

# Teaching Methodologies on Anatomy- A Review

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**Abstract:**

Anatomy has been a cornerstone of medical education for hundreds of years. Traditionally sole pedagogy of gross anatomy has been through cadaver dissections and didactic lectures. Changes in the teaching of gross anatomy have often involved decreasing student contact time alongside the use of new methods for teaching. However, there remains controversy over teaching methods and about whether cadaveric dissection by students should remain the preferred method. Comprehensive knowledge of anatomy plays a vital role in proper understanding of any other branch of Medicine. Use of power point presentation has been increased tremendously for classroom teachings in medical education. The different methods like chalk and board method which is a traditional method then dissection method, power point presentation and ultrasound imaging method made the learning of anatomy much easier. The advantages of these teaching methods have been mentioned in this article. Nowadays power point presentations play a major role in teaching anatomy; dissection method is also available. The dissection method serve as a three dimensional method for learning. Hence the above cited various teaching methodologies are mentioned in this following article.

**Keywords:** Anatomy, teaching methods , ultrasonic imaging, dissection, 3-D learning, traditional method.

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## INTRODUCTION:

Anatomy has always been a cornerstone in medical education [1]. It is an undisputed fact that the comprehensive knowledge of anatomy plays a vital role in proper understanding of any other branch of Medicine. It plays an important role in the process of training medical professionals and thereby ensuring safe medical practices. Lecture is defined as an oral discourse on a given subject before an audience for purpose of instruction and leaning [2]. . Maintaining a dissecting room in accordance with national and European laws is very costly and changes in anatomy departments and surgical training have reduced the numbers of medically qualified anatomy teachers. Recent technologies like 3-dimensional audio visuals, digital radiological imaging, and web based study materials etc. have been introduced to make anatomy more interesting and easier among the students and the people who teach them these things. Supporters claim that power point improves learning, invokes audience interest and aids explanations of complex illustrations. Detractors charge that power point inhibits presenter–audience interaction [3]. Teachers can now present the subject to their students with more 3-D images, sequence of images and videos and thus improve the educational value.

## METHODS OF TEACHING ANATOMY:

In the regular course of teaching, teachers use traditional chalk and board as the main tool of teaching apart from the dissection. Plastinates are able to convey far more than man-made, three-dimensional models, simply because they have come into being via the natural, individual growth of human bodies—models, on the other hand, have at some point had to be consciously designed. Ultrasound (USS) or ultrasonic imaging is now a mature technology – having a well-established place in clinical practice and accounting for about one in four of all imaging procedures worldwide [4]. Dissection has become synonymous with traditional courses and has come to be regarded as the antithesis of problem-based learning. Availability of other resources, overhead projectors, specimens, models and power point presentations were also used.

## TRADITIONAL METHOD:

The traditional and the most frequent method used for teaching anatomy is the chalk and board method. While taking lecture the important keywords and sentences are noted down on the blackboard and necessary diagrams are also drawn using chalk on the blackboard. This traditional method of teaching is only followed during the lecture [6]. Nowadays power point presentation is also categorized under the traditional method. These power point presentations attract the listeners than the chalk and board method and make them more active in listening. The diagrams in the ppt can be clearly seen than the chalk method. Colour of the ppt is more important because it only make to listen attentively [7].

## DISSECTION METHOD:

The traditional teaching at the university is conducted with students seated around the anatomical tables with exposure of the parts, where the teacher shows to a class of about 20 students, and soon after the demonstration, the class is finished. Dissection method provides more clearance about the organs to the students and this helps them while doing surgeries and they are able to remember the points very easily and the corresponding nerve and blood supply can be remembered only by the dissection method [8]. "*Dissection allows the development of a three dimensional mind map of the different anatomical regions of the body*". "*Full body dissection gives a comprehensive whole of body view of anatomical regions. Supervising surgeons and demonstrators were invaluable for teaching*".

This is also followed in all colleges as one of the teaching method for anatomy.

## ULTRASOUND IMAGING METHOD (USS):

More recently, USS has become the latest non-invasive method of morphological study to aid or supplement the teaching of gross human anatomy in some medical school curricula [9]. USS anatomy is based on its ability to reflect an image of the structures under view which, like any other

skill, requires both practice and content-specific knowledge. . As the ultrasound waves penetrate body tissues of different acoustic impedances along the path of transmission, some are reflected back to the transducer (echo signals) while others penetrate deeper. Thus, an ultrasound transducer works both as a speaker (generating sound waves) and a microphone (receiving sound waves) [10].

