

Relationship Between The Psychosocial Learning Environment To The Achievement of Form Four Additional Mathematics

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Abstract

This study aimed to determine the relationship of psychosocial learning environment with the Additional Mathematics achievement. The study also aimed to identify psychosocial differences in the learning environments by gender and school type in achievement. Quantitative approaches with a survey design were used for this study. A number of 205 form four Additional Mathematics students from 13 secondary schools in Setiu district were chosen using strata sampling methods as studied subjects. Research instrument were employed which is 'What is Happening in This Classroom' (WIHIC). Data were analysed using descriptive and inferential analysis. Descriptive analysis describe the level of perception about psychosocial learning environment while inferential analysis involved the MANOVA and Spearman's Rho correlation test. The findings showed that the students' familiarity had the highest level of level of perception. The results also showed that students from Boarding Schools are concerned with the aspects of relationship with each other compared the students in other schools. Spearman's Rho correlation analysis showed that was significant relationship between psychosocial learning environments with achievement of Additional Mathematics. As a conclusion, psychosocial learning environment is the elements that need to be attention to enhance the achievement of these subjects. The implicates of the study are the psychosocial environment learning is the elements that need to be addressed in order to improve the achievement of this subjects.

Keywords : Psychosocial Learning Environment, Additional Mathematics Achievement

I. Introduction

This study involved two main variables, learning environment and the achievement of Additional Mathematics. Most students will react uniquely to the learning environment around them. A comfortable environment can encourage and stimulate the behavior of a student's learning to be both positive and negative. According to Bartlett (2003), a comfortable and conducive learning environment can

shape student-learning behaviors. Environment is a situation or atmosphere that can affect human life. While the learning environment refers to the place or space provided for the teaching and learning process. Intellectual activity, friendship, cooperation between friends and teachers support make a healthy learning environment. Learning environments that take into account the physical and psychosocial aspects are able to shape a good school culture. The resulting culture is capable of stimulating student's enthusiasm to continue learning the concepts contained in Additional Mathematics. In addition, the learning environment also refers to the climate of a school that is normally determined by the vision, value and purpose of a school. A good and conducive school climate is influenced by the learning environment and organization, safe and secure school environment.

Teachers are individuals who are responsible for creating a conducive and effective classroom environment in dealing with diverse student behaviors. There are two important components in learning environment variables such as physical environment and psychosocial environment. For example, classroom, teaching and learning materials, indoor and outdoor classroom facilities are physical environment. While the factors that can influence the pattern and atmosphere of the interaction in the class are usually categorized into three physical factors, social and emotional factors and technical factors (Mok, 2011). Comfortable, neat and cheerful environments and safety can cheer and motivates the learning experience of students during the lesson. Pupils will be delighted when they are in a conducive learning environment. The excitement to attend school makes pupils more interested in subjects that considered being difficult.

Physical environment is commonly related to the convenience of a class. According to Mizan Adiliah and Halimantun Halalialiah (2002), the physical environment is more related to the development of facilities such as buildings and furnishings. A comfortable and safe classroom must be equipped with basic amenities such as blackboard, word board and appropriate room space. While the psychosocial environment refers to the needs of an individual's emotions with his social environment. Among the features such as comfortable and friendly atmosphere, safe from bullying and threats, a stimulating atmosphere of learning and giving equal opportunities to all students is a healthy psychosocial environment in the classroom. The habit of factors that affect the healthy psychosocial environment is the teacher's teaching approach, the leadership style of a teacher, the form of communication between the two teachers and the pupils and the interaction pattern the teacher created during the classroom. If the teacher neglects this psychosocial environment, disciplinary problems will occur among students. Clearly establishing a good psychosocial environment can stem the problem of school order.

Therefore, in order to manage the psychosocial needs of each pupil, the teacher should cultivate the assertive nature in itself so as to control the emotions of the students. Responsible teachers should have clear, confident and firm goals in disciplinary determination besides being fair to all students taught at school. Such a character for every teacher is very important as it can help build a calm environment and support the learning and psychosocial development of a student. Thus, the teacher is the most influential factor in the development of the student in terms of physical, intellectual, emotional and social aspects. In addition, a teacher needs to be caring and

always efficiently manage class teaching and learning activities perfectly to create a knowledgeable student giving contribution to progress country. There is a study conducted in United States regarding the commitment and spirit of the teacher with the students' academic achievement. The findings show that student achievement is a huge reward for committed teachers without feeling tired.

