

# The Influence of Self-Study Time, Group Study Time and Library Study Time on Academic Achievement of Medical Students Applying Problem Based Learning Approach

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## ABSTRACT

**Background:** Study time is considered as one of the factors to predict for successfull in the learning process for contributing satisfactory academic achievement. The curriculum adopted in the Faculty of Medicine nowadays is implementing strategies for Problem Based Learning (PBL) approach that ensuring students can allocate sufficient time for study. This study aimed to analyze the influence of library study time on academic achievement, to analyze the influence of group study time on academic achievement of medical students that using Problem Based Learning as learning strategy approach, to analyze the influence of library study time on academic achievement, to analyze the influence of self-study time, group study time and library study time on academic achievement.

**Methods:** This research used a purposive sampling techniques and data collection involved 77 respondents from third-year medical student at the Faculty of Medicine in the subject of Traumatology. The data that have been obtained then analyzed using the independent t test and linear regression.

**Results and Discussion:** There is a difference of self- study time on academic performance in third year medical students with mean differences of 0,533 and t value of 1,472 and p value: 0,145. There is a difference of group study time on academic performance in third year medical students with mean differences of 0. 6799 and t value of 2,322 and p value: 0,023. There is a difference of library study time on academic performance in third year medical students with mean differences of 0,0451 and t value of 0,262 and p value: 0,794. On overall, self-study time, group study time and library study time influence the academic performance with R: 0,351 and p value: 0,000.

**Conclusions and Recommendations:** Overall, self-study time, group study time and library study time influence on academic achievement of the third year medical students.

**Keywords:** self-study time, group study time, library study time, academic achievement.

## INTRODUCTION

The curriculum alteration of medical education is basically changing from Teacher-centered learning (TCL) to Student-centered learning (SCL). This is considered as the basis for all of the Faculty of Medicine in Indonesia to implement the SCL. Several steps taken by the Faculty of Medicine in Indonesia by changing the teaching and learning activities to conform to the SCL system. In the traditional systems approach which refers to education that is considered TCL, the lecturers play the most influential role in determining student learning. Lecturers are also very important in controlling the students' learning process that will result in the inactivity students in finding what they want and need to learn more in depth.

Curriculum conducted by the Faculty of Medicine, University of Muhammadiyah Surakarta started in 2008-2009 is a new curriculum approach to Problem Based Learning (PBL). As mentioned in the reference submitted by Harsono (2008) that the basic characteristics of Problem Based Learning is SCL and Self-directed learning (SDL). Application of teaching and learning approaches in SCL and SDL is that students have an obligation to conduct sufficient skills to implement self-directed

learning. Students are expected to look for their own learning materials, to determine their own activities and to evaluate in a report what they have acquired.

Therefore the student's time allocation for independent learning either in the library time or in the group study time in PBL approach is absolutely necessary in order to maximize their own learning. The author intends to investigate how much time allocated for group study time and library study time and their relation to academic values of medical students in the Faculty of Medicine University of Muhammadiyah Surakarta who use PBL method as learning strategies. The researcher assume that students who spent more for group and library learning allocation will contribute satisfactory progress learning.

The problem of this study is that whether there is a time difference of group study and library study time of students with high and low academic achievement. The purpose of this research is to analysis time differences between group study and library study on medical students with high and low academic achievement. This research is expected to provide benefits for students in developing independent learning time to obtain a better learning and achievement. For institutions, the

results of this study can provide information about the picture of group and library study time of students and its role in supporting student achievement.

Artists and Harris (2007) revealed the factors that influence the Self-Directed Learning, including an understanding of the subject matter that has been known previously (prior knowledge), independent learning skills, motivation to learn independently.

Meanwhile, according to Rantenstrauch, (2001), quoted by Bohne, Faltin, Wagner (2002), stated that in order to be able to conduct independent learning, a student is expected to have competence of self-observation, self-reflection, self-assessment, making their own purposes, conducting reactivation of existing knowledge, manage autonomous learning (eg, time management), building motivation and concentration in learning autonomy and determining their own learning strategies and problem-solving strategies, understanding when to seek support from a friend or a teacher.

Patterson et al., (2002) mentioned that the competence to conduct the Self-Directed Learning in learning nursing student is determining self-assessment and peer evaluation, reflection, information management, critical thinking and critical

appraisal. Slevin and Lavery (1991); Mifflin et al., (2000) reveal that the faculty and the learning environment influence student in conducting independent study.

## METHODS

This research is a cross-sectional design with academic achievement as dependent variable using the value taken from the subject of Traumatology in the academic year of 2015/2016 before revision. Data independent variables included group and library learning time taken by distributing questionnaires. Quantitative research data were analyzed using descriptive statistics and inferential statistics. Descriptive statistics were used to investigate the average value, standard deviation (SD), minimum and maximum values of the variables. Inferential statistics are used to determine the time difference independent study of high and low academic achievement using the t test (Johnson & Christensen, 2008; Sugiyono, 2011).

The subjects were third-year students at the Faculty of Medicine, University of Muhammadiyah Surakarta in the academic year 2015/2016. The inclusion criteria include third year students of the Faculty of Medicine UMS that participate in the subject of Traumatology, was present at the time the

research and willing to become respondents. Exclusion criteria were a third year student who was not present at the time of the study, did not follow the subject of Traumatology and does not collect or fill out the questionnaire fully.

The data collected in this study included the primary data and secondary data. Primary data retrieved by distributing questionnaires to students. Secondary data was taken from the value of subject Traumatology drawn from academic administration School of Medicine UMS.