#### TEACHING OF ANATOMY:

Traditionally, learning anatomy has been dissection-based. Dissection has become synonymous with traditional courses and has come to be regarded as the antithesis of problem-based learning (PBL). However, dissection would appear to be ideally suited to self-directed learning: students exploring a subject for themselves at their own pace, in a practical way and according to their own personal interests [11]. The technology has been proved to be a boon for anatomists because transmission of visual information has a remarkable role in education of gross anatomy. PBL can be delivered in a useful and constructive way or can be an excuse for low teaching levels and disorganised education. Similarly, dissection can provide an opportunity for self-directed learning and 3-D awareness of anatomy or can be an expensive, undirected practical class.

#### ADVANTAGES OF ADVANCED TEACHING METHODS:

- The individuals can understand anatomy quickly and it will be more easier to them for learning with the help of power point presentations
- Dissection method give a three dimensional image of the object and make the students more comfortable for learning anatomy.
- Chalk and board is quite old but it is also sometimes essential for learning anatomy in a simple way and sometimes it is followed nowadays also.
- Ultrasound imaging is also a method of learning anatomy. It is used to teach gross anatomy. The ultrasound waves penetrate the body tissues and examine them.

#### FUTURE OF ANATOMY:

A dogmatic support amongst traditionalists for detailed anatomy courses may have been detrimental to the evolution of anatomy as a subject. Reformers regard these teaching methods to be 'old-fashioned' and incompatible with modern learning practices possibly without appreciating the many benefits of the traditional approaches [12]. A sustainable solution is for anatomy departments to

forge educational and financial links with hospital departments and some medical schools are exploring this option. Appropriate use of dissection and prosections can meet many of these aims and have additional benefits. Surgeons advocate experience with dissection not only to help to learn anatomical detail but to familiarise students with the variation in anatomy.

#### CONCLUSION:

It is opined that whatever the method of teaching aids used, the impact of the lecture mainly depends on the lecturer. Lecture delivery in Anatomy should be carefully amalgamated with power point presentations to meet the aspirations of students and to combat the limitations of chalk and board method. Proper utilization of newer technologies along with the traditional teaching methods will certainly lead to better understanding of gross anatomy and will eventually improve students' performance. Hence the advanced teaching methodologies help in learning anatomy in a better and an easier way.

#### REFERENCE:

1. Sugand K, Abrahams P, Khurana A. The anatomy of anatomy: a review for its modernization. *Anat Sci Educ.* 2010 Mar-Apr; 3(2):83-93.
2. Kizlik B. *Instructional Methods Information: Part 1.* 2012[cited 2013 May 4] Available from:URL:<http://www.adprima.com/teachmeth.htm>.
3. Turney BW, Gill J, Morris JF. Surgical trainees as anatomy demonstrators: revisited. *Ann R Coll Surg Engl (Suppl)* 2001; 83:193-5.
4. Susskind J E. PowerPoint's power in the classroom: Enhancing students' self efficacy and attitudes. *Computers and Education* 2005; 45(2):203-215.
5. Wells PNT. Ultrasound imaging. *Phys Med Biol.* 2006; 51:R83-98. [Pub Med]
6. Lowry R B. Electronic presentation of lectures—effect upon student performance. *University Chemistry Education* 1999; 3(1): 18-21
7. Szabo A & Hastings N. Using IT in the undergraduate classroom: Should we replace the blackboard with PowerPoint? *Computers and Education* 2000; 35: 175-187
8. AVERSI-FERREIRA, TA. MONTEIRO, CA. MAIA, FA. et al. Neurophysiology study associated with three-dimensional models constructed during the learning. *Bioscience Journal*, 2008, vol. 24, no. 1, p. 98-103.
9. Rao S, van Holsbeek L, Musial JL, Parker A, Bouffard JA, Bridge P, et al. A pilot study of comprehensive ultrasound education at Wayne State University School of Medicine: a pioneer year review. *J Ultrasound Med.* 2008; 27:745-9. [Pub Med]
10. Jago J, Collet-Billon A, Chenal C, Jong JM, Makram-Ebeid S. Adaptive Enhancement of ultrasound images. *Medicamundi.* 2002; 46:39-41.
11. Snelling J, Sahai A, Ellis H. Attitudes of medical and dental students to dissection *Clin Anat.* 2003;16:165-72. [Pub Med]
12. Shaffer K. Teaching anatomy in the digital world. *N Engl J Med.* 2004; 351:1279-82.[Pub Med.]