

## THE RELATIONSHIP BETWEEN TEACHING METHODS AND STUDENTS ACHIEVEMENT IN ENGINEERING TECHNOLOGY SUBJECTS

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### ABSTRACT

*Effective teaching gives meaning and bearing, and have a permanent and continuous value that can be applied by a student for dealing with future challenges. Thus, effective teaching can be defined as a system of activities that can improve learning outcomes required in the final in a healthy, democratic and vibrant, so this research was conducted to investigate the relation between teachers' teaching methods and students' achievement in the engineering technology subjects. This study involved 29 teachers who teach engineering technology as respondents at secondary school in Johor witch offered engineering technology subject. Objective of this research is to identify the relation between teachers' teaching methods with student achievement in the engineering technology subject and to know the most dominant teachers' teaching method in the engineering technology subject. This study was conducted through questionnaires and feedback from 29 teachers of engineering technology as a respondent. The data from this study will be analyzed in terms of mean scores, using "Statistical Package for Social Science" (SPSS) Software Version 10.0. The expected result will be a guide to teachers of engineering technology to improve their teaching methods. In addition, this study will be used as a guide to future researchers.*

*Keywords: Teaching methods, engineering technology teachers, student achievement.*

### INTRODUCTION

In modern society, teaching and learning process were managed in more systematic, especially in teaching and learning methods. Without a systematic process of teaching, effective teaching and learning are not likely to be implemented. The effective learning means the regular, systematic and optimized to integrating and leveraging the entire learning component for maximum success. (Khalid, 1993).

Esah (2004) says that teachers need to master the teaching methods so that learning can be implemented with care and facilitate students to understand the matters presented. The teaching methods can be more effective if it started with

the simple concept or idea which is better than student's lives and followed by the difficulties of idea or abstract.

Effective teaching is one of the methods that allow students to master their certain skills and knowledge of direction. Teaching is conducted in a small group to achieve common goals in the process of teaching and learning with teacher supervision (Al-Ghabisi, 2002).

According to Khairi (1990) effective teaching gives meaning and bearing, which is have a permanent and continuous value that can be applied by a student for dealing with future challenges. Thus, effective teaching can be defined as a system of activities that can improve learning outcomes required in the final in a healthy, democratic and vibrant. Engineering Technology is one of the elective subjects (option) offered to students who are at levels four and five are interested in technology. It is performed in the Academic School Day (SMA), National Religious Secondary Schools (SMKA) and School of Science (SMS). Engineering Technology subjects include lesson plans and learning, laboratory experiences and project work that will provide students with basic education related to the industry. It is arranged in order so that the students can understand and contribute significantly to community-oriented technology. This subject aims to provide students who understand the technology, productive, innovative, creative and moral (Technology Engineering Syllabus, 2002).

## **PROBLEM STATEMENT**

General methods of teaching can be describes as the teachers' who do an actions in the process of teaching-learning process. Trained teachers are wise to choose and use the most appropriate method to help their students and themselves in order to achieve the planned learning objectives. Teachers need to adapt teaching methods of students learning styles with more stress about the interest, intellectual property, creativity, attitude, appreciation and the appreciation of a subject in the student life (Abd. Rahim, 1998)

According to the results of the study by Azizi et al., (2003) has identified problems faced by students taking the subject of Engineering Technology which is the students did not have time for doing their study outside school hours and have to face the time constraints problems. In addition, an early preparation for teaching these subjects in school are not enough and students are also faced difficulties to obtain a reference of this subject. Physical conditions that are not regular workshops and complete can caused of students not interested to involve in teaching and learning process. Boring methods of teaching and teachers rarely that provide training or testing is one of the factors that influence these problems. In addition, questions posed by teachers were unclear and difficult to understand by students.

**Table 1: SPM Result Analysis 2006-2009 for Engineering Technology Subject in Johor (sumber:JPNJ)**

Gred	SPM 2006		SPM 2007		SPM 2008		Gred	SPM 2009	
	Bil.	(%)	Bil.	(%)	Bil.	(%)		Bil.	(%)
1A	15	2.59	13	2.15	6	0.99	A+	4	0.58
2A	42	7.25	29	4.79	30	4.93	A	13	1.87
3B	54	9.33	59	9.74	69	11.35	A-	33	7.19
4B	52	8.98	83	13.70	72	11.84	B+	61	8.78
5C	79	13.64	82	13.53	93	15.30	B	71	10.22
6C	107	18.48	102	16.83	102	16.78	C+	110	15.83
7D	83	14.34	88	14.52	92	15.13	C	112	16.12
8E	57	9.84	66	10.89	85	13.98	D	120	17.27
Lulus	489	84.46	522	86.14	549	90.30	E	74	10.65
Gagal	90	15.54	84	13.86	59	9.70	Lulus	598	86.04
TH	3	-	10	-	5	-	Gagal	97	13.96
<b>Jumlah</b>	579		606		608		<b>TH</b>	5	-
							<b>Jumlah</b>	695	

