

## ANALYSIS OF THE EFFECTIVENESS OF THE LBL METHOD WITH A FINAL RESULT APPROACH

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### ABSTRAK

Anatomi dan Histologi adalah bidang yang sangat penting dan menjadi ilmu dasar pembelajaran pada tahapan klinis dalam jenjang Pendidikan Dokter. Tanpa pemahaman anatomi dan histologi yang kuat, mahasiswa tidak dapat melakukan pemeriksaan fisik yang merupakan prosedur utama dalam menentukan diagnosis penyakit. Tujuan penelitian ini adalah untuk mengetahui apakah metode pembelajaran *learning before lecture (LBL)* dapat meningkatkan nilai akhir pada nilai Anatomi dan Histologi. Metode penelitian ini menggunakan quasi eksperimen dengan rancangan non-equivalent control group design. Subjek yang digunakan merupakan mahasiswa Fakultas Kedokteran Universitas Surabaya, membandingkan antar angkatan. Kelompok pertama metode pembelajaran dosen aktif mengajar. Kelompok kedua diberikan perlakuan belajar sebelum kuliah. Data hasil penelitian menunjukkan nilai hasil akhir pada kedua kelompok memiliki nilai  $p < 0,05$ . Belajar sebelum kuliah berpengaruh terhadap nilai ujian akhir semester anatomi dan histologi mahasiswa. Hasil penelitian menunjukkan bahwa kelompok yang diberi belajar sebelum kuliah meningkat signifikan terhadap nilai akhir

**Kata Kunci:** Anatomi, Belajar Sebelum Kuliah, Histologi Nilai Hasil Akhir

### ABSTRACT

*Anatomy and Histology are crucial fields and serve as fundamental subjects in the clinical phase of Medical Education. Without a strong understanding of anatomy and histology, students cannot perform physical examinations, which are essential procedures for diagnosing diseases. The aim of this study is to determine whether the learning before lecture (LBL) method can improve final grades in Anatomy and Histology. This research employed a quasi-experimental design with a non-equivalent control group design. The subjects were students from the Faculty of Medicine at the University of Surabaya, and comparisons were made between different academic years. The first group received traditional teaching methods with active lecturers. The second group underwent the learning before lecture intervention. The research findings indicate that the final grades in both groups had a p-value of  $< 0.05$ . Learning before lecture had a significant impact on the final examination scores in anatomy and histology for the students. The results of the study demonstrate that the group exposed to learning before lecture showed a significant improvement in their final grades.*

**Keywords:** Anatomy, Histology, Learning Before Lecture, Final Result Value

## INTRODUCTION

Anatomy and histology study normal body structures from shape, size to location, things that support and the relationship to the surrounding structures. Teaching in anatomy and histology courses includes a large amount of material and is in accordance with the habit of teaching patterns that only provide most of the material in lectures, thus limiting the time available for active involvement exercises in the classroom<sup>1</sup>.

In current lectures, involving students actively has been shown to improve learning outcomes<sup>2</sup>. We make active learning time using the learning before lecture strategy for students to study material before lectures<sup>3</sup>.

We found that creating more student centered learning in anatomy and histology courses in each class period with active learning exercises increased student involvement, encouraged critical thinking, and had improved student attitudes<sup>4</sup>. Therefore we created an initial class assignment designed to help students learn knowledge level material in preparation for college<sup>5,6,7</sup>.

Assignments are presented in the following format: PowerPoint which is first given the lecture topic and then narrated with the material they find themselves from any source. This assignment must be presented and later will receive responses from lecturers and students. Learning before lecture (LBL) are combined with active learning exercises in the classroom where students are guided in applying their new knowledge to solve higher level problems. To determine whether this strategy is effective in improving learning, LBL is also included in the pretest and posttest designed to help students learn knowledge level material in preparation for practicum<sup>8</sup>. One of the studies mentioned the effectiveness of the LBL method. This method is also used by several medical faculty institutions, but there is no definite report on the effectiveness of this method at

the biomedical level, especially in the fields of anatomy and histology.

## METHODS

The Research Ethics Committee of the University of Surabaya has approved this study as an ethical study and has provided registration number 007-OL/KE/V/2020. This research is a quasi-experiment<sup>9</sup>. The final examination scores in anatomy and histology and the Learning Before Lecture (LBL) are dependent variables in this study, while the independent variables are the pre-test and post-test scores. The assessment of final examination scores was conducted by assigning lecture topics, after which each individual created a presentation using material from the internet and textbooks. Subsequently, all students engaged in active discussions about the presented material. In practical sessions, students were given pre-tests and post-tests. The results were obtained from assessments of material creation, active discussions, pre-tests, and post-tests. To measure the independent variable, questions provided by the examiners were used. The population in this study comprises all students from the Faculty of Medicine at the University of Surabaya from the 2016 and 2017 cohorts. The sampling technique employed in this research was total sampling<sup>10</sup>. Data collection was carried out with a total of 100 subjects. The data collected were then tabulated and coded according to research needs, and data analysis was conducted using a t-test.

