

Engineering Technology Students' Perception towards Promoting Interaction for the Classroom Social Environment

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Abstract: Classroom social environment is very important in academic life because it can affect students' lifestyle in terms of their studies. One of the important elements in getting positive classroom social environment is interaction amongst the students. The objective of this study is to understand and examine the engineering technology students' perceptions towards promoting interaction for the classroom social environment at the Faculty of Engineering Technology (FTK), Universiti Teknikal Malaysia Melaka. This study investigated the perceptions of 177 second year students from four different departments taking mathematics subject. A set of questionnaire that covers questions regarding students' perceptions towards promoting interaction by mathematics lecturers and also their classmates was distributed to the students. From the findings, a conclusion was drawn regarding their perceptions towards promoting interaction for the classroom social environment. The result shows that students have a very good perception in increasing a positive social environment where both parties, which are lecturers and classmates, play an important role in promoting interaction.

Keywords: Attitude, Confidence, Engineering Technology

I. Introduction

In recent decades, calls for improvement of the undergraduate experience have addressed the need for attention to what best fosters student learning in university. Recognizing that learning hinges on student experiences both within and outside the classroom, lecturers need to commit to build a university community that maximizes student learning. According to [1], classroom social environment can affect the teaching and learning process, where an exchange of knowledge between lecturers and students and also among peers in a classroom occurs. Student learning is also associated with the perception that universities have devoted lecturers, as evidenced by intellectually challenging classes and encouraging students to discuss their perspectives in class [2]. In order to develop students' intellectual skill, classroom interaction is very important because it can support the process of learning and also students' level of classroom participation [3]. According to [4], lecturers can influence classroom interaction by emphasizing the type of learning environment, such as valuing achievement, love of learning, competition, collaboration or caring.

Interaction may encompass students suggesting ideas and approaches during whole-class lessons, explaining their thoughts or reasoning, discussing alternatives with others during small group activities as well as sharing ideas or informally giving help during individual seatwork [5]. Whatever form it takes, the person that will encourage students to interact in the classroom is very important, who are lecturers and also peers. Lecturers vary in the extent to which they encourage, or even allow students to interact with one another during academic activities [6]. According to [7], when students are encouraged to interact and exchange ideas with each other during academic tasks, they have opportunities to justify their own position and gain exposure to other possibilities. This view is also supported by [8].

The objective of this study is to understand and examine the engineering technology (ET) students' perceptions towards promoting interaction for the classroom social environment at the Faculty of Engineering Technology (FTK), Universiti Teknikal Malaysia Melaka. This study aims to find out whether promotion of interaction by mathematics lecturers and peers is positive or negative, by looking the results from students' perceptions. Student perception is an important variable due to its ability in transforming a student's learning style [9]. This is further supported by [10], where the study identified that students' perceptions can provide reliable and valid information in producing quality teaching and learning process. This study focuses on mathematics lecturers because the achievement for mathematics subject itself has become an important issue in the educational system in Malaysia [11]. Lecturers play an important role to increase the students' interest in studying mathematics. According to [12], students experienced difficulties in studying mathematics since they had to understand the theories and memorize the formulae. So, the interaction of the students in the classroom is very important in helping students understand the subject, especially mathematics.

In particular, this study is significant to understand the perceptions of ET students towards promoting interaction by their lecturers and also peers, since ET program focuses more on application and implementation while pure engineering program focuses more on research and development [13]. This is also supported by [14],

who state that ET differs from pure engineering and pure technologies. ET education is more towards applied knowledge compared to engineering degree education, which is more on theoretical sciences. An engineer's role is more towards the left of the spectrum while the role of ET is more towards the right of the spectrum, although the main activities of both engineers and technologists are in the center of the spectrum as shown in Figure 1 below [15]. Therefore, the interaction of the ET students in the classroom is very important since the nature of their studies is more hands-on, thus more two-way communication and discussions are necessary. According to [16], in Malaysia, ET program is one of the new education fields in Malaysia, which was first offered by a public university in June 2011, which is Universiti Teknikal Malaysia Melaka (UTeM). Previous study by [17] on student experience in studying mathematics at FTK, UTeM shows that most of the mathematics lecturers have applied both active and passive learning strategies in the processes of teaching and learning. However it does not show the promotion of interaction by mathematics lecturers and also peers in the classroom in order to achieve a positive classroom social environment.