Data analysis techniques used in this research is quantitative data analysis

consisted of descriptive statistics. Then, it will be followed by independent t-test and linear regression test. Descriptive statistical analysis aimed to determine the average value, standard deviation (SD), minimum and maximum values of the variables (Johnson & Christensen, 2008; Sugiyono, 2011).

## RESULTS AND DISCUSSION

Based on the results of research data about the time difference of group and library study time on medical students with high and low student achievement data obtained as follows:

Tabel 1. Distribution of self-study time, group study time, library study time and academic performance (n = 77)

Variable	Mean	Median	Mode	Minimum	Maximum
Self-study time (hours)	2,52	2	2	0,5	8
Group study time (hours)	1,93	2	2	0	6
Library study time (hours)	0,87	1	1	0	3
Academic performance	56,69	55,67	55,86	37,71	75,53

Data that meets the criteria of inclusion and exclusion is as much as 77. The table above illustrates that the average of student achievement in the subject of Traumatology is equal to 56,69. On average, the amount of time spent for self-study is approximately 2,52 hours per day.

On the other hand, the amount of time spent for group study is approximately 1,93 hours in one day. Meanwhile, the mean of students spent their time in the library for study is only for 0,87 hours in a day. The minimum value of student achievement in this subject is 37.71 while

the maximum value is 75,53. In this study, it is found that there is student that do not allocate their study for group study or library study time. However, students spent their time for self-study for minimum 0,5 hours per day and maximum time spent for study for 8 hours per day. Meanwhile, the maximum hours spent for group study time of medical student is 6 hours a day while the maximum time for library study time is only 3 hours a day.

Based on these data, it is clearly observed that the students spent their time majority on conducting self-study which constitute for 2,52 hours per day and spent their time more for group study approximately for 1,93 hours per day higher than for library study that approximately for 0,87 hours per day.

The data have been obtained then analyzed using the independent t test, the result shown as follows:

Tabel 2. Mean differences, t value and p value of group study time, library study time, self-study time and academic performance (n=77)

Variable	N	Mean	Mean differences	t value	p value
Group study time-Academic performance $\geq 56,70$	38	1,58	,6799	2,322	0,023
-Academic performance $< 56,70$	39	2,27			
Library study time-Academic performance $\geq 56,70$	38	0,82	0,045	0,262	0,794
-Academic performance $< 56,70$	39	0,92			
Self-study time-Academic performance $\geq 56,70$	38	2,79	0,533	1,472	0,145
-Academic performance $< 56,70$	39	2,26			

Tabel 3. Linear regression test and p value of self-study time, group study time, library study time and academic performance (n=77)

Variable	R	P value
Self-study time, group study time and library study time on academic performance	0,351	0,000

The results of the data that has been acquired and processed with SPSS version 23.0 for Windows by independent t-test showed that the mean of self-study time of the higher academic performance

is 2,79 hours. Meanwhile, mean of group study time of the lower academic performance is 2,26 hours. The mean differences of the self-study time is 0,533 hours and p value of 0,145. On the other

hand, the mean of group study time of the higher academic performance is 1,53 hours. Meanwhile, mean of group study time of the lower academic performance is 2,21 hours. Furthermore, the mean differences of the group study time is 0,6799 hours and p value of 0,023. Moreover, the mean of library study time of the higher academic performance is 0,844 hours. Meanwhile, the mean of group study time of the lower academic performance is 0,889 hours. The mean differences of the library study time is 0,045 hours and p value of 0,794.

These indicate that in this study there is significant differences of self-study time between higher academic performance and lower academic performance with p value <0,5. In addition, there is significant differences of group study time between higher academic performance and lower academic performance with p value of 0,023. The results are consistent with studies of Todd R., S., and Ralph S., TR., (2007) which stated that in general students allocate their time for study for 1.8 hours per day. Based on this study result mentioned that there is negative tenderness of the amount of group and library study time to academic performance in which student with higher academic achievement tend to

have lower time spent for either group study and library study.

However, in this study also indicates that the more students spent their time for self study the better the academic achievement will be. In addition, the independent study not only consisting of group study and library study but also consider for self-study. Several research also recommend that students should allocate their time for sufficient study either for self-study or library study for expecting better result of academic achievement as stated by Triastuti, N., J., (2016); . Michael Jato, et al., (2014). Considering this research result, medical students tend to conduct their independent study by self-study rather than group study or library study. In addition, the academic achievement is also influenced by several factors as stated by Dina N., and Haron S., (2013); ] Bosu R.S., (2015) that divide factors that influence learning achievement including internal factors consist of health, intelligence, aptitude, interest, motivation, means and time to learn.

Furthermore, based on the linear regression test it can be seen that on overall self-study time, group study time and library study time influence the academic performance with R : 0,351 and p value of : 0,000. This results are

consistent with the statement revealed by Owusu-Acheaw, Micheal, (2014); Pham T.T.B. (2015); Steven McMullen. (2007) who said that the more students allocated their time for study independently the higher learning achievements will be

## CONCLUSIONS AND RECOMMENDATIONS

Based on these results, it was found that there were significant differences of self-study time, group study time, and library study time between the high achievements and low achievement. On overall, self-study time, group study time, library time influence academic performance of third year medical students. Students that learn independently allocate more time for self-

attained. Mišlin BM, CB Campbell, Price DA. , (2000) divides the factors that influence learning achievement into two: internal factors and external factors. Which external factors consist of family, school, community and environment.

study, group study and library study time will obtain higher learning achievement.

Higher Educational institutions are expected to continue to support student for both moral and also provide library infrastructure, textbook, and other multimedia. Environment and culture of academic and support are also needed therefore students are feeling comfort and used to allocate more time self learning to obtain high academic achievement.

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