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Redefining the Practice of Teaching and Learning

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## **Factors Influencing Student Achievement in DEP30013 Communication System Fundamentals**

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### **Abstract**

The purpose of this research is to identify the factors that influence students' achievement in DEP30013 Communication System Fundamentals course at the Department of Electrical Engineering, Sultan Haji Ahmad Shah Polytechnic (POLISAS). These factors are student interest, student attitude, student learning methods, polytechnic environment and lecturer teaching. The study population is 120 people comprising third semester students who have taken this course in June Session 2019. The study sample of 35 people was taken at random. The instrument used was a questionnaire. The data collected were analyzed descriptively using Statistical Package for Social Science (SPSS) version 26.0. From the five factors studied, it was found that the mean for the lecturer's teaching factor was the highest at 4.51. Followed by attitude factor (4.39), polytechnic environmental factor (4.36), interest factor (4.27) and student learning method factor (4.25). Based on the research findings, the study found that the teaching factors of lecturers most influence student achievement.

Keywords: Student Achievement Factors

### **Introduction**

The DEP30013 Communication System Fundamentals course is a compulsory core course for all third semester students who follow the Diploma in Electronic Engineering (Communication) and Diploma in Electrical and Electronic Engineering programs at the Department of Electrical Engineering, POLISAS. This course is credit hours under this department's diploma programme framework which is 3 credit hours.

### **Problem Statement**

Several internal and external factors can affect a student's excellent achievement in a course. There are many studies that have been conducted on the factors influencing students' achievement. Among the studies conducted by Ahmad, Nurul and Saifullizam (2005) found that the factors influencing the achievement of diploma students in three polytechnics in mastering the subject of Electronic System 1 are factors of attitude, environmental factors and lecturer teaching factors. A study conducted by Muhamad Abdillah and Haleefa (2011) found that the factors of student interest, attitude of students, teachers and facilities of Reka Cipta subjects in schools can influence students' excellent achievement in Reka Cipta subjects.

### **Research Objectives**

The objectives of the research are as follow:

- i. Identify the level of interest factor in the Communication System Fundamentals course.
- ii. Identify the level of attitude factor in the Communication System Fundamentals course.
- iii. Identify the level of factor of student learning methods on Communication System Fundamentals course
- iv. Identify the level of environmental factors of the polytechnic on the

- v. Identify the level of teaching factors of lecturers on the Communication System Fundamentals

## Research Questions

The research questions are:

- i. What factors have the highest levels?
- ii. What factors have the lowest levels?

## Literature Review

According to Omardin (1996), interest is an important factor as a motivator for students to be active in learning activities. Ismail (1992) supports the statement by stating that interest in something or activity will encourage a student to explore further.

In the attitude factor, the findings of previous studies as conducted by Zainun (1991), Masita (2002) and Chong (2003) found that attitude influences student achievement in Mathematics. Pupils who are high on Mathematics will usually complete the work given in the allotted time, attend classes, are eager to learn, ask if there are any doubts and so on. With such an attitude will definitely improve the achievement of the student.

In terms of learning methods, according to Cooper and Foy (1996), more study time does not necessarily provide excellent success. This may be because they do not pay attention to what they read.

Mok Soon Sang (1996) states that a conducive physical learning environment is an important factor in improving the effectiveness of teaching and learning in the learning environment. The physical factors of the place of study include the physical atmosphere in the place of study and the surrounding area.

According to Atan (1993), the teaching style used in the teaching and learning process has a great impact on students' interest and understanding in a single subject taught. In turn these two elements can motivate a person to progress in their studies. The factors that influence students' achievement in polytechnics need to be identified and further action taken as it is important to produce excellent graduates and contribute their ideas to develop society and the country in the future.

## Methodology

This research uses a questionnaire instrument. Questionnaire technique is a popular data collection technique by holding questions or items that make it easier for respondents to give answers (Mohamad Najib, 2003). The use of questionnaires is a data collection tool that is widely used by researchers. This is due to the fact that questionnaires are able to collect and collect data in a structured and standardized manner. In addition, the instrument is easy to administer, saving the researcher's time, mind and money during data collection. The questionnaire of this study consists of the items related to the factors that influence student achievement in the course of Communication System Fundamentals. These factors are divided into five types, namely interests, attitudes, student learning methods, polytechnic environment and lecturers' teaching. The questionnaires consist of 24 items in the form of a 5-point Likert scale in the table 1 below:

**Table 1**  
Likert Scale

Method	Scale
Very satisfied	5
Satisfied	4
Neutral	3
Unsatisfied	2
Very Unsatisfied	1

## Data Analysis

The data of this research consists of two parts, namely Part A is about the Student Achievement and Part B is about the items related to the factors that influence students' achievement in the course of Communication System Fundamentals.

