

The use of English as teaching medium for chemical engineering student: Students' Perceptions

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Abstract

Presence of international students in Universiti Teknologi Malaysia has called for implementation of English as the medium of instruction. The institution's Chemical Engineering Department in particular is non exceptional and acquiesces with the university's language policy requirement. Although this deed could certainly be acknowledged as a healthy nurturing of both the international and local chemical engineering students, complications rooting from this issue should be examined, if any. This research focuses on the implications of the issue on local students who has to deal with this current development, maybe unfavourably. This paper reports finding from a recent survey, containing questions assessing different pertinent issues, as well as seeking students' constructive opinions, disseminated in the classes with international students. Evaluation was carried out accordingly and all analysis were crafted through appropriate graphical and statistical presentation and hopefully have revealed the true feelings and views of these students.

Keywords: English, teaching medium, chemical engineering, students' perception

1. Introduction

Faculty of Chemical and Natural Resources Engineering (FKKKSA), Universiti Teknologi Malaysia was established on 15 March 1983, with existence of only two departments, Petroleum Engineering and Chemical Engineering. Two other programmes were introduced later, which are Polymer Engineering and Gas Engineering in 1989, followed by another one, Bioprocess Engineering in 1990. Since its first establishment, FKKKSA begins offering the programmes to international students in 2004, taking students from our neighbouring country, Indonesia. Language has never been a serious barrier since both countries' daily communication is performed in languages with great similarities. Nevertheless, English has been widely used as a teaching medium though sometimes mixed with Bahasa Malaysia, with most lecture notes presented in English.

In 2007, FKKKSA offered all its available courses to other interested countries and has harboured students from Somalia, Yemen, Palestine, Sudan, China and Uganda. At present, a total of 47 students from these countries are following various programmes in the faculty, which is accounted for 3.27% from the total existing students. Since then, all courses comprising international students were made compulsory to be fully presented in English, a language believed to be comprehended by all nations.

In the perspective of local students, English language has been taught since they first entered formal education system as early as at the age of six.

Continuous exposures were given through out primary, secondary and tertiary educations to adequately equip each student with skills in this universal language for a bright future. This is to avoid unemployment caused by inadequate skill of English communications, as revealed by Phang that 45,000 college graduates were unemployed in 2006 mainly rooted from a poor command of English language [1]. Many graduates failed to be hired although they were highly qualified academically [2]. Despite many excellent achievement observed, poor proficiency, knowledge and skills in this foreign language is still inevitable since the mother tongue is not English,

Following the development in the tertiary education system which is engaging this universal language in knowledge dissemination, it is important to assess its implications, if any, to local students to avoid possible depression and academic failures. This study was therefore designed to get some impressions of how the language could affect the students' performance, both emotionally and academically.

2. Research Method

Students' perceptions were assessed via a survey consisting a number of significant questions reflecting their feelings towards issues related to the medium of instruction, as well as to harvest any implications exerted. 52 students were assigned to answer the survey questions, in a Likert scale as indications of level of agreement [3] with a scale of 1

to 5, with 1 as the most negative opinion and 5 the most positive. The main gist of the survey considers the following issues:

- a) To assess the acceptance of English language as the prime medium in lecture and communication
- b) To assess the students' comprehension while English as medium of instruction
- c) To assess the confidence level and soft skill development with English as a contributing factor

Five questions were prepared and disseminated as listed below:

- Q1 Do you agree that your class is using only English as the medium of instructions?
- Q2 Do you prefer lectures to be given in only Bahasa Malaysia?
- Q3 Do you understand the lectures given in English?
- Q4 Are you embarrassed and have no confidence to asked questions in English?
- Q5 English as teaching medium helps improving your English communication skills?

Students were also required to state their MUET (Malaysia University English Test) score, which enables segregation of students with high and low English proficiency with score 1 to 3 grouped into Group A (low proficiency), and 4 to 6 into Group B (high proficiency). Analysis were carried out considering the proficiency factor, and sometimes not respectively.

3. Findings and discussions

Total returned response was 100%, made possible by immediate collection of survey forms after classes, with allocation of 5 to 10 minutes to answer all questions. 52 local students were surveyed from Year 1 and 2 in Thermodynamics and Mass Balance Classes, consisting 13.3% international students. The finding of the survey concerning the students' English proficiency is as shown in Figure 1, which shows Group B as a minority, accounted for less than 30%.