In addition, climate and classroom environments play an important role in the development of behavior, mental images, aspirations and social interactions. Some research from research experts states that the complete physical environment of the school is an important priority to improve the effectiveness of teaching and learning. Themes such as 'My School My Heaven', 'The School of Excellence' is a motto that will surely create a calm atmosphere while able to overcome unstable emotions and unwanted behaviors that occur among school children.

II. Methodology

This study is a quantitative study that uses descriptive research design in a survey. This design is suitable as researchers want to measure, identify, compare and find relationships between the learning environment and the achievement of Additional Mathematics. The study involved two variables comprising the learning environment, and the achievement of the Additional Mathematics among the four-member pupils in the Setiu district which categorized as rural school. This study involved four formative students throughout the district of Setiu, which consisted of 13 secondary schools comprising regular daily school (SMKH), religious school (SMA), and boarding school (SBP). The population for this study were the students form four who only studied the subject of Additional Mathematics. The data obtained from the set of questionnaires were then analyzed using SPSS software version 11.0. The findings of the analysis were then the researchers were able to answer the research questions.

This study involves the use of an instrument used to obtain information about their psychosocial learning environment. The questionnaire was divided into two categories starting with sections A and B. Part A contains the demographics of the respondents of the study (5 items) and part B contained a questionnaire on the psychosocial learning questionnaire of 'What is Happening in This Classroom (WIHIC) (40 items).

III. Results and Discussion

Student's perceptions towards the learning environment during the study of Additional Mathematics

Table 1.1 shows the students' perception of the learning environment during the study of Additional Mathematics. There are five aspects that are being studied which consist of the friendship between the students, the collaboration between students, the teacher's equality, the teacher's support and the engagement of the students. The level of WIHIC scores was conducted based on four levels, high, medium high, medium low and low (Table 4.4). All students were given positive perceptions for all aspects in WIHIC with the overall mean at high level (mean =

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 3.79, SP = 0.64). The findings showed that students' attitudes aspect (mean = 4.11, SP = 0.57) had the highest positive perception followed by the second aspect is the aspect of cooperation between students (mean = 3.97, SP = 0.60). (mean = 3.83, SP = 0.66) and followed by teacher support aspect (mean = 3.55, SP = 0.67) and the aspect of involvement was the lowest mean score (mean = 3.50, SP = 0.69).

Table 1. Value of mean and standard deviation for psychosocial aspects of the learning environment

Aspects	Mean	SP
Student Friendship	4.11	0.58
Collaboration	3.97	0.60
Equality	3.83	0.66
Teacher Support	3.55	0.67
Engagement	3.50	0.69
Total Mean	3.79	0.64

The results of the analysis show that psychosocial aspects of teaching and learning of Additional Mathematics subjects have positive perceptions on the aspects of student friendship, cooperation between students, teacher equality, teacher support and student involvement. This means there is good practice in relation to those aspects. Of the five aspects, the aspect of friendship between students show the highest value. This score is expected to be high because when teachers conducting teaching and learning in groups, the effect of the relationship between students is increasingly close.

Higher levels of student friendship value indicates that they are very concerned about their relationship. Partner relationships greatly influence their achievement. This finding is similar to Zulkarnain, Saim and Abd Talib (2012), which says that peers also have an impact on the way a student's assessment, learning, dress up, and eating habits. Peer influences also stimulate their achievement. Students view peers as the source of inspiration and the most trusted people compared to their parents. According to Che Zaini (2000) they are tend to believe and respect each other than their own parents. Hence their behaviour are greatly influenced by their interaction. The results showed that peers were at the highest level compared to other factors. Students are more likely to be influenced by peers than others. Students studying alone sometimes do not make significant progress on learning. This is because in the learning process students will be exposed to complex activities such as problem solving.

Furthermore, lower mean score on student engagement show that students do not like to engage in learning activities. Students do not know how to solve the questions so they do not want to engage in learning activities. Lower student involvement may have been the result of more clever pupil-centred learning activities. This activity is only beneficial to students who are interested and cleverly limited to weak pupils. Students who often appear in this subject are diligent and wise. Although cooperative learning is implemented in schools in the vicinity of Setiu, poor students do not like

to engage themselves directly causing teachers to help them. The practice of teachers in schools is still using the traditional method of 'chalk and talk' to teach these subjects. This strategy is no longer feasible in view of the steady stream of progress. Teachers need to attract students by changing the way they teach outside of the country. This shows the teacher as the main source.

