

Practices of English as a Medium of Instruction (EMI) at University Level: Perspectives from Biology Students

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ABSTRACT

Umpteen research contributing to the development of English use in the non-English department has been carried out. As one already knows, English is a required language in the non-English department nowadays as language instruction is needed to adjust to the world expansion in which English is a popular additional language for non-native countries. The present research investigated the implementation of English as a non-English department's language instruction which is popularly known as English as a Medium of Instruction (EMI) in a biology major. It specifically invited two students from one of the private universities in Indonesia. Two participants' active participation in joining their university program has brought them to the EMI implementation activities. A qualitative method has been used to discover participants' experiences in their journey of learning biology which implements EMI through a phone interview. The data analysis examines their experiences in learning biology using EMI, teaching methodologies used by their teachers in teaching biology courses using English, and participants' views of the long-term impact of EMI implementation. Briefly, the research findings unveil that EMI implementation in non-English majors, specifically biology correlates with international programs conducted inside and teachers' beliefs which influence the teaching methodology used in EMI activities.

Keywords: *EMI in Indonesia; students' perspectives; content and language integrated learning; international education; university level.*

INTRODUCTION

English has become a crucial language in this current era along with its role which is globally used as an international language in many contexts, one of the common contexts is in education. The use of the English language in education is not limited to English major students or English subjects, however, it is also used in many different subjects and majors. According to Andayani (2022), every student needs to take an English course while learning in formal institutions that are different from their disciplines. In another published research, Alhamami & Almelhi (2021) stated that non-native English countries use English to teach science subjects at different levels. Technology and scientific ideas expansions make English competence needed by engineers and also scientists, especially to communicate in their professional field in an international context (Musikhin, 2016).

A few statements cited from several research written above show that not only English graduate students who need to master English, but it is also allocated for those who contribute to universal concerns, such as engineers and scientists. Educational stakeholders need to incorporate English in the teaching and learning process of the disciplines to respond to students with majors who deal with crucial things like future needs. In this case, a popular terminology, English as a Medium of Instruction (EMI) is used to facilitate the implementation of English in non-English courses. Macaro (2018) defined English as a Medium of Instruction (EMI) as the incorporation of the English language in the non-English courses' teaching process in countries where English is not their native language. The use of EMI is usually in countries where ethnic minorities are not allowed to use their mother languages in higher education (Agai-Lochi, 2015). Higher education that implements EMI might be found at a university level which will be discussed in this research paper.

Another popular fact about the implementation of EMI aside from its use in countries with several populations of people from different ethnicities with different mother languages is that EMI is usually used in science majors. For example, in biology major, the English language is implemented

in their textbooks and learning materials. According to Dong (2002), biology course in New York City, in which students need to learn all about biology (in terms of reading, writing, critical thinking, and understanding biology concepts) makes non-native students have difficulties because they not only need to understand the biology concepts but also their understanding and writing in English. However, Dong (2002) added that in learning a new language, it is better to learn in the target language and the context of the disciplinary language use. So, using EMI in this case can make non-native English-speaking students learning feel like they are in their discipline's future situation.

EMI is commonly used at a higher educational level, such as senior high school and university level (Köksal & Tercan, 2019). A few researchers have explored the application of EMI in different majors with different research purposes which results in different findings. Jiang et al. (2019) states that the EMI program is used as the institution's strategic move to promote its educational internationalization is far from its perfect practice. Teachers in their EMI practice accentuation on the content and the insufficient English understanding from the participants creates a new way of teaching and learning activities. Classroom activity in EMI uses the first language and written guidelines to support participants' inadequate skills. Meanwhile in another research, Dong (2002) investigated teachers' activity in teaching non-English speaking students in a biology context. Three teachers who joined as the research participants use different approaches for students, but still consider students' abilities in learning through English instruction although they are non-native English students. Dong (2002) concluded that both teachers and students need to increase their content knowledge rather than just facilitate it.

Köksal & Tercan (2019) takes students' perspectives on the implementation of EMI. Their participants show positive responses which makes EMI courses should be implemented more to maintain language learning and increase students' language skills. To do it, teachers should reduce the anxiety level of students while learning by using effective strategies to simplify students' understanding and give them motivation. Reigh & Miller (2020) said that in terms of science as a practice used to reorganize classroom activities, such as students can practice as teachers' design in teaching and let the content of the learning constructed as the outcome. Using different research purposes, Alhamami & Almelhi (2021) conclude that the effect of EMI on science programs they have observed can be seen through the alumni's cumulative GPA. Teachers need to provide another assessment for students who can speak English to give a fair assessment. They should consider learning outcomes and students' grades. Students' English proficiency needs to be considered while they design assessment tools to provide fair results.

