

A Study on the Perceptions and Attitudes of Manufacturing Engineering Technology Student's about Student-Centred Learning

Khairum Hamzah^{#1}, Fadzilah Salim^{#2}, Nor Hamizah Miswan^{#3}, Md Ashadi Md Johari^{#4}, Iskandar Waini^{#5}, Najiyah Safwa Kashi'ie^{#6}

Fakulti Teknologi Kejuruteraan (FTK), Universiti Teknikal Malaysia Melaka, Hang Tuah Jaya, 76100 Durian Tunggal, Melaka, Malaysia

Abstract— Student-Centred Learning (SCL) is a method of teaching that puts student at the center of the learning process. The implementation of SCL requires a shift in focus from the lecturer to the student. This method of teaching is looking suitable to the engineering technology student which focusing more on application and implementation compared to engineering student. This study investigated both perceptions and attitudes of 167 students specializing in the area of Product Design and Process Manufacturing Engineering Technology at the Faculty of Engineering Technology (FTK) in Universiti Teknikal Malaysia Melaka (UTeM). Students were given a set of questionnaires during one of the classes. From the findings, conclusion has been drawn regarding the SCL approach to support teaching and learning. The result shows that the students' self-directed learning readiness and a positive perception toward SCL should be encouraged. At the same time, the role of lecturers is very important to ensure the successful of the SCL approach in teaching and learning is taking place and thus, will lead to a change in the perceptions and attitudes of the students towards SCL.

Keywords— Student-centered Learning, Perception, Attitude, Engineering Technology.

Introduction

Higher education institutions nowadays face some challenges to ensure that the students will be able to get jobs upon graduation. The main reason is that the employers found that most of the students lack of communication and interpersonal skills. As a result, the universities make some efforts to revise and improve their curriculum as well as the teaching and learning methods in order to produce quality and employable graduates. Normally the teaching practices in the universities are using the teacher-centered learning (TCL) approach [1]. It is claimed that this traditional method is not adequate to prepare the students to find jobs or to face the job challenges. Another teaching approach that is called student-centered learning (SCL) which is centred on the learners is seen to be the teaching method that can help minimizing this problem. The two approaches have their own differences. The TCL approach is characterized by the predominant use of traditional methods of teaching where the lecturer provides structured materials during lectures, while students listen and take notes [2]. The SCL approach, however, is designed to provide students with opportunities to take a more active role in their learning by shifting the responsibilities of organizing, analyzing and synthesizing content from the lecturer to learner [3]. The lecturer's role is that of a facilitator in the learning process rather than a provider of knowledge [2].

These days, all higher learning institutions in Malaysia, whether it is a public or private university, follow the Malaysian Qualification Framework (MQF) which emphasizes eight domains of learning outcomes when offering any academic programs. Communication, leadership and team skills, as well as problem solving and scientific skills are among the eight domains listed under the framework which have been identified by the Ministry of Higher Education. In order to achieve this objective, one of the faculties in Universiti Teknikal Malaysia Melaka (UTeM) which is the Faculty of Engineering Technology (FTK), implements the SCL approach in its teaching and learning in most of its courses. SCL approach is expected to encourage and prepare the students to achieve this mission. This situation is supported by [4] where it is mentioned that the SCL approach allows students to examine complex problems using a wide variety of resources, develop their own strategies for addressing the problems, and present and negotiable solutions to the problems in a collaborative manner. It is hoped that by using the SCL approach in the teaching and learning, the lecturers can prepare the students to embark in the technical work force in the field of engineering technology successfully.

Nevertheless, there are some obstacles in using the student-centred learning approach. There is no silver bullet for teaching and learning and the literature only provides a guide to educators, but since teaching and learning takes place in diverse learning environments with diverse learners, the approaches to teaching and learning should be based on the context of both factors [5]. According to [6], students need time to adapt to the new ways such as team-work and learn how to solve problem for the first

timer using SCL method. This environment can be a difficult experience for students by changing the learning style from TCL approach to SCL approach [7]. In SCL environment, there is a greater likelihood that students reasoning errors or misconceptions may occur and remain undetected [8]. According to [9], students reacted anxiously to be uncertainty associated with the given activity or they did not come up with a specific idea.

The students' learning styles will also be affected by applying student-centred teaching method. Some students indicated that they become better at validating the usefulness of the source; because SCL approach give chances to the students develop their critical thinking [10]. However, most of the students show a mixture of confusion, shock and over confidence at the initial reactions [11]. Thus, the main objective of this study is to investigate the perception and attitudes of Manufacturing Engineering Technology (MET) students' towards SCL approach in their teaching and learning at FTK, UTeM.

