

## Brief Communication

# Comparison of Lecture Method and Teaching Concepts of Terminologies: Effects on Learning Anatomy in Radiology Students

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### Abstract

**Introduction:** The aim of this study was to compare the effects of lecture and teaching terminology methods on learning anatomy in radiology students.

**Methods:** Fifty freshmen were randomly divided into two groups: control and experimental. The control group was taught through traditional method and the experimental group via teaching anatomy concepts and terminologies. Students were evaluated through mid-term and final term examinations.

**Results:** Final term scores in the experimental group were significantly higher than those of control group.

**Conclusion:** This study indicated that teaching anatomy terminologies motivates students to study more and prevents them from memorizing the materials.

**Keywords:** Anatomy, Terminology, Learning, Students

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### Introduction

**A**natomy is concerned with all parts of the body and adjacency between them. In anatomy course, students become familiar with basic medical terminologies (1). Anatomy reminds students of materials related to bones and corpse dissection (2). Students have to memorize a large bulk of information which is certainly subject to forgetting after few weeks (3). To analyze the patients' problems, students require a deep and meaningful understanding (4). Anatomy terminologies play an essential role in the comprehension of basic medical clinical courses (5). To gain a better understanding of the given subject, sufficient explanation should be provided about the new terms (6). The learners make a better understanding of the

learned materials by creating a logical connection between the old and new information and as a result will be better ready for the following learning (7). Students would be able to learn the concepts when they correspond to their cognitive ability, interests, and everyday experiences. The question, however, is whether the concepts applied in teaching are compatible with the learners' cognitive ability.

The students bring with them perceptions from the past when they attend a new class, and teachers might make the wrong impression that students have understood a concept based on the words they use to describe it. Previous researches indicate that learning terminologies is part of education (8). The purpose of the present study was to compare teaching anatomy termi-

nologies and teaching anatomy through lecture method to radiology students.

## Methods

The present study was an experimental research in which two groups of students were taught via two different methods and their learning levels were measured and compared. The study sample consisted of 50 radiology freshmen at Urmia University of Medical Sciences. They were randomly assigned to control and experimental groups. The control group was taught anatomy through lecture method and experimental group was taught the meaning of the root and a brief etymology of anatomy terminologies based on dictionaries, articles, and reliable anatomy books. The topics of the lessons were similar for both groups. In the experimental group, first a brief explanation of the lesson was provided and the students were required to select a proper name for the given part. Then, the teacher provided the students with a brief description of the etymology of given organs. Mid-term and final term tests were used to assess students. The questions were the same for both groups and included two parts: deductive and mnemonic questions. The final score

was between 0-20. Independent and paired sample t-tests were used to compare the scores of the two groups and analyze the difference between mean scores of mid-term and final term tests.

## Results

The analysis of the means of score for pre-test revealed no statistically significant difference between control and experimental groups. The means of scores for the final exam in each group, and between control and experimental groups were compared. The findings indicated no significant difference for mid-term exams in both control and experimental groups (Table 1). Further, the final term scores for experimental group were significantly higher than those of control group. Moreover, the final term scores were significantly higher than mid-term scores in both control and experimental groups. In addition, the mean difference of correct responses to mnemonic questions in final term exam was significantly higher than mid-term exam. Finally, the mean difference in responses to deductive questions in final term exam was significantly higher in experimental group compared to control group.

**Table 1. Comparison of the mean of scores for anatomy mid-term and final term exams in control and experimental groups**

Variables	Control group tests			Experimental group tests		
	Mid-term	Final term	P value	Mid-term	Final term	P value
<b>Mnemonic questions (0-10)</b>	5.9 ± 1.6	8.4 ± 1.9	0.01	6.8 ± 1.5	8.3 ± 2.1	0.01
<b>Deductive questions (0-10)</b>	6.7 ± 1.1	6.7 ± 1.4	0.07	5.7 ± 1.6	8.9 ± 1.7	0.001
<b>Final score (0-20)</b>	12.6 ± 3.1	15.1 ± 2.7	0.01	12.5 ± 2.4	17.2 ± 2.6	0.01

p<0.05 is considered significant

## Discussion

The results of the present research indicated that describing the etymology of terminologies during teaching makes students familiar with the reasons of naming the terminologies rather than memorizing a large bulk of anatomical information. In this method, scientific and comprehensible examples are provided for the reason of naming each terminology rather than explaining a terminology with other terms. In this study, there was a significant difference between final

term scores in control and experimental groups which may be due to the rise in experimental group's interest to learn anatomy materials and consequently be associated with significant level of the learned materials.

The significant difference between the scores for mid-term and final term exams in both control and experimental groups is indicative of the fact that learning anatomy is dependent on time and students gradually become familiar with the proper method of

studying. Increase in the mean of scores for deductive questions in final term exam in comparison with mid-term exam in experimental group indicates that the learners' cognitive learning has been promoted to meaningful learning (7). Lack of time is one of the limitations of this method due to the abundance of the materials to be taught in anatomy course.

## Conclusion

Teaching the concepts of terminologies together with anatomy lessons, in addition to increasing students' interest in active participation in class, results in meaningful learning in anatomy course compared to lecture method.

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