Table 1. shows the analysis results of Sijil Pelajaran Malaysia (SPM) in the year 2006 to year 2009 for the State of Johor for the subject Engineering Technology. Based on the SPM results in 2006, only 15 successful candidates that have a grade 1A of 2.59%. A total of 90 candidates have failed to these subjects of 15.54%. Whereas in 2007, the number of candidates who obtained 1A in SPM decreased to 13 candidates is 2.15%. Number of candidates who failed this year was reduced to 13.86% of a total of 84 candidates. In 2008, the number of candidates taking the subject only about 608 people. This year also, the level of SPM performance of students is 90.3% passed and 9.7% the students had failed. Ministry of Education (MOE) has changed the grade to grade SPM marking a new beginning in the year 2009 (see Table 1.1). Based on the analysis of SPM results in the year 2009, four candidates obtained Grade A + (12.58%) and 13 candidates obtained grade A (1.87%). For A-grade, the number of 33 candidates was successful in 19.7%. In 2009 a total of 598 candidates have passed the examination that reached 86.04% passed. While 97 candidates failed the examination is 13.96% and the number of candidates who failed to have increased compared to previous years. From the SPM data analysis of 2006 to the year 2008 showed a SPM student achievement for this subject has increased in each year of 84.46% in 2006, 86.14% in 2007 and 88.40% in 2008. While student achievement in 2009 has decreased to 86.04% passed. Can be concluded that most students just passing at least a credit at the 6C and grade C for the year 2009 in the SPM to the subject of this Engineering Technology.

## **PURPOSE OF THE RESEARCH**

Based on the background, the researchers think that teaching methods should be done appropriate way to the learning styles of students. Azizi et al., (2003) is that students have a problem that is not enough time allocated for studying this subject. Students also do not understand the questions that raised by their

teachers. In addition, the workshops are not comfortable and do not properly render less interested students to learn. Jamil (2005) said that, teachers should know and recognize their students' learning styles to teach the right methods in line with that planned. Thus, effective teaching methods affect students' academic achievement in a particular subject and effective teaching depends on the ability of teachers to attract the attention of students in the process teaching and learning.

So, based of the problems that occurred, the purpose of this research is to identify the relationships between teachers teaching method with students' achievement in engineering technology subject and also to determine teacher preparation and find the dominants of teachers teaching method in engineering technology subject.

## **OBJECTIVES**

The objectives of this study is:

1. Identify the most dominant of teaching methods in Engineering Technology subjects.
2. Identify the relationship between teaching methods and students' achievement in the subjects of Engineering Technology

## **RESEARCH QUESTIONS**

The questions for this study is as follows:

1. What teaching methods are most dominant on the subject of engineering technology?
2. Are the teaching methods associated with the achievement of students in engineering technology?

## **LITERATURE REVIEW**

According to Kamus Dewan, the method refers to methods or rules to make things (especially a systematic or regular). While teaching is about teaching, all things related to teaching such as teach methods or systems, and overlooked aspect of the other in respect there of. Teaching method is a systematic series of actions aimed at teachers to achieve teaching objectives that were set and more short-term character. Teaching method is the overall business of an orderly procedure based on the selected approach and support the approach (Shahabudin Hashim et al., 2003).

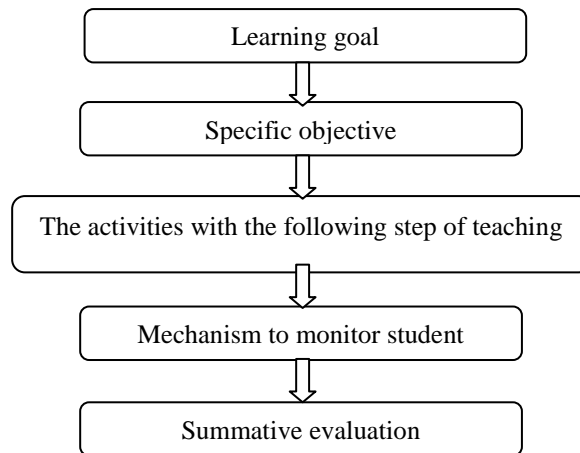
## **SELECTION FACTORS TEACHERS TEACHING METHOD**

The selection of method factors is based on:

1. methods must be in accordance with the aims and objectives of education,
2. methods must be consistent with the educational objectives to be achieved,

3. appropriate method must also be taught habits,
4. the equivalent method must match the student's age,
5. methods that can be or could be applied by teachers,
6. have enough time to apply the applicable rules and
7. The method chosen must be suitable with the facilities there.

