

*Individual Needs, Cooperative Learning and Academic Achievement among University's Students*  
(Keperluan Individu, Pembelajaran Koperatif dan Pencapaian Akademik di kalangan Pelajar  
Universiti)

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*ABSTRACT*

*Academic achievement is an important indicator of student performance in institution of higher learning. Notwithstanding the intensity of investigation on academic performance, the dynamic nature of external environments engender continuous development of teaching and learning in higher learning institutions so as to minimize knowledge asymmetry. Previous studies emphasize on the important of individual needs and cooperative learning on the performance output of students of higher institution. Specifically this study investigates the role of student's individual needs and cooperative learning on academic performance. Data was collected from 100 undergraduate students at the Universiti Kebangsaan Malaysia. Multiple regression analysis was employed to test the hypotheses. Findings indicate that individual needs significantly influences academic performance. In addition, cooperative learning mediates the relationship between individual needs and academic achievement, hence partial mediating function of cooperative learning. At the end of this paper, the discussion is presented and the conclusion is discussed.*

*Keywords: Academic achievement, institution of higher learning, individual needs, cooperative learning, Universiti Kebangsaan Malaysia.*

**ABSTRAK**

Pencapaian akademik adalah satu penunjuk penting bagi pencapaian pelajar di institusi pengajian tinggi. Walaupun terdapat banyak kajian berkenaan pencapaian akademik, dinamika persekitaran luaran mengakibatkan pembangunan pengajaran dan pembelajaran yang berterusan di institusi pengajian tinggi agar dapat meminimumkan asimetri pengetahuan. Kajian lepas memberi penekanan kepada kepentingan keperluan individu dan pembelajaran koperatif ke atas pencapaian akademik. Datadikumpulkan dari 100 pelajar prasiswazah di Universiti Kebangsaan Malaysia. Analisis regresi berganda telah digunakan untuk menguji hipotesis. Hasil analisis menunjukkan keperluan individu dengan ketara mempengaruhi pencapaian akademik. Sebagai tambahan, penemuan juga menunjukkan pembelajaran koperatif adalah pengantara kepada hubungan di antara keperluan individu dan pencapaian akademik, oleh itu fungsi pembelajaran koperatif adalah separa pengantara. Di akhir kertas ini, terdapat bahagian perbincangan dan kesimpulan.

Kata kunci: Pencapaian akademik, institusi pengajian tinggi, keperluan individu, pembelajaran koperatif, Universiti Kebangsaan Malaysia.

## INTRODUCTION

Academic achievement has been one of the most important indicators of student performance in institution of higher learning. Academic achievement is relevant to at least three stake holders. First, academic performance helps government to measure the country educational achievement and therefore develop policy aims to provide better education standard. Second, academic achievement has been one of the important measures useful to companies in identifying potential candidate for new recruitments. Third, academic performance entails the educational achievement and serves as a measure for the effectiveness of prevailing teaching and learning methods in institution of higher learning. In line with this development, topic on the academic performance has attracted substantial amount of attention among scholars. Not with standing the intensity of investigation on academic performance, the dynamic nature of economic, political and social environments engender continuous development of teaching and learning in higher learning institutions so as to minimize knowledge asymmetry. This also suggests that institution of higher learning is facing mounting pressure to continuously change and educate the students with the latest knowledge, skills and capabilities. In this regard, research on factors that influence the student academic achievement in higher learning institution clearly helps the learning institution and the government alike in term of effective resource allocation. This in turn enables the development of better teaching and learning methods by complying with the current needs of the stake holders, hence the justification of this study.

A review of literature indicates that topic related to factors that may influence the academic performance has received enormous interest among researchers. Specifically this study advances on the role of individual needs and cooperative learning in the performance outcome of student in the institution of higher learning. Although the two variables have been widely investigated (Simpson and Weiner 1989; e.g. Yeung 2015; Cardoso et al. 2011; Cazan and Indreica 2014) and the findings were manifested in the literature, our knowledge hitherto on the interaction between individual needs and cooperative learning and the effect of this interaction on academic performance is rather limited taking into account the continuous change of external environment affecting the academic setting.

Extant literature indicates that factors such as individual needs and cooperative learning (Alghamdi and Gillies 2013) are intimately related to the

performance output of students of higher learning. In addition, previous studies investigate the direct effect of the variables on the academic performance. However we believe academic performance is dependent on the student's ability to productively work with others such as fellow students and instructors. This is especially true in the context of business students whereby the learning process emphasizes on the team work and networking so as to meet the demand of today's working environment. Therefore, this paper proposes that cooperative learning role in mediating the performance outcome of individual needs.

In line with the above discussion, this paper aims to achieve two objectives. First, this paper aims to test the model developed in this research among students of higher learning in UKM. Second, this paper intends to investigate the role of individual needs and cooperative learning in academic performance of university's students.