The student's inability to master knowledge continuously and to understand the concepts that are difficult to master is due to the learning process that involves only the teacher as a facilitator without actively participating in pupils (Cotter, 2011). The high concern of this subject causes the freedom of generating low ideas. The poor response to Additional Mathematics causes them to be ineffective. From the beginning of the students assuming that these subjects are difficult, the students' attitude toward Mathematics is rather narrow while attitude is an important aspect in mastering these subjects (Noor Erma & Leong, 2014). If students often have negative attitudes and take it easy on these subjects, it indirectly affects students' achievement. While for students who are interested in these subjects, they will always strive to improve their skills by providing thoughtful and accurate ideas. Disciplined, deep-seated students will work even better when they have less time for other subjects.

While the aspect of equality of teachers is shown in the medium to high level. Teachers are groups that are directly involved in improving the quality of education as well as ensuring maximum learning outcomes for students in school. Today, teaching and learning are student-cantered but the teacher's position is still ahead. This means that the teacher still has power over students. Therefore, teachers need to be creative and innovative so that teaching delivery systems become more effective, interesting, fun and can stimulate students' interest in learning this subject. In addition, teachers can use the emotions and curiosity of students as motivational motivators in transferring new knowledge.

The findings also found that teachers' support aspect was high in the medium level. Most of the students in these three types of school rely almost entirely on the teacher. Hence the questions or the notes of the teacher are very helpful to the students in mastering these subjects. According to Marzita (2002), most students have a perception that Mathematics is a very abstract and elusive subject. Therefore, the support of teachers will stimulate the students' motivation to engage in this subject. A close relationship between teacher and student is a teacher effort in determining student's interest in these subjects. The effort enables students to think to try even though the fact is so weak in mastering the Mathematical concepts. Higher skills in Mathematics are an advantage when they learn Additional Mathematics. But for students who are weak in Mathematics, they will have problems.

Recent studies that was conducted show most students were found to have a little interest in this subject. The growing interest in Additional Mathematics depends largely on the learning environment. The situation is worse when teachers teaching these subjects do not have enough skills and knowledge in handling the current teaching in the classroom. In the habit of learning environment revolves around the relationship with teachers, parents, peers in and as well as outside of the classroom. The atmosphere of the learning environment should be designed with regard to the influence of the surroundings in order to promote interaction and cooperation between students. One of the factors is the lack of understanding of the low

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 Mathematical concepts and the teaching strategies of teachers who are very boring and less creative.

The difference in the perception of the psychosocial environment in teaching and learning of Additional Mathematics based on sex and type of school

This study uses multivariate testing (MANOVA) to determine whether gender (male or female) and type of school (secondary school, religious school and boarding school) for Additional Mathematics subjects affect the aspects of student friendship, cooperation between teachers, teacher support and student engagement in Additional Mathematics learning. Before MANOVA's analysis was carried out, the determination of homogeneity of variance-covariance matrix by using Box's M. test have been made. Table 1.2 shows the results of Box's M. test.

Table 2. Box's M tests for psychosocial aspects of learning environment based on gender and school type

<i>Box's M</i>	F Value	DK 1	DK 2	Sig.
159.136	1.951	75	20398.568	0.000

Based on Table 1.2, there was a significant variant-covariance difference among dependent variables for all independent variable levels ($F = 1.951$ $p = 0.00$) ($p < 0.05$). This means the variants of covariant dependent variables are not homogeneous across all independent variables. According to [9], though the variant-covariant homogeneity matrix is significant MANOVA test can still be carried out as long as the sample size is large and almost the same (the smallest sample / smallest sample < 1.5) because Type 1 Error is small. Hence, hypothesis testing can be done using MANOVA.

In this study, Pillai's Trace statistical test was used because according to Hair, Black, Babin, Anderson and Tatham (2006) and Tabachnick and Fidell (2001) in the event of a problem with data (small sample size, unequal number of samples, or deviating from conditions) is suitable for Pillai's test. Table 1.3 shows the results of MANOVA's analysis of the psychosocial aspects of the learning environment according to gender and school type. Table 1.3 results of the Pillai's Trace test showed that there was no significant effect of the independent variable of the sex with Pillai's Trace = 0.008 $F(5, 195) = 0.316$, $p = 0.903$ ($p > 0.05$) to the dependent variable in the study, Zero failed to reject. This means that there is no difference in perceptions of students on the aspects of student interaction, student cooperation, teacher equality, and teacher support and student involvement for male and female students.