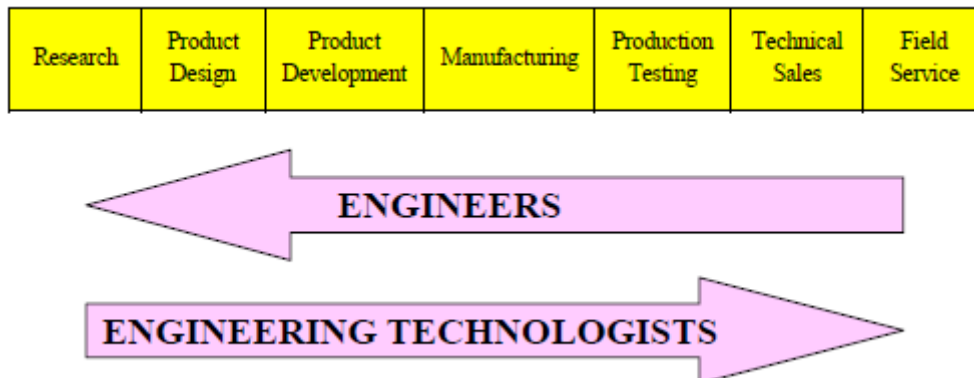


Figure 1: The Engineering and Engineering Technology Spectrum (adapted from [15])

II. Methodology

This study is primarily quantitative in nature and uses the method of mini survey for data collection. The mini survey consists of a questionnaire that was adopted from [6] in order to understand and examine ET students' perceptions towards promoting interaction for the classroom social environment for mathematics subject. The questionnaire distributed to the students is measured in a scale of one until five, where scale number one denotes strongly disagree, scale number two for disagree, scale number three for moderate, scale number four for agree and scale number five for strongly agree. The sample of this study focuses on second year bachelor degree ET students' in FTK, UTeM, who are taking mathematics subject. The sample of this study includes students from four fields of study, which are electric, electronic, mechanical and manufacturing, with a total number of 177 students. The survey was conducted in the final week of semester one for the 2014/2015 session. The data were then analyzed using Microsoft Excel to obtain the statistical result for each of the questions.

III. Results And Discussion

Table 1 below shows the descriptive statistics of ET students' perceptions towards their mathematics lecturers in promoting interaction during classes. This perception is from students from various fields of study, namely electric, electronic, mechanical and manufacturing students under the Bachelor of Engineering Technology programme at FTK, UTeM. Promoting interaction by the lecturer is very important in order to increase positive social environment.

Table 1: Students' perceptions towards their mathematics lecturers on promoting interaction

| STATEMENT | Mean | Std. Dev. |
|---|------|-----------|
| My math lecturer allows us to discuss our work with classmates | 4.81 | 0.50 |
| My math lecturer lets us ask other students when we need help in math | 4.66 | 0.63 |
| My math lecturer encourages us to share ideas with one another in class | 4.63 | 0.59 |
| My math lecturer encourages us to get to know all the other students in class | 4.39 | 0.72 |
| My math lecturer encourages us to get to know our classmates' names | 4.26 | 0.79 |
| My math lecturer encourages us to be helpful to other students with their math work | 4.64 | 0.62 |

The interaction of the students in the class is very important in order to achieve a positive social environment, besides benefiting students in getting better results in their study. One of the elements that play an important role in order to increase the interaction between students in the class is the lecturer itself because they always face students in the class. Most ET students agree that their mathematics lecturers promote the interaction of the students in class, as shown by the results in Table 1 above. The mean of promoting interaction by the mathematics lecturers in the class is over four out of five, which represents strongly agree. It shows that most of the students agree with all the statements that their mathematics lecturers promote the interaction of the students in the class in order to achieve a positive social environment.

ET students agree that their mathematics lecturer allows them to discuss their work with classmates and this statement obtained the highest mean score compared to other statements, which is 4.81 out of 5. It shows that most of the time, mathematics lecturers allow their students to discuss when they have problems that need more explanation and also share ideas with their classmates. The mathematics lecturers for ET students also encourage their students to know their classmates' names. However, this statement achieves the lowest mean score, which is 4.26 out of 5, but the scale is still in the agreement scale, which is 4. This is probably because mathematics lecturers already allow their students to discuss with their classmates and through this, students would automatically know the names of each other without the need for encouragement from the lecturers. In order to increase positive social environment in class, promoting interaction among classmates is also important. Table 2 below shows the descriptive statistics of ET students' perceptions towards their classmates in promoting interaction during classes.

Table 2: Students' perceptions towards their classmates in promoting interaction

| STATEMENT | Mean | Std. Dev. |
|--|------|-----------|
| If you have a problem in math class, you can just talk to someone about it | 4.46 | 0.77 |
| People in my math class often work out problems together | 4.47 | 0.71 |

Most of the ET students agree that their classmates also promote interaction in the class in order to increase the positive social environment, whether they are conscious of it or not. If they have any problem in mathematics class, they can talk directly to someone in their class and this statement obtains a mean score of 4.46 out of 5. ET students also do not have any problems to work out together in their class. It shows that the relationship between students is very good and it is easy for them to work together.

IV. Conclusion

In conclusion, the finding shows that most of the ET students agree that their mathematics lecturers are promoting interaction in their class. The classmates also play an important role and support each other to promote interaction in the classroom so that a positive social environment can be achieved in the classroom, especially for mathematics subject. Promoting interaction in the classroom is very important from any aspect in order to increase the positive social environment because it may affect the academic results and future of the students. This is because the classroom social environment has a very strong relationship with the results as well as the lifestyle of the students.

The results of this study must be interpreted with caution and generalization is limited because the sample only consists of second year ET students. In future, large sample sizes should be collected where students from different years of studies should also be included so that more comparison can be made about the different perceptions towards promoting interaction in the classroom.

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