## LITERATURE REVIEW AND HYPOTHESES

### Academic Achievement

Academic achievement is an important variable to measure student performance. Simpson and Weiner (1989) define achievement as measurable behaviour in a standardized series of tests. Parallel to the definition, Bruce and Neville (1979) advance the notion that academic achievement is measured by standardized achievement test developed for faculty subjects. Along this line, scholars seem to converge on the view that the test should be standardized and must be valid for over a period of time.

Achievement is viewed as action of accomplishing by effort. In the context of education, achievement test intends to measure systematic education and training towards a conventionally accepted pattern of skills or knowledge (Simpson and Weiner 1989). Several subjects may be combined into an achievement series for measuring general academic proficiency either in point score or achievement age.

In the context of institution of higher learning, in order to qualify for recognition of undergraduate academic achievement, a student must have completed successfully certain courses and achieve certain grade-point average for given semesters. In other words, it is not just one-point observation of measurable behaviour of a person that constitutes his academic achievement.

## Needs

A student attends an educational institution to gain more knowledge and skills. During the live as a student, they have to cope with many challenges such as learning new subjects, finishing assignments in a limited time, socializing with new friends, managing time, and attending many classes. In order to survive in such environment, some of the basic needs of individuals must be fulfilled. Extant literature shows that the basic needs of students consist of two aspects, namely physiological needs and psychological needs (Negovan. and Bogdan 2012).

Scholars have concluded that human beings have basic physiological needs. For example, Maslow (1954) works on hierarchy needs placed physiological needs at the bottom of the hierarchy. These basic needs such as food, water, air and sleep are very important for human being so as to achieve better development in their live. Failure to meet the demand of physiological needs may cause the physical short comings such as physical weakness and illnesses which in turn affect the motivation and ability of the students to meet the academic as well as co-curriculum requirements. As a result students will not be able to produce a good performance academically.

Majstorovic (2007) describes that theories relating to the principal needs of human converge on the psychological needs. For example, the self-determination theory by Deci and Ryan (1995) explains that the model of human motivation and personality link to the notion that needs are considered important to psychological growth. Meeting the needs nourishes the psychological well being while unable to fulfil the needs may cause ill being. People hold protest activities in order to meet their needs, and in the case of constant lack of meeting the needs, psychological problems as well as adjustment problems can be experienced. In the context of tertiary education, Negovan and Bogdan (2012) insist on the important of basic psychological needs to achieve learning success.

In line with the above discussion, when individuals' needs, which in our case is a student, are not satisfied, such predispositions as defiance and retreat may be the most likely outcomes. Consequently, when the student's needs are not met or fulfilled, the motivation to study and achieve better performance will be affected such as poor academic achievement. Based on the above discussion this study proposes the following hypothesis; H1: Individual need relates significantly to academic performance.

## Cooperative Learning

Students need others to support their learning process hence the necessity of cooperative learning. Cooperation is a situation when a group of people work together to achieve a certain goal. Slamento (2013) asserts that cooperative learning is a teaching strategy and aims primarily to expands cooperative relationships among students in academic tasks in the classroom. Therefore, cooperative learning is a task-based and group-structured instructional method in which members in heterogeneous groups collaborate instead of competing with each other to seek attainments that are beneficial to each member with the teacher's academic and moral guidance (Han, 2014). This means that groups of students work together in searching for understanding, meaning, solutions, or in creating a product

It has been found that students working in small cooperative groups can develop the type of intellectual exchange which in turn nurtures creative thinking and productive problem solving among members of the group. For example, a study by Slavin (1990) demonstrates that when a group is encouraged to gain success and when each member of the group takes responsibility cooperative learning fosters the progress of the students is enhanced. In addition, in cases that the success of learners' is dependent on the assistance of others, the learners tend to cooperate so it is better to divide the materials among the group members and to ask them to share his ideas with others. Previous investigations are clearly manifested the positive effect of cooperative learning with positive results and academic progress.

Within the framework of cooperative learning, student works cooperatively with fellow students in the group as well as with the teacher. In term of the former, student-student interaction supports and motivates student to achieve a higher cognitive level and to find a personal meaning for learning (Dempsey, Halton, and Murphy 2001). These interactions may occur in the classroom and beyond, through traditional or Web exchanges. Interaction between students can be evaluated by students in terms of the way in which they are given the opportunity to learn from each other, and also if they are encouraged to contribute, making their interaction with the peers an important learning component (Hayton, Allen, and Scarpello 2004). Learning group that is based on committed relationship and positive interdependent facilitates the completion of assignments and student academic progress (Tran, 2013).

