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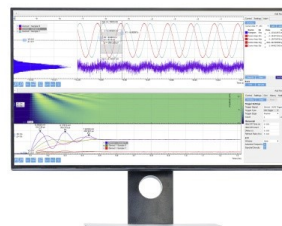
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Factors Influencing Student Absenteeism in the University

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Abstract. Student absenteeism is a common problem faced by Mathematics' lecturers in the university. The absenteeism among university student can lead to negative effect such as student's academic performance and many social problems. This study was carried out with the intention of determining the factors that influence absenteeism among students who enrolled in Calculus courses for engineering major. The study was conducted for diploma student in Universiti Teknologi MARA, Pulau Pinang branch. A survey questionnaire was assigned to a sample of 140 students who enrolled in Calculus I and Calculus II courses. These courses are known to have high percentage of failures among the engineering students. The questionnaire was analysed using statistical analysis. The domains of the questionnaire are absenteeism, electronic media factor, family factor, class climate factor, student attitude factor, peer factor and student activity factor. The findings of this study showed that there was a significant relationship between student's attitude factor ($r = 0.616$), student activity ($r = 0.392$) and family factor ($r = 0.323$) towards absenteeism. Based on the regression analysis, student attitude factor was the most dominant factor that influenced student's absenteeism. It is hoped the outcome of this study will benefits the university and reduces the percentage of student's absenteeism.

Keywords: Absenteeism, Calculus, Correlation, Regression analysis, Statistical analysis

INTRODUCTION

Student absenteeism is a major concern for lecturers at institutions of higher learning. The word absenteeism means the absence of student from class when he is scheduled to be present at university. The study of absenteeism is very important for any university. Attendance in university is important because students are more likely to succeed in academics when they attend class consistently [1]. Student absenteeism is a common problem faced by lecturers in the university. Some university dictate student should have a particular attendance percentage in order to sit for final exams, but the absenteeism still persists among student. Universiti Teknologi Mara, UiTM also have done their best to produce good attendance with stringent policy for non-attendance of less than 80% will not be allowed to sit for final examination. Therefore, it is of utmost importance that university itself must provide a rule that can reduce the percentage of absenteeism, find the strategies to counter absenteeism problem among student and

study the factors that contributing to student absenteeism. Thus, this study was conducted to determine the factors that influence student absenteeism in university.

An important factor to the success in university among student is attendance. Attendance in classrooms ensures continuity in the student's learning process. Student's attendance is very important to ensure that they will be able to understand what they learn and eventually lead to a better result for student. When students absent from class, they miss valuable information resulting from peer lecturer interaction and the benefits of the specific examples lecturers used to simplify difficult concept. Many researchers recognized that class attendance is an important aspect in improving student's performance. A study conducted by Ali [2] and Rodgers [3] found that attendance has a small but statistically significant effect on student performance. In quality terms, absences create a dead, tiresome, unpleasant classroom environment that makes students who come to class uncomfortable and the lecturer irritable [4]. Absenteeism disturbs the dynamic teaching-learning environment and adversely affects the overall well-being of classes [5].

Absenteeism among university student can lead to more negative effect such as low academic performance and many social problems [6]. Chronic frequent unexcused absence is a strong predictor of undesirable outcomes in adolescence including academic failure, dropping out of university, substance abuse, gang involvement, and criminal activity [7]. In this notion, Smink and Reimer [8] stated that student with absenteeism often engage in high risk behaviors that lead to referral to the juvenile justice system.

Absenteeism acts as a dependent variable which is affected by few factors. There are many factors which contribute for instance electronic media factors, class climate factors, student attitude factors, student activity factors, family factors and peer factors that affect student absenteeism directly and indirectly. Based on several researches conducted in Malaysia, many researches on absenteeism only focused on finding the factors for absenteeism [9] and only a few researches in Malaysia investigate factors to reduce the percentage of absenteeism among students at university level. This research will provide an added value to the previous studies to control absenteeism problems faced at the university level.

There are many researchers investigated the factors of absenteeism among university students. Recently, Wadesango and Machingambi [10] found that absenteeism is rampant among the students in three South African universities due to reasons likes lack of subject interest, poor teaching strategies by lecturers, unfavorable learning environment, too much socialization, part time jobs to augment meagre bursaries granted by various sponsors and poor relations with the lecturers. According to Schmulian and Coetzee [11], the general factors of absenteeism among the student are somewhat similar but it will vary by country and local culture. The findings of a study conducted by Kottasz [12] indicated that among the factors contributed to absenteeism in London Metropolitan University were the student can get the lecture material in other way, time are not always right, transport problem, poor content of lecturer or tutorial, poor lecturer, illness and has to work on other assignment.