Viewing from previous research, along with the application of EMI, the learning process needs to be considered to ensure that EMI is worth implementing in further learning processes of non-English courses and majors, especially in non-English speaking countries. The perspectives of different stakeholders, such as students, teachers, employers, publishers, and also governments are urgent in the application of English as a Medium of Instruction (EMI) (Alhamami & Almelhi, 2021). It will affect students' final achievement at the end of the learning process if for example students' perspectives on EMI practices. There will be unfair assessment practices if the implementation of EMI does not consider students' conditions or backgrounds (Lee, 2005, as cited in Alhamami & Almelhi, 2021). Unfair assessment can be experienced by students who do not have great fluency in English and ignore their competence in the disciplines (Lee, 2005, as cited in Alhamami & Almelhi, 2021).

Therefore, in this research article, the author wants to investigate the teaching and learning processes in Indonesia where English is considered the third language after the second language (national language), meaning it is not used in everyday situations or English as a Foreign Language (EFL) country. Additionally, teaching English in Indonesia also means teaching English to a large group of people since there is a country with different racial/ethnic (Ibrahim, 2001). Suppose students' English learning achievement in EFL countries in case of EMI implementation is not resulting in good as expectations. In that case, teachers' quality and competence in teaching is the second concern that should be looked at instead of blaming students' ability to learn English in non-English

disciplines. Teachers' qualities and competencies in mastering the content of the learning materials and English as the language instructions are becoming the key concern in this case (Jiang et al., 2019). Not only teachers' competencies in teaching materials that are important, in fact, teachers' strategies while teaching are also important to the learning outcomes. According to Jeon (2002), teachers or instructors need to pay attention to students' comments and become interactive in teaching to make students feel comfortable and satisfied in learning so that the teaching and learning process will result in good outcomes (as cited in Kym & Kym, 2014).

Due to the popularity of EMI in non-English courses and major education, many researchers have conducted studies to investigate the application of EMI with various purposes and different backgrounds. Several previous studies used teachers and students as the research subjects, as does this research. Those usually were conducted at a higher education level – the higher level is at the university level. Still, a few studies were conducted at a lower level of education, such as at the elementary school level. In terms of research purposes, some of them analyzed the difficulties teachers or students faced while implementing EMI as their additional tool in teaching and learning, meanwhile, the rest explored the effects of EMI application on their mother language which is their local language used in non-English courses and majors. However, investigations about EMI in non-English majors, such as biology are not commonly conducted, therefore, in this current study, the author wants to investigate a biology student's experience in a learning context that implements EMI at a university level. The investigation will be used to discover the following research questions:

- 1). How is the teaching and learning activity implementing EMI going based on the participants' experiences?
- 2). What does EMI implementation impact in a biology major? Does it help participants with their specific needs?

METHODS

2.1 Research design

To reach the research aims, this study applies narrative inquiry (Clandinin, 2006). This research design was adopted due to the goal of this study, which is to reveal biology students' experiences in learning with EMI implementation. Then, from the participants' experiences, the author wants to determine the impact of English on non-English major learning for students.

2.2 Research context

This study is conducted in a tertiary level of education - a private university in East Java, Indonesia. This university is one of the private universities in Indonesia known for its entanglement, cooperation, as well as collaboration with international universities. The collaboration is not only available for English major students but also for non-English major students. Therefore, in this study, students majoring in biology at this private university are the participants.

2.3 Participants' profile

The author invites 2 participants, Rena and Lita (pseudonyms), all are female students. Both students come from the Faculty of Mathematics and Natural Science, exactly in a biology department at the same university. They were selected as participants in this study due to their experiences in joining their university program which is collaborating with international universities. However, they are in a different year of undergraduate study. Rena is in her final year of studying, meanwhile, Lita is in her third year of studying. The semester difference may cause a different result of investigation from both participants although they are studying in the same university and the same major.

2.4 Data collection

An individual interview was conducted to collect the data from both participants. Phone interview was used due to several factors, such as the author and participants' differences in terms of residences. However, the interview was successfully conducted. Participants were asked about their experiences in learning biology where their teachers used English as the teaching language. The following are the interview questions used by the author:

- 1) Do you have a biology course in your major that uses English as the language in the classroom?

- 2) How are the learning activities going in applying the English language in your classroom?
- 3) What methodologies are used by your teachers in teaching courses using English?
- 4) Do you receive a benefit from the learning activities in your biology courses that use English?

2.5 Data analysis

The author uses Braun and Clarke's (2014) data analysis procedures to analyze participants' answers from the interview. According to Braun and Clarke's (2014) theory, some steps must be carried out. The first step is to get engaged in the available data by listening comprehensively to the recorded interview from each participant in which they share their experiences during their biology courses in university. Next is interpreting participants' answers into understandable information to make the answers easy to analyze. Then, it is needed for the author to highlight and search for participants' answers which correspond to the research questions. In this step, the relevant themes inside the result of the interview might be found. Based on the relevant themes from the participants' answers, the author will go to the final step which is reporting the data based on the analysis of the available and original data from both participants.