In term of student-teacher collaboration, the learning process is essentially interactive wherein

student and teacher's language combine as a unique communicational process. To get students to become involved and gain their interest in the learning process often requires interaction skills from teacher in his relationship with students. One of the most important responsibilities for instructors is to interact in positive ways with students. Previous research has shown that there is an association between positive teacher-student relationship and learning (Hay et al. 2004).

A positive teacher-student interaction creates a nonthreatening environment enhancing learning outcomes. Teacher-student interactions are influenced in part by the ease with which communication takes place, the degree to which students feel free to ask questions and express their views, and how accessible and responsible faculty are to information-related problems (Marks, Sibley, and Arbaugh 2005). Cooperative Learning (CL) benefits students in term of better academic achievement (Slameto, 2013). Based on this discussion, we suggest the following hypothesis; H2: Cooperative learning relates significantly to academic achievement.

In today's global environment the demand for effective process in decision making has been emphasized hence the need to educate and train the students the teamwork. Teamwork allows members of a group to pull unique resources and competencies of individuals in the group. This increases the efficiency and effectiveness of the decision process.

Within the perspective of cooperative effort, individual accountability and personal responsibility is when everyone is expected to do their part of work and it is important for all group members to know that they cannot maintain in the group without doing any work. For small group interpersonal skills such as making decisions and solving conflicts are important. In order to achieve these goals students must get together, communicate clearly, provide and accept support, and resolve conflict which in turn helps members to maintain good working relationships.

We believe that when individual needs are met, physiological and psychological, student motivation enhanced. This allows the execution of student's responsibility and thus constructively works in the group. In such condition, the learning process among the group members is more effective resulting in greater cooperative learning outcome such greater knowledge acquisition and enhances understanding. This helps student to achieve better academic performance. Based on the above notion, this paper proposes the following hypothesis; H3: Cooperative learning significantly mediates the effect of individual need on academic achievement.

## METHODOLOGY

The sampling frame consisted of undergraduate student at the Faculty of Economic and Management, Universiti Kebangsaan Malaysia. We used survey method to collect the data. The questionnaires were randomly distributed to the students at the university main campus in

Bangi. Finally, 100 students participated in the survey. Table 1 shows the demographic profile of the respondents. The figure shows that male students represent 70 percents of the total respondents and female students represent 30 percent of the respondents. In term of races, Malay and other Bumiputra from Sabah and Sarawak were the dominant race among the respondents consisting 81 percent of the respondents. This is followed by other races, specifically Chinese (17 percents) and Indian (2 percent).

Based on the data in table 1, most of the respondents were students with CGPA between 2.5 and 2.99 (44 percent) and followed by CGPA between 3.0 and 3.49 (42 percent). The remaining respondents were student with CGPA 3.5 and above.

TABLE 1. Demographic profile of respondents

Demographic Profile	Subgroup	Percentage
Gender	Male	30
	Female	70
Race	Malay	81
	Chinese	17
	Indian	2
CGPA	Above 3.5	14
	Between 3.0 – 3.49	42
	Between 2.5 – 2.99	44

We examine the normality properties for all variables. The scores for skewness and kurtosis are shown in table 2. Following West, Finch and Curran (1995) the scores were within acceptable ranges hence satisfying the assumption of normality of data.

Reliability estimates (cronbach alpha) for all three constructs are 0.70 and more, suggesting acceptable reliability (Nunnally 1978). Table 2 presents the correlation matrix for all three constructs. Score for correlation between needs and cooperative learning

is above 0.70 hence the potential for the existence of multicollinearity. We proceed with the tests for variance inflation factor (VIF) and tolerance. The scores for variance inflation factors (Table 2) were all below 2.5 and the scores for the tolerance were all above 4.0 each, implying that multicollinearity is not a problem in this study (Hair et al. 2006). Meanwhile, all values of the Durbin-Watson are within the acceptable range (i.e., between 1.750 and 2.250), suggesting that the non-independence of errors is not exist.

TABLE 2. Descriptive statistic and correlation of constructs

	$\alpha$	1	2	3
1. Needs	0.841	0.798		
2. Cooperative Learning	0.700	0.714**	0.876	
3. Academic Achievement	0.753	0.614**	0.567**	0.709
Means		4.845	4.812	4.865
Standard Deviation		0.672	0.814	0.726
Skewness		0.313	-0.446	-0.031
Kurtosis		0.022	0.956	-0.049

\* $p < .05$ ; \*\* $p < .01$ ; \*\*\* $p < .001$ ;

#### DATA ANALYSIS

Data was analysed using SPSS version 23 and multiple regression method was adopted to test the hypotheses. Four regression models under two different dependent variables namely cooperation and performance are shown in Table 3. Model 1 and model 2 were run to test hypothesis 1 (dependent variable cooperation), and model 3 and model 4 were run to test hypotheses 2 and 3 (dependent variable academic performance). In Model 1, the results show that the control variables contribute 5 percent to the variance in cooperative learning. Adding the independent variables in Model 2 increased the explained variance ( $R^2$ ) in relationship commitment by 53.5 percent (statistically significant:  $\Delta R^2 = 0.535$ ,  $F$  change = 123.763,  $p < 0.001$ , two-tailed test). The results indicate that the effect of needs on cooperative learning is significant ( $\beta = 0.74$ ;  $t$ -value = 11.12,  $p < 0.001$ ) hence hypothesis 1 is supported.