In a study by Newman-Ford, Lloyd and Thomas [13] concluded that major reasons given by students for non-attendance include assessment pressures, poor delivery of lectures, timing of lectures, and work commitments. The use of information technology also means that information can be obtained at the click of a mouse from sitting through lectures. Indeed, web-based learning approaches have become the order of the day. Therefore, Devadoss & Foltz [14] indicated that all these developments that either make it impossible or unnecessary for students to attend classes. In addition, those that they will not attend lectures according to Gump [15], Nicholl and Timmins [16] were perceived as the availability of lecture material in online forms, unexciting, unchallenging lecturers, timing of lectures and competing assignment commitments.

Paisey and Paisey [17] and Kottosz [11] have argued that student's attitude and motivation for learning was a key factor in student absenteeism. Watkins and Watkins [18] found that student absenteeism was predicted by academic failure, low university effort and previous grades. Several studies have been conducted with regards to the relationship between class attendance and academic performance [17]and [19].

Various studies cited above draw attention to the factors that influenced absenteeism among student. From these studies, this study extracted factors relating to electronic media factors, class climate factors, student attitude factors, student activity factors, family factors and peer factors. All these factors can lead students to attend or not attend the class. In general, the objective of this study was carried out with the intention of determining the factors that influence absenteeism among students who enrolled in Calculus courses for engineering major. Apart from the factors, this study also proposed the suitable strategies to reduce absenteeism among students in Universiti Teknologi MARA, Pulau Pinang branch.

METHODOLOGY

The target population of this study was all diploma engineering students taking Calculus course (level 1 and 2) in Universiti Teknologi MARA, Pulau Pinang branch. According to the University's records of registered students, there were 230 registered students for 2016. Sample size representative of the diploma engineering students in this study is 140 respondents. It is determined based on Krejcie and Morgan's sample size determination table [20].

The questionnaire was based on instruments used in similar studies. The researchers adopted and adapted the self-administered questionnaire. The questionnaire was divided into two sections, the Demographic Profile and Factors of Absenteeism. The questions on Demographic Profile includes students' age, gender, faculty and how often respondents absent in one semester. The other section listed electric media, family factor, class climate, student attitude, peer factor and student activity as Factors of Absenteeism. The questionnaire consists of 48 items rated on a ten-point Likert scale.

This study practiced the probability sampling technique with cluster sampling (by class) due to it is the best way to collect information quickly and accurately. Six classes were selected and all students in that classes were the respondents for this study. All the 140 respondents in six classes responded to the questionnaire during the last two weeks of the semester and were well-informed on the objectives of the survey during the class. They spent about 10 to 15 minutes to complete the survey.

This study used the correlative design to investigate the relationship among variables which is the relationship between the dependent variable (absenteeism) and independent variable (electronic media, family factor, class climate, student attitude, peer factor and student activity). Data were analysed using IBM SPSS Statistics version 20. Reliability of this study is tested using Cronbach's Alpha. The value of Cronbach's Alpha ranges from zero to one, with zero indicates complete unreliability and value one indicates perfect reliability [21]. Hinton [22] give a good guide for reliability with Alpha score 0.90 and above indicate a scale of excellent reliability, 0.70 to 0.90 indicate high reliability, 0.50 to 0.70 indicate a moderately reliable scale and below 0.5 is generally indicates a scale of low reliability.

The data were analysed using frequency analysis, correlation and multiple linear regression. Frequency distribution is obtained for all categorical data (demographic data). It is used to calculate the number of responses from different value of variables and it will be produced in table form. Correlation analysis is used to measure the strength of relationship between dependent and independent variable [23]. If the correlation value is non-existent ($r=0$), it means that there is no relationship between the variable whereas if the correlation value with 1, indicates that there is a perfect relationship between dependent and independent variables. The equation of Pearson Correlation (r) as shown in equation 1:

$$r = \frac{n\left(\sum xy\right) - \sum x \sum y}{\sqrt{\left[n \sum x^2 - \left(\sum x\right)^2\right] \left[n \sum y^2 - \left(\sum y\right)^2\right]}} \quad (1)$$

where:

x = independent variable and y =dependent variable.

In this study, multiple regression analysis is used since the researchers are interested to know which the most contributing factors to absenteeism. Regression analysis studies the situation where a dependent variable is concurrently influenced by several independent variables. The regression model was evaluated based on R Square, Adjusted R Square, Beta (B) and its corresponding indicator (p value). R Square referred to the percentage variance of dependent variables that can be explained by the independents variables. A higher R Square means that there are stronger relationships between the variables. The equation of regression models as shown in equation 2:

$$y = \beta_0 + \beta_1 x_1 + \beta_2 x_2 + \beta_3 x_3 + \beta_4 x_4 + \beta_5 x_5 + \beta_6 x_6 \quad (2)$$

where:

x_1 = Electronic media factor, x_2 = Family factor, x_3 = Class climate factor, x_4 = Student attitude factor, x_5 = Peer factor, x_6 = Student activity factor

RESULT AND DISCUSSION

Among 140 respondents, the majority was male students which constituted about 82.6%. A total of 63% respondents aged 19 years old followed by respondents from the age of 20 years old (21.7%). Only a small portion of respondents aged 18 and 22 years old (4.3%). More than half of the respondents were from Calculus I classes (56.5%) with a total of 79 respondents and 43.5% or 61 respondents from Calculus II classes.