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 Part A Table 2 shows the achievements of the respondents in the Communication System Fundamentals course. The level of honors achievement recorded the highest value of 51.4%. Meanwhile, the second highest passing achievement level is 40% and the excellent level is only 8.6%.

**Table 2**  
 Student Achievement

Grade	Frequency (N)	Percent (%)	Percent (%)	Level of Achievement
A	3	8.6	8.6	Excellent
A-	7	20	51.4	Credit
B+	7	20		
B	4	11.4		
B-	4	11.4	40	Pass
C+	5	14.3		
C	2	5.7		
C-	2	5.7		
D+	1	2.9		

Part B described the data obtained were analyzed descriptively by obtaining a mean value using SPSS 26.0. To facilitate the process of data analysis, researchers have used the interpretation of the mean score presented by Wiersma (1995) as a reference to the interpretation of the mean score as in the table 3 below.

**Table 3**  
 Score Interpretation Min

Mean Score	Level
1.00 – 2.33	Low
2.34 – 3.67	Moderate
3.68 – 5.00	High

### Student Interest Factors

**Table 4**  
 Mean Analysis of Interest Factors

Factor	N	Min	Level of Interpretation
Interest	35	4.27	High

Table 4 shows the results of mean analysis of items related to interest factors. The mean value of the interest factor is 4.27 and this value is high.

### Student Attitude Factors

**Table 5**  
 Mean Analysis of Attitude Factors

Factor	N	Min	Level of Interpretation
Student Attitude	35	4.39	High

Table 5 shows the results of the mean analysis of the items related to attitude factors. The mean value of the attitude factor is also high at 4.39.

### Student Learning Method Factors

**Table 6**  
Mean Analysis of Student Learning Method Factors

Factor	N	Min	Level of Interpretation
Student learning method	35	4.25	High

Table 6 shows the results of the mean analysis of the items related to the factors of student learning methods. The mean value is 4.25 and this value is high.

### Polytechnic Environmental Factors

**Table 7**  
Mean Analysis of Polytechnic Environmental Factors

Factor	N	Min	Level of Interpretation
Polytechnic Environmental	35	4.36	High

Table 7 shows the results of the mean analysis of items related to polytechnic environmental factors. The mean value is 4.36 and this value is high.

### Lecturer Teaching Factors

**Table 8**  
Mean Analysis of Lecturer Teaching Factors

Factor	N	Min	Level of Interpretation
Lecturer Teaching	35	4.51	High

Table 8 shows the results of the mean analysis of the items related to the teaching factors of the lecturers. The mean value is 4.51 and this value is the highest.

### Research Findings and Conclusion

Of all the aspects studied, the teaching factor of lecturers recorded the highest mean level of 4.51. Then followed by attitude factor 4.39, polytechnic environmental factor 4.36 and interest factor 4.27. The student learning method factor recorded the lowest mean level of 4.25. Overall, all factors have high mean value interpretations.

The results of this research can be concluded that the teaching factor of lecturers is the factor that most influences the excellent achievement of students in Communication System Fundamentals course. While the factor of student learning method recorded the lowest mean value, and this shows the least influence on student outstanding achievement. The results of this study are supported by Muhamad Abdillah and Haleefa (2011) who found that the teacher factor recorded the highest mean value.

In this regard, the teaching of lecturers needs to be further enhanced so that the achievement of excellent students will increase further in the future. In addition, students' attitude towards this course should also be given attention by always providing advice and motivation. Therefore, the final result can conclude as a figure 1 Mean scores and level of interpretation factor.

### Research Recommendations

This research examines the factors that influence the outstanding achievement of students in the DEP30013 Communication System Fundamentals course. This study is also limited to third semester

Copyright © 2020 Virtual Symposium on Teaching and Learning (VSTL2020) e-proceeding. students who follow the Diploma in Electronic Engineering (Communication) and Diploma in Electrical and Electronic Engineering programs in the Department of Electrical Engineering, POLISAS June 2019 session. However, further research can be conducted by expanding the population involving all polytechnic students.

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