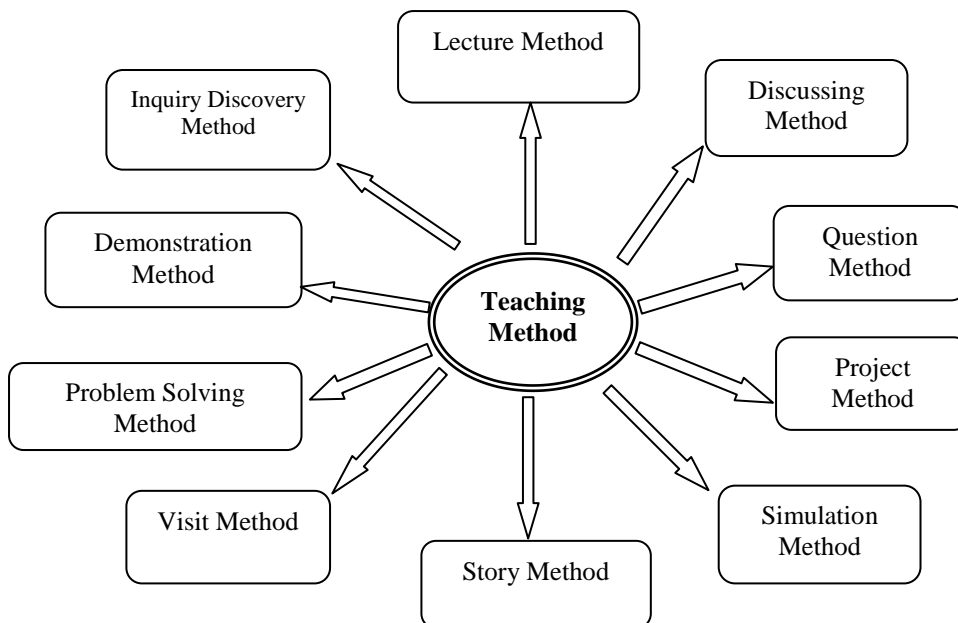
Congelosi (1992) suggested that each lesson plan should be prepared in advance and in this lesson plan must have the following:



**Figure 1: Lesson Plan**

## TEACHING METHODS

There are several methods of teaching are applied to produce a systematic series of actions for teachers to achieve educational objectives within the usual short (Shahabudin Hashim et al., 2003).



**Figure 2: Teacher's teaching methods**

## **RESEARCH METHODOLOGY**

This research is a descriptive study that aims to identify and explore sources of error in measurement. Descriptive survey also attempted to obtain a measure of or relating to the nature and characteristics of the population. Survey using questionnaires conducted to obtain information from respondents. Konting Majid (1994), descriptive research that aims to explore an area of outstanding or less review.

This study was conducted by using quantitative research methods that involve the review statements. This research is concerned with the relationships between teachers' teaching methods in Engineering Technology subject with students' achievement. This study involved only teachers of Engineering Technology at the Secondary School Johor.

Based on this quantitative study, all the information about the variables to be collected and studied as in their natural state (Mohd. Majid, 1990 and Wiersma, 1995). This research will use the instruments such as questionnaires and the data will be collect in a certain time. Researchers will only collect the data and the information from respondents in a particular time by using the instruments provided. Data from the set of questionnaires will be analyzed using 'analysis reliability' in Statistical Package for the Social Science (SPSS) 10.0 for Windows program.

## **RESEARCH INSTRUMENT**

Researchers will select the questionnaire as an instrument. Administered an easy and simple questionnaire for the purpose of improving the accuracy and truth subject to the stimulus response questions. According to Mohd. Majid (1994), the response or answers from respondents are not influenced by personality and behavioral researchers. The instruments such as questionnaire is include the data taken in a certain time. This saves time because the study did not require further action against the respondent. In this study, the questionnaire was translated and modified based on the model of Dunn and Dunn (1979). This research instrument consists of two parts, part A and part B.

### **Part A**

Part A questionnaire containing statements about the background of the respondents as areas of work or specialization of teachers, academic information, type of school teaching and teaching experience. This section contains four questions related to respondents' background information.

### **Part B**

Part B contains 30 items according to the research questions statement. Respondents are required to state level approval of the items submitted. Respondents have to choose one appropriate answer if agree with the statement given. Five-level Likert scale used to measure the perceptions of

respondents. Likert scale was designed to obtain responses from the respondents with more precise.

## EXPECTED RESULTS

The major expected findings of this study are to obtain the most dominant teachers teaching methods in the engineering technology subject. This study also expected the most effective lesson method that will help improve the academic achievement of students. In general, the main factors that to influence students' academic achievement is effective teaching methods will help increase the understanding of individual students.

Researchers only collect data and information on a time using the instruments provided. The questionnaire used to identify:

1. Teachers' teaching methods during the process of teaching and learning,
2. Relation between teachers teaching methods and academics students achievement,
3. The most dominant teachers teaching methods are like laboratory, demonstration and discussing method.

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