experiences, as supported by (Muniroh et al., 2022; Qomariah et al., 2022).

Despite the advantages associated with the adoption of English as a Medium of Instruction (EMI) in homeschooling, there are inherent obstacles to its implementation, as highlighted by Husarida & Dollete (2019) and Nor et al. (2011). Challenges include learners' language proficiency, performance in Math and Science, enjoyment levels in learning these subjects in English, and the perceived difficulty of learning Math and Science in English. Consistent with prior research, the current study identifies two obstacles: the complexity of science and math terminology and students' language proficiency. Science and Math terms pose difficulties for students, who often encounter unfamiliar words such as "abacus." Additionally, students find it challenging to discern words with multiple meanings, like "cell," in the context of the body versus electricity. This finding aligns with Ismail's (2012) study, which observed that students improved their comprehension of scientific concepts and academic performance in English subjects when taught in English. Nevertheless, Nor et al. (2011) research contradicts this, revealing that students struggled to grasp Science and Math concepts in English despite having a good understanding of the English language based on their English scores

Moreover, teacher efficacy beliefs are crucial in shaping the teaching and learning process. Both How (2008) and Nor et al. (2011) emphasized that students perceive learning Science and Math as challenging when teachers lack sufficient

English language proficiency, hindering students' comprehension. In contrast, the current study observed that the English teacher, who graduated with a degree in English letters, effectively managed the classroom during the extracurricular EMI class, which involved students from various grades with different language proficiency levels. The teacher's ability to handle the classroom was attributed to the strategic use of code-switching and collaborative learning techniques, fostering a supportive learning environment for students of diverse linguistic backgrounds. Utilizing code-switching and promoting collaborative learning in EMI classes can be highly beneficial. These approaches effectively cater to linguistic diversity and significantly improve comprehension among students. The study underscores the significance of utilizing code-switching and promoting collaborative learning in EMI classes, as identified by Nguyen et al., 2016 and Shafi et al. (2020). These approaches not only cater to linguistic diversity but also significantly enhance comprehension among students, serving various pedagogical purposes, such as elucidating unfamiliar vocabulary, assessing understanding, and fostering a positive classroom environment.

Collaborative learning, involving students working together to achieve a shared objective, offers numerous advantages in EMI environments. Lee (2005) found that students with limited English proficiency or science experience can actively participate in scientific inquiry and develop scientific thinking skills through collaborative science teaching. This approach facilitates scientific investigation and reasoning across diverse language and science backgrounds in EMI settings. Additionally, Sukardi et al. (2021) noted that schools using English as the medium for teaching science often adopt the content and language-integrated learning method (CLIL), emphasizing collaborative learning and the integration of language and content knowledge. Collaborative learning not only encourages active engagement but also provides cognitive benefits and opportunities for personalized instruction, enriching discussions with diverse perspectives. It proves well-suited for EMI programs, where code-switching and collaborative learning serve as valuable tools for enhancing language proficiency and overall learning experiences in these classrooms.

CONCLUSION

Following thorough research and subsequent discussions, the ensuing conclusions have been drawn. The incorporation of English as a Medium of Instruction (EMI) in homeschooling aims to cater to students who have a preference for learning Science and Math subjects in English. Teacher perspectives highlight the positive impact of using English as a medium of instruction in enhancing students' English language proficiency and comprehension of intricate scientific and mathematical ideas. Nevertheless, some challenges were identified, including complex terminology and varying levels of language proficiency. Strategic approaches such as code-switching and collaborative learning have been found to be effective in addressing these challenges. The text highlights the significance of meticulous execution, which involves skilled teacher language abilities and effective classroom management. Emphasizing the importance of both language acquisition and content comprehension, a comprehensive approach to English as a Medium of Instruction (EMI) is encouraged. This approach goes beyond subject-specific learning and encompasses overall language development. Understanding and overcoming challenges is essential for the successful integration of EMI in homeschooling, providing valuable perspectives on effective language teaching at various educational levels.

Although the study suggests that using English as a Medium of Instruction (EMI) could be beneficial for education, it is essential to highlight the need for further

research. The study's context may limit the applicability of its findings to various homeschooling environments or other educational settings. Therefore, additional research is necessary to strengthen the validity and dependability of the findings derived from this study. Additionally, the study focuses on immediate results and highlights the importance of conducting long-term research to investigate the lasting impact on language proficiency and academic performance. Suggestions for future research involve examining the long-term effects of EMI in diverse academic areas and grade levels, delving into student viewpoints, and conducting comparative analyses of various EMI approaches. In addition, exploring the impact of parental involvement in EMI homeschooling contexts could offer valuable insights into the wider learning environment. Acknowledging these limitations and exploring recommended areas for future research can enhance our comprehension of the implications and challenges associated with the adoption of EMI.

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