Table 3. MANOVA's analysis of the differences in psychosocial aspects of the learning environment based on gender and school type

Effect	Pillai's Trace	F	DK Between Groups	DK Inside Groups	Sig.
Sex	0.008	0.316	5	195	0.903
School Type	0.179	3.848	10	392	0.000
Sex * School Type	0.095	1.956	10	392	0.037

$p < 0.05$

The results of the test also showed that there was a significant effect on the variables of independent school variables with the value of Pillai's Trace = 0.179, $F(10, 392) = 3.848$, $p < 0.00$ ($p < 0.05$) against dependent variables in the study. Furthermore, it is found that the effect of sex interactions between students and school types is based on the Pillai's Trace = 0.095, $F(10, 392) = 1.956$, $p = 0.04$ ($p < 0.05$) value of the variables studied. This finding means that students' perceptions on the aspects of friendship between students, student cooperation, teacher equality, teacher support and student engagement are significantly different in the learning environment for all three types of school and gender.

The findings show that there is no significant difference between the perceptions of the psychosocial environment (aspects of student friendship, student cooperation, teacher equality, and teacher support and student involvement) based on student gender. This study is in line with the study of Mazlini, Mohd Faizal Nizam Lee, Mazitah, Che Nidzam and Siti Mistima on form four students at high-performance schools that found no difference in the aspects of student friendship and teacher support. Male students may differ from girls when they interact with the environment in schools. However, in Setiu area, gender-based learning environment difference is low. So the factor of persuasion is not their cause to succeed. Therefore, the findings clearly show that students want a better learning environment compared to what is in the classroom. The excellent school practice implemented in SBP clearly demonstrates a significant difference between SBP and SMA, which is a systematic leadership of principals and a conducive school environment (Mohd Faizal, 2004).

The interaction between the learning environment and the achievement of Additional Mathematics

In this study, Spearman's Rho correlation is used to study the relationship between the learning environment and the achievement of Additional Mathematics. The learning environment variable consists of five aspects which student friendship, teacher support, and collaboration among students, equality, and student engagement. ($R = -0.16$, $p = 0.02$), involvement ($r = -0.22$, $p = 0.00$), teacher support ($r = -0.17$, $p = 0.01$) and equality ($r = -0.18$, $p =$) was found to have significant modest correlation with

the achievement of Additional Mathematics. All four psychosocial aspects show a very weak relationship. Same as the aspect of cooperation ($r = -0.04, p = 0.61$), there was a very weak significant relationship with the achievement of Additional Mathematics (Table 1.4). Therefore, it can be said that students' perception of the psychosocial learning environment has a significant relationship with the students' achievement. While there is a moderate relationship between the aspects of student friendship and achievement, the role of peers remains important in student life.

In addition, the teaching aspect of teachers also found that there was a clear relationship with the achievement of the Additional Mathematics students. The method of teaching nowadays needs to be diversified to enable students to be more interested in these subjects. Teacher teaching towards the 21st century learning is a diversity that must be implemented. This finding also consistent with Salina, Peridah and Abdul Ghani Kanesan (2009) that creates significant relationship between the learning environment elements and the achievement of Mathematics. This is because conducive learning environments can enhance student self-esteem and attitude to a more positive level and are able to help improve students' achievement in Additional Mathematics. The findings also clearly show that the Additional Mathematics learning environment has a significant impact on student achievement, including emotions and social relationships. Besides improving the performance of poor students.

Table 4. Spearman's Rho correlation analysis results between psychosocial aspects of the learning environment

Learning Environment	Student Achievement			
	N	Rs	Relationship Power	P Value
Student Friendship	205	-0.162	Can be ignored	0.020
Teacher Support	205	-0.174	Can be ignored	0.013
Student Engagement	205	-0.227	Can be ignored	0.001
Student Cooperation	205	-0.035	Can be ignored	0.617
Equality	205	-0.180	Can be ignored	0.010

IV. Conclusions

Overall, this study shows that psychosocial aspects are important especially in the learning environment. This is because the aspects in the learning environment are interacting with others even though it is weak. Likewise, the learning method was found to have an impact on students' achievement in Additional Mathematics. Therefore, educators should emphasize the factors studied in this study so that these subjects remain taught in schools.

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