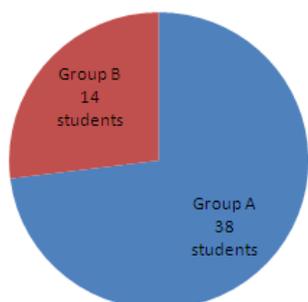


Figure 1: Division of Group A and Group B.

3.1. Acceptance of English as a teaching medium

- Q1 Do you agree that your class is using only English as the medium of instructions?
- Q2 Do you prefer lectures to be given in only Bahasa Malaysia?

Figure 2 shows comparison of group A and group B responding to Q1. 85.8% of students from Group B agree that teaching should be delivered wholly in English compared to only 57.9% of group A. The numerical difference is believed mainly due to the level of English strength possessed by the engineering students. This means that those who masters English better would prefer the subject being taught completely in the second language. However, statistics shows that, there are 39.5% and 14.3% of students from Group A and B, respectively who do not mind about the language used in the lecture. In conclusion, majority of students prefer dissemination of knowledge via English in chemical engineering subjects.

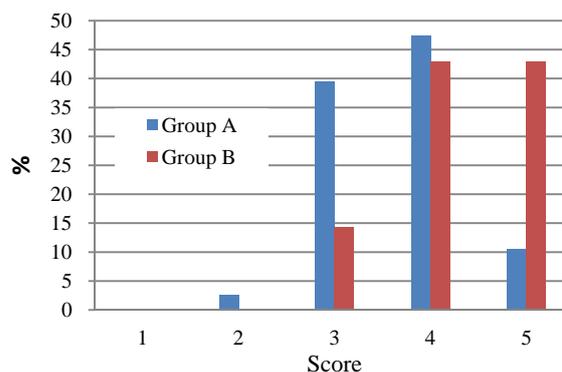


Figure 2: Comparison of Group A & B for Q1

Question 2, which is the reverse of Question 1, seeks students' response on the possibility of using only Malay language in class. With reference to Figure 3, 71.4% of those who are well versed in English do not agree with lectures to be delivered only in Malay language. Surprisingly, 39.5% of Group A also do not agree with lectures given fully in Malay language compared to 18.4% who agrees. This shows that students with less English proficiency have a spirit to improve their skills in this second language. The response is also believed to result from students' effort to avoid possible difficulties and confusions of chemical engineering terminologies utilization if Malay language is used, since undergraduates in science and engineering usually study their specialist subject matter by reading textbooks in English [4-8]. In addition, 19 students do not mind if lectures are presented in Malay language. This data concluded that regardless of students' mastery in English, more students are more inclined towards utilizing English as a medium in lecture.

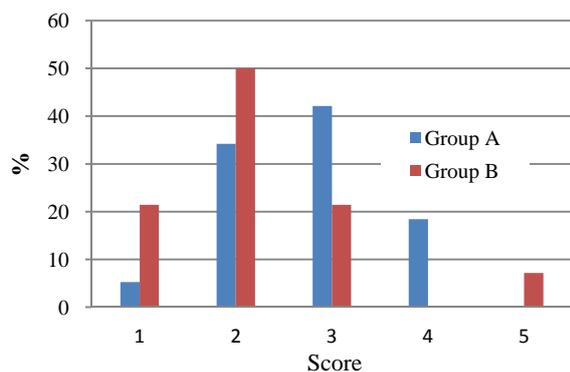


Figure 3: Comparison of Group A & B for Q2

3.2. Comprehension of subject being taught in English

Q3 Do you understand the lectures given in English?

Outcomes from Q3 are illustrated in Figure 4, hoped to give some indications towards students' comprehension in chemical engineering subjects taught in English. Approximately 93% of those with high English proficiency understood the course content while 44.7% of Group A students also acknowledged that they understand lectures delivered in English compared to only 10.5% who doesn't. Focusing on Group A with less English skills, this findings have given some relieves and has strengthen the argument of faculty's intention on implementing English as teaching medium. Almost half of Group A that moderately understands the lectures in English could also be polished to enhance their comprehension. This analysis also implies that although students who can cope are those who have better English mastery, having less English proficiency does not mean that students in Group A cannot excel in English medium subjects.