Almost three-quarter of respondents were Part 2 students (71.7%) followed by Part 4 students (21.7%). Only small number of Part 6 participated in this study (6.5%). The highest number of respondents were from the Faculty of Electrical Engineering (FKE) with a total of 71.7% followed by the Faculty of Mechanical Engineering (FKM) (23.9%). About 4.3% of 140 respondents were from the Faculty of Civil Engineering (FKA).

Cronbach's Alpha is the most common measure for reliability of scale. Cronbach's Alpha is certainly one of the most important and persuasive statistics in research involving test construction and use. The summary of the Cronbach's Alpha for all variables are shown in Table 1. All the Cronbach's Alpha values are greater than 0.50. According to Hinton [22], Cronbach's Alpha greater than 0.50 shows moderate reliability and 0.70 and above shows high reliability of dependent and independent variables. The values of Cronbach's Alpha confirms that there is a consistency of measurement items for all variables.

TABLE 1. Summary of Cronbach's Alpha

Variable	Items	Cronbach's Alpha	Result ,Hinton [22]
Absenteeism (DV)	2	0.534	moderate reliability
Electronic media factor	3	0.609	moderate reliability
Family factor	3	0.646	moderate reliability
Class climate factor	8	0.717	high reliability
Student attitude factor	8	0.732	high reliability
Peer factor	6	0.758	high reliability
Student activity factor	5	0.729	high reliability

Table 2 shows the summary of Pearson correlation between dependent and independent variables. For the factor of electronic media, the result shows that there is no relationship between electronic media and student absenteeism in calculus class and it is similar for peer factor and student activity. There is a weak negative relationship between family factor and student absenteeism ($r = -0.182$, $p = 0.030$). This finding is somewhat similar to that of Moore and Hotch [24] who pointed out that one of the factor that influencing absenteeism of students is the family factor.

With regards to relationship between class climate and student absenteeism, there is a significant weak negative linear relationship with $r = -0.217$ and this is consistent with the study carried out by Wadesango and Machingambi [10].

The results also show that there is a significant moderate negative relationship ($r = -0.397$) between student attitude (do not like to spend time learning and revision, feeling bored with the subject, feel disappointed with the performance of exam) and absenteeism. This means that the attitude of students is also a factor influencing absenteeism among students and this is consistent with a study by Ismail [25] which emphasized that attitude can be a significant influence on the individual student. Tahir [9] also found that there was a significant relationship between student attitude and absenteeism in class.

TABLE 2. Summary of Pearson correlation

		Electronic Media	Family Factor	Class Climate	Student Attitude	Peer Factor	Student Activity
Absenteeism	Pearson Correlation	-0.005	-0.182*	-0.217*	-0.397**	-0.078	0.000
	p-value	0.950	0.030	0.010	0.000	0.354	0.996

** . Correlation is significant at the 0.01 level (2-tailed).

* . Correlation is significant at the 0.05 level (2-tailed).

As shown in Table 3, the result shows that the value of R-square is 0.156 which is mean 15.6% total variation of student absenteeism can be explained by student attitude.

TABLE 3. Model Summary

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
1	0.95	0.156	0.150	1.0564

Predictors: (Constant), Absenteeism

The coefficient of regression is as shown in Table 4. The only significant independent variable with the *p*-value below than 0.05 which is the student's attitude. This finding in line with the previous study done by Balkis [26] where the study revealed that student absenteeism is negatively related to personal factor such as academic self-perception, attitudes towards teacher and school, and motivation.

TABLE 4. Coefficients of Regression

Model 1	Unstandardized Coefficients		Standardized Coefficients	t	p-value
	B	Std. Error	Beta		
(Constant)	5.047	0.403		12.512	0.000
Student Attitude	-0.686	0.137	-0.395	-5.003	0.000

CONCLUSION

This study was designed to determine the factors (electronic media, family factor, class climate, student attitude, peer factor, student activity) that influence absenteeism among Calculus students. Based on correlation analysis, the findings showed that there was a significant negative relationship between student's attitude factor ($r = -0.397$), class climate ($r = -0.217$) and family factor ($r = -0.182$) towards absenteeism. In addition to that, based on regression analysis, the finding showed that student attitude factor significantly influenced the absenteeism among Calculus students. It concluded that students who have negative academic perception, lack of subject interest, lack of motivation are more likely to have absenteeism. It is hoped the outcome of this study will benefits the university to enhance the awareness and understanding of absenteeism in the university. The cooperation between university and parents should be increased in order to control the absenteeism among students in the university. In addition, to cope with this problem, students with high absenteeism rate should be monitored and necessary actions should be taken against them to prevent any problems and reduce the percentage of student absenteeism.

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