RESULTS AND DISCUSSION

3.1 Teaching and learning activities in EMI implementation

The data analysis reveals both participants' answers concerning the implementation of EMI in biology courses. These include teaching methodologies used by teachers and participants in university programs that involve EMI. Teachers' teaching methodologies used by teachers are various, but based on the classroom necessities, such as students in the class as stated by Rena:

I have so many international classes. So, there is a collaboration with university from the Philippines. There is a learning activity that uses English since it is because of students from there. However, several courses used English because the teachers come from the Philippines. Similar to Rena's experience, Lita explained in short:

There is a teacher who uses English in her/his class. It is almost every semester because there is an international class that I need to attend in my course. There is also an English course that it contains materials about terms in my major, Biology, so it is another support for this international program. I took this course when I joined an exchange student program at another university outside this city when I was in my 2nd semester.

3.2 Teaching methodologies used by teachers

Although the two participants used to have a similar international class, the teaching methodology that their teachers use is quite different. Rena who joined the international class which has a collaboration with another country stated that:

The learning models in my class are based on the teachers. There is problem-based learning (PBL), project-based learning (PBjL), and also an inquiry learning model. This is because Indonesia's and the Philippines' curricula are different.

Meanwhile in Lita's experiences as she stated:

In my class, sometimes the teacher just explained to us using the lecturing method as in common. My teacher asked us to present PowerPoint material and do exercises. It is usually individual exercises. However, I also had an experience where my teacher used a case study model.

3.3 Long-term impact of EMI implementation

Since the introduction of EMI in non-English majors, it is expected to positively impact its application in any major, as is in the biology major. The use of English in a positive way should ease students in terms of their interaction with international class programs in this case as both participants experienced. Lita expresses a longer explanation in her interview:

I think it helped me with the international class program. Then in the future, I think it is for the requirement to graduate, passing the Test of English as Foreign Language (TOEFL) score. Not only that, if I meet an international student, I hope that I can speak and interact using English with them although just a little by little.

In brief, both participants from non-English majors have similar experiences in joining EMI implementation in their biology major. An international collaboration program from their university became a main factor that made EMI successfully held in their major. The teaching and learning activities are quite different which may be caused by semester differences and the curricula.

Responding to the proposed research questions, the findings discover that teaching and learning activities that implement EMI in non-English majors are in line with the existence of international programs, such as an international class that collaborates with universities abroad. One of the universities that collaborated is a university from the Philippines that is different from the participant's university in terms of the institution's curriculum. The differences in curriculum that happen in cross countries are not a new thing. It also often happens in different universities at the same country, for example in Indonesia. This phenomenon is correlated with the student's necessities and competencies. Educational curriculum determination concerning human resources in which the government sets the curriculum with some constraints, such as flexibility, working capability, and mixed backgrounds of the students. As globalization expanded, the flexibility of curriculum was considered more to make students ready for working in this modern era (Yates & Young, 2010).

In the teaching activities, the participants' teachers used different teaching methodologies. There is an inquiry method, problem-based learning, a case study, project-based learning, and also lecturing method. Teaching science which is an empiricist knowledge is related to beliefs and practice in epistemological views (Hashweh, 1996; Tsai, 2006, as cited in Lotter et al., 2007). It means that teachers employed teaching methodologies based on teachers themselves who know how the way they can transfer the knowledge to students based on their beliefs and conceptions (Lotter et al., 2007). The teaching methodologies used depend on teachers and are not based on students' different years of learning.

The importance of English in non-English majors is correlated with future journeys. At the university level, students are required to take and pass a TOEFL test as the requirement for graduation. These rules are required not only for English major students but also for non-English major students. EMI implementation indirectly supports non-English major students in preparing themselves for the TOEFL test which they will face at the end of their study. Although there will be challenges, however, non-English major students can measure their present ability by using the TOEFL test (Farkhan et al., 2019; Yoestara & Putri, 2019).

CONCLUSION

The implementation of EMI in non-English majors is not only a teaching and learning practice that uses English as the language in the classroom. It is more complex than the utilization of English as the medium of delivering the materials. Teachers need broader knowledge and preparation as they need to understand the position of English and the materials in non-English majors, such as biology in the present study. Concerning this, the teaching methodologies used by teachers are various and it depends on teachers' views and beliefs on how they can deliver the materials to students from non-English majors. Regardless of a mandatory course and international program, the use of English in non-English majors is having an impact on future necessities, such as the TOEFL test.

Another exploration of EMI implementation in non-English majors based on students' perspectives has been conducted resulting in several findings. Nevertheless, the present study has limitations in terms of the data collection. A phone interview is not an effective way to collect the data. It is better to collect the data through face-to-face interviews if there is a lot of time and not limited by the places to make sure the data are valid and there's no misunderstanding.

Further research might need to investigate the EMI implementation, especially in a biology major based on teachers' perspective and in terms of their teaching methodologies. It will support the present study's findings about the teaching methodologies discussion. Besides, it is also recommended for future research to explore the EMI practices for the same purposes as the present study using a quantitative approach.

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