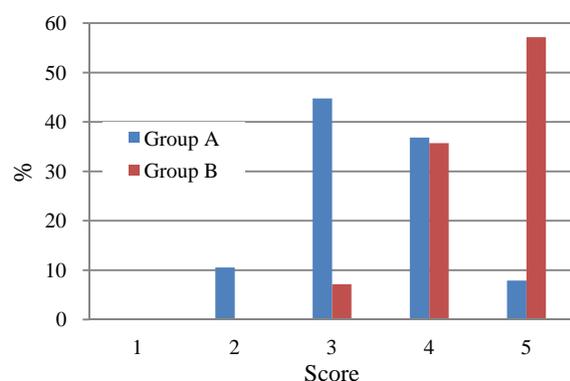


Figure 4: Comparison of Group A & B for Q3

3.3. Confidence level and soft skill development

Q4 Are you embarrassed and have no confidence to asked questions in English?

Q5 English as teaching medium helps improving your English communication skills?

As observed from Figure 5, two third of those in Group B are not embarrassed and have confidence to ask questions in English, with slightly lower than 1/3 gave neutral response. However, in this context, it is more important to observe responses from Group A, which shows that majority of them seems not to have the courage and confidence to throw questions in English. Only very few said that they dare to ask questions during lecture. This outcome has shed some lights on how these students are feeling during lectures engaging English as medium of instructions, especially on the impact it exerts on an important issues as their ability to ask questions. Active participations of students with boldness to ask questions can promote further understandings on the subjects, therefore, it is important for the faculty to tackle this issue accordingly.

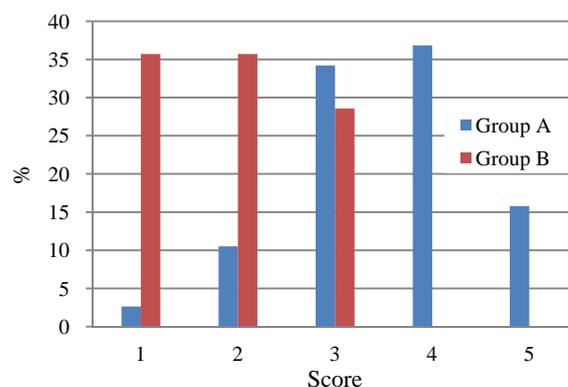


Figure 5: Comparison of Group A & B for Q4

As far as how English as the medium of instructions plays a role in improving English proficiency among local students is concerned, the results is as shown in Figure 6. It is such a relief to learn that all students agree that English in classes can contribute to some improvement in their skill in the second language, with just 18% who are indecisive. Therefore, it could be concluded that the impacts brought by admissions of foreign students on local students' English proficiency is positive.

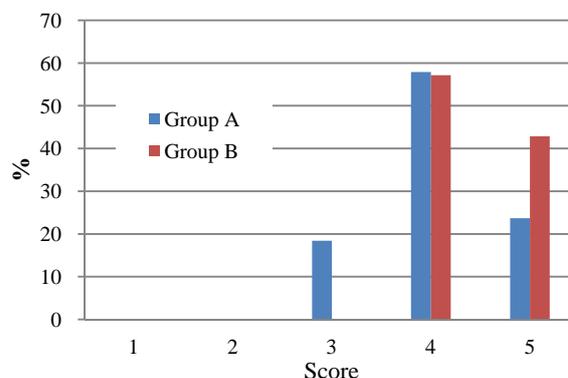


Figure 6: Comparison of Group A & B for Q5

To have an overview of students' perception regardless of their English proficiency, Figure 7 shows that majority of students agree with English as a teaching medium, and are also saying that knowledge dissemination with this second language helps improving their English proficiency, as well as confidence in conversing in this language.

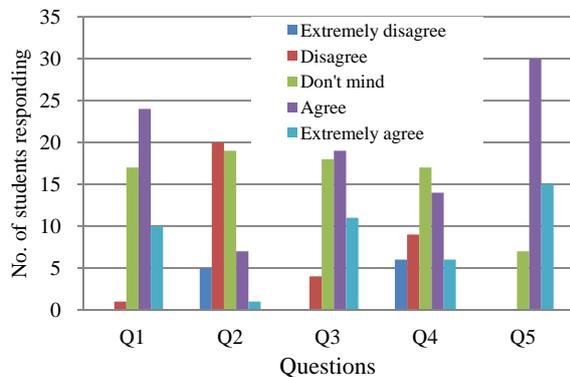


Figure 7: Comparison of Group A & B for Q5

4. Conclusion

As revealed by above analysis, it is evident that no serious negative implications emerged from the enforcement of teaching chemical engineering classes in English. Students even gain benefits from this enforcement and it can also be concluded that English is suitable to be the teaching medium in this course.

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