## RESULTS AND DISCUSSION

### RESULTS

The results of the data in this research are presented in a form of table using average size  $\bar{x} \pm$  standard intersection. The results of the data from this research then processed with descriptive statistic, normality test, homogeneity test and different test. The entire

data processing of the research results is done by computerized using SPSS 25.0 for windows program with a significance of 0.05. Presentation of research data in the form of tables and drawings to clarify the information obtained.

Based on the research criteria, a preliminary test was conducted to detect the level of initial ability of students who were considered to have an equivalent level of intelligence. In this study, a preliminary test was carried out using the NEM scores of students when they graduated from high school level (SMA). Based on the results of the analysis using descriptive statistical tests, it was found that the mean was not too different, 77.22 and 69.66, respectively. This shows that students of 2016 and 2017, based on the preliminary test results, have initial abilities that are not much different. This is also confirmed by the results of the analysis showing the maximum level of dispersion is equivalent in the 80 (Table 1).

**Table 1**

*Average Student NEM Score*

		2016	2017
N	Valid	5	16
Mean		77.22	69.66
Maximum		80.6	88.4

Based on the table above, it shows that students show the same level of ability

From the results of the Shapiro-Wilk learning before lecture test, which was tested using the independent sample t-test, the p value was <0.05, which indicates that learning before lecture can increase the final result value. The homogeneous test results using the Levene test obtained p <0.05 also showed a significant difference and the learning before lecture method

The increase in the average score of the final anatomy before and after learning before lecture in the treatment group was higher than the control group. The increase in the average score of the final histology before

and after learning before lecture in the treatment group was higher than the control group.

**Table 2**

*Mean Number Of Anatomy Final Scores*

Group	Total	Median (Maximum-Minimum)	Uji Shapiro-Wilk
R	50	63.52	p>0.05 <sup>(a)</sup>
S	50	72.55	

Note: (a) shows that the total anatomy final score of students class 2016 is lower when compared to students class 2017

**Table 3**

*Mean Number Of Histology Final Scores*

Group	Total	Median (Maximum-Minimum)	Uji Shapiro-Wilk
R	50	46.31	p>0.05 <sup>(a)</sup>
S	50	63.88	

Note: (a) shows that the total anatomy final score of students class 2016 is lower when compared to students class 2017

## DISCUSSION

The final score is one of the parameters that can be used for the success of the learning method. Selection of the right learning method allows the achievement of maximum learning outcomes by paying attention to the characteristics of the learning material to be delivered to students<sup>11</sup>.

Independent learning programs accompanied by pre and post tests in each theoretical and practical lecture can improve understanding of clinical anatomy, this can be seen from the average value of the comparison of 2 batches of students of the Faculty of Medicine, University of Surabaya. The test at the beginning and end of learning anatomy can encourage students to increase learning motivation and ultimately increase the final anatomy score<sup>12</sup>.

Students believe that anatomy is a basic science of medicine as a science that is difficult to fully understand. High stress levels often cause a decrease in motivation to learn basic anatomy in students from the first year to the following years. In general, students know anatomy as a science that can only be mastered by memorizing all the details of the structure of the human body, so it takes a long time<sup>13</sup>. Due to the limited time, block learning encourages students to do an easy way to memorize anatomy. Therefore, an approach or strategy is needed in the teaching process and assessment patterns to encourage the deep learning process of students. Deep learning will create better cognitive abilities about the use of anatomy integrated with other sciences in solving medical cases<sup>14</sup>.

One of the difficulties that students experience in studying histology is the introduction of three-dimensional structures on flat histological preparations<sup>15</sup>. The learning model that involves the activeness of students to see the preparations by comparing those contained in the atlas will provide a meaningful experience for students, because in active learning students will understand the concepts learned through direct experience and relate them to other concepts that have been previously obtained. On the other hand, the learning before lecture method is very appropriate to make it easier for students to understand. This can be seen with an increase in their final score. So far, students who take the Histology course have previously received the human anatomy course. However, even though the topic discussion is almost the same with different points of view, it turns out that students still have difficulty understanding histology. The application of the learning before lecture model can be a solution to overcome these problems.

## CONCLUSION

This study aims to determine the effect of the effectiveness of the learning before lecture method on the final result value. Based on the research that has been done, the method of learning before lecture affects on the final results of anatomy and histology.

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