I. METHODOLOGY

Primary data for the study were collected through the use of questionnaires which were conducted and distributed to 167 MET students majoring in the area of Product Design and Process Manufacturing at FTK, UTeM. This instrument was adopted from prior studies by [12]. The questions in the questionnaires are focused more on the students' perceptions and attitudes on the implementation of the student-centred learning approach during the classroom. The survey was conducted by one of the authors during a class session. Students were asked to answer all the questions in the questionnaires. All the 167 questionnaires were collected successfully. The result was then analysed by using the Microsoft Excel to obtain a few simple statistics for each question.

II. RESULT AND DISCUSSION

The SCL environments are intended to provide students with opportunities to take a more active role in their own learning process. However, this is not the case for MET students, where Table 1 shows that 88% responded that the roles of students are listening to lectures, taking notes and answering questions when asked by the lecturer. Only a small percentage (5%) replied otherwise, while 7% said that they were not sure about their roles.

TABLE I
STUDENT'S PERCEPTIONS ON THE IMPLEMENTATION OF THE SCL APPROACH

	Rating Scale (%)		
	Agree	Not Sure	Disagree
The roles of students are listening to lectures, taking notes and answering questions when asked	88	7	5
Giving knowledge of the subject matter is the responsibility of the lecturer only	92	6	2
Teaching method (lecture) is appropriate to the curriculum and student background	56	36	8
Most lecturers use the lecture method because it is the method that they are well informed and more effective	57	33	10
Students must have sufficient experience and prior knowledge and understanding of the SCL method before implementing it	59	32	9

In order for the SCL approach to be effective, students' perceptions about getting knowledge in the higher education should be changed. The reason is that, most of the students (92%) said that giving knowledge of the subject matter is the sole responsibility of the lecturer. However, in the SCL approach, the lecturer just acts as a facilitator in the classroom, helps students access and process information. Students should be involved in the teaching and learning process. They should take the responsibility for their learning. Only 2% of the respondents disagreed with the question.

There are many teaching methods that can be implemented under the student-centred learning approach. However, it is found from this survey that 56% of the students agreed that giving lecture is the appropriate teaching method to the curriculum and the students' background. Besides, 57% of the students perceived that most of the lecturers use the lecture method because this is the method they know well and more effective. However, this university has imposed student-centred teaching method to be implemented in the classroom since two years ago. It is found that 59% of the students agreed that students must have sufficient experience and prior knowledge and understanding of the SCL method before implementing it, while 32% of the students were not so sure of that.

TABLE II
STUDENT'S ATTITUDES TOWARDS THE SCL APPROACH

	Rating Scale (%)		
	Agree	Not Sure	Disagree
I do not like to participate or ask questions in the classroom during lessons	68	25	8
I believe that to succeed in each subject, I must do a lot of exercises repeatedly only	89	8	4
I feel that good lecturers can boost a sense of studying commitment among the students	91	7	2

The student-centred learning gives chances and benefits to the students in their learning process where they can be more active during class session. However, the attitudes towards the SCL among MET students were otherwise. As shown in Table 2, 68% of the students were very passive in class where they did not like to participate or ask questions during classes. Only a small number of students (8%) involved actively during lessons. Their attitudes also revealed that they are still very much comfortable with the TCL environment where 89% of them believed that in order to succeed in each subject, what they need to do are to only do a lot of exercises over and over again. This may imply that they can be successful just by focusing on the types of test or examination questions, rather than gaining or learning for the knowledge of the subject matter. In order to implement SCL approach to teaching and learning, students' commitment is very important. To accomplish that, lecturers can be the catalyst for students to attain this sense. It is found that 91% of MET students felt that good lecturers can boost a sense of studying commitment among the students. Hence, the perceptions and attitudes of students towards SCL can be changed when their commitments in the studies increased. However, there are 2% of students disagreed of this view.

III. CONCLUSIONS

In conclusion, the finding of this study infer that the MET students do not really understand about the SCL approach in their styles of learning as a student where SCL can provide the exploring and debating new ideas during lecturing session in class. In addition, their perceptions and attitudes about the classroom sessions are still more on the TCL methods, in which the lecturers will do the talk and students just listen to the lecture and only response to the questions upon request. The attitudes of the MET students seem to be more passive during the lessons where they do not like to participate or ask questions in class. This entire issue happened when the students do not have the prior experience and understanding about SCL. At the same time, the lecturers may also lack of skill and knowledge about SCL approach. The roles of lecturers are very important in order to foster the students' studying commitment which can lead to the changes of students' perceptions and attitudes towards the SCL approach. In other words, to implement the Student-Centred Learning successfully, these problems should be tackled earlier.

The result of this study must be interpreted with caution, and generalization is limited because the sample only consists of students from one field of engineering technology. In future, larger samples should be collected where students from other engineering technology fields should also be included, so that, we can make a comparison about the different perceptions and attitudes towards SCL among the different areas of specializations of the engineering technology students in the Faculty of Engineering Technology in UTeM.

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