In model 3, control variables contribute 1.8 percent to the variance in academic performance. Needs and cooperative learning were added in Model 4, and the results indicate that both variables account for 39.5 percent of the variance in academic performance (statistically significant:  $\Delta R^2 = 0.395$ ,  $F$  change = 64.578,  $p < 0.001$ , two-tailed test). The results in model 4 also show that academic performance is significantly affected by cooperative learning ( $\beta = 0.29$ ;  $t$ -value = 2.62,  $p < 0.01$ ), supporting hypothesis 2.

We test hypothesis 3 by using Sobel's test of mediating function. The results indicate that cooperative significantly mediate the effect of needs on academic performance. However, the results in model 4 specify that the relationship between needs and academic performance is significant ( $\beta = 0.48$ ;  $t$ -value = 4.43,  $p < 0.001$ ), hence the role of cooperation is partial mediator.

#### DISCUSSION

Global environments are becoming more complex and competitive. Accruing to the dynamic nature of political, economic and social aspects, continuous efforts in the development of education system at tertiary level has become the top priority to academic institution as well as the government. Such endeavour is important to ensure better education at higher learning institution for future students so as to develop student's skills and knowledge that meet the requirement of stakeholders. Therefore research on the performance outcome of student's needs and cooperative learning greatly helps higher learning institutions and government in developing effective teaching and learning methods as well as designing a comprehensive education policy.

The findings of this study indicate that students at higher learning institution specifically UKM greatly value the importance of individual needs and cooperative learning in the achievement of academic performance. In addition, in this study cooperative

TABLE 3. Hierarchical regression analysis

Variables	Dependent Variable - Cooperation			Dependent variable - Performance		
	Model 1	Model 2	VIF	Model 3	Model4	VIF
<b>Control Variables</b>						
Race	0.06(0.50)	-0.06(-0.92)	1.07	0.11(0.26)	0.07(0.89)	1.08
Gender	-0.11(-1.09)	-0.05(10.77)	1.06	0.03(0.34)	0.10(1.32)	1.08
CGPA	-0.13(-1.35)	-0.18(-2.73)	1.07	-0.05(-0.53)	0.03(0.41)	1.09
<b>Independent Variables</b>						
Need		0.74(11.12)***	1.04		0.48(4.43)***	1.06
Coop. Learning					0.29(2.62)**	1.05
R <sup>2</sup>	0.050	0.585		0.018	0.413	
Adjusted R <sup>2</sup>	0.020	0.568		-0.12	0.389	
F-Ratio	1.691	33.815***		0.604	16.894***	
ΔR <sup>2</sup>	-	0.535		0.018	0.395	
Degree of freedom	3/97	1/96		3/97	1/96	
F-Change	1.691	123.763***		0.604	64.578***	

\*p < .05; \*\*p < .01; \*\*\*p < .001; Durbin-Watson = 1.774 (Independent Variable Cooperation), 1.718 (Independent Variable Performance)

Notes: Values of standardized regression coefficient are reported and t-values are in parentheses; Dependent variable is commitment.

learning also partially mediates the interaction between students' needs and academic performance.

## CONCLUSION

The findings of this study further support the existing findings on the importance of student's needs and cooperative learning in the academic performance of students in higher learning institutions. In addition, the partial mediating function of cooperative learning indicates the importance of cooperative learning method in the quest to develop better academic performance of students at higher learning institutions. Therefore, the university should focus on dealing with and taking care of student's individual needs. Moreover, the teaching and learning process in university should also consider cooperative learning such as heterogeneous group assignment and workshop as part of the teaching methods. This will contribute to the effective teaching and learning which in turn increase the ability of higher learning institutions to produce students with greater academic performance.

Although this study manages to achieve the objectives, readers are reminded to be cautious when interpreting the results. This is because this study has some limitations. The small sample size and the focus of this study limited to UKM students limit the generalization of the findings to other universities.

Furthermore, in terms of gender distribution, the majority of the respondents were male, whereas the majority of the student population in university are female. Hence, the findings do not necessarily reflect the university setting. In accordance with the above limitation, this paper suggests similar study in the future with a sample of students from other universities.

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