

# Model making exercise- A new tool for teaching & learning anatomy and perception of students towards it

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[Received: 11/03/2015, Revised: 18/03/2015, Accepted: 14/04/2015]

## Abstract :

**Introduction :** Anatomy is the subject where learning is not possible by studying books alone, it needs to be taught by dissection and other methods also. One of such tools is model making ,which gives the three dimensional orientation of the structure concerned. This model making exercise will help the students to learn by doing themselves. Anatomical models are useful not only for medical students to learn, but also to communicate with patients to create awareness about disease process.

**Aim :** To increase the interest of students in learning of anatomy ,to generate understanding of three dimensional view in anatomy and also to get the feedback of students towards model making.

**Methodology :** The study was conducted for 1st year MBBS students. Twenty groups consisting of seven students in each group were made. Each group was given 15 days time to prepare their anatomy model using waste and unwanted materials .Each model was evaluated and feed back was taken in a structured questionnaire form.

**Results :** 60% of students used waste cloth and tissue paper as raw material for their models. This method allowed students to enjoy learning, without disturbing their routine(95%) and was useful in understanding three dimensional architecture(95%) and created further interest to prepare such models(90%).

**Conclusion :** Overall perception of students based on the feedback ,towards model masking, reflected the improvement in quality of teaching, learning activities.

**Key words :** model making, three dimension, structured questionnaire.

## Introduction :

Anatomy is the subject where learning is not possible by studying books alone, it needs to be taught by dissection and other methods also. With the advance in medical education, tools of teaching anatomy are expanding. One of the learning tools is model making. We can profess students to study anatomy by three dimensional way through model making. Model making involves both implicit and explicit knowledge and provides three dimensional information about the organ concerned, which is essential in this era of digitalization and newer investigation methods .This model making exercise will help the students to learn by doing themselves.

Students can create models of various organs or parts of the body using discarded material or items, available in their surroundings, which are of no use.. The models may not exactly resemble the body part, but are helpful in understanding the structure. Model making is a challenge to the brain and helps in psychomotor skill

development as well as creativity. Anatomical models are useful not only for medical students to learn, but also to communicate with patients to create awareness about disease process. With the following objectives in mind, the present task was given to students and their perception towards the exercise was studied to:

- increase the interest of students in learning of anatomy
- generate understanding of three dimensional view in anatomy
- enhance the achievement of knowledge in students
- increase satisfaction among students about teaching and learning process.

## Methodology :

This study was conducted in the department of anatomy SSIMS&RC Davangere, for 1<sup>st</sup> year MBBS students.

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Students who were willing to participate were included in the study.

Twenty groups, consisting of seven students in each group were made. Each group was instructed to prepare a model of their own choice related to gross anatomy, embryology, neuro-anatomy which should be cost effective, anatomically relevant and self explanatory.

Each group was given 15 days time to prepare the model. After the given time they were asked to present the model on the specified day. Each model was evaluated by the senior faculty based on the above criteria. Feedback was taken later using a structured questionnaire to know the perception of students towards the exercise

### Results:

A total of 140 Students participated in the study.

Total number of models prepared were 20.

Table: Students perception towards model making in anatomy.

Materials used for the study	Tissue paper and waste cloths	Thermocol	clay
		60%	30%
Time allotted for model making	Insufficient	Sufficient	More
	10%	80%	10%
Reaction of students towards preparing the model	Enjoyed	Boring	Not interesting
	100%	Nil	Nil
Did it disturb students routine activity	Yes	No	
	05%	95%	
Usefulness of this model in understanding of three dimensional architecture	Useful	Not useful	
	95%	05%	
Uploading of pictures of models prepared in social media	Yes	No	
	60%	40%	
Reason for uploading	To share the knowledge	To get publicity	
	90%	10%	
Interest to prepare such model in future	Yes	No	
	90%	10%	

### Discussion :

An ideal knowledge of anatomy will be a clear understanding of its clinical applications, and will subsequently lead to a sound clinical practice. Hence

anatomy would be better understood, retained and later practically applied, if learnt in clinically significant setup and through dissection and models.<sup>1</sup>

Anatomy teaching and learning is not only limited to theory classes and dissection but also to other teaching tools. One such tool is by preparing anatomy models. (Fig.1)

Vision 2015 of Medical council of India, focuses on enhancing integration, clinical competency, flexibility and improvement in quality of training.<sup>2</sup> One of such reform is model making exercise, which helps medical students to gain the depth of a knowledge of anatomy and also psychomotor skills.

Most common materials used for preparation of models were thermocol(30%) waste cloth and tissue paper (60%) and clay (10%) which was cost effective.

In the present exercise, the students chose the difficult topic so that they can understand it better.

90% of the students took less time duration to prepare the model which helped them to understand three dimensional anatomy thoroughly. Almost all the students (100%) enjoyed the time spent during model preparation.

90% of the students had the opinion that they were able to understand, and retain the three dimensional anatomical details of anatomy for longer time. 60% of the students shared their knowledge of model preparation by uploading in social medias.

The aim of present exercise was to provide a significance to basic sciences along with expansion of medical knowledge so as to establish the cognitive component of professional learning.<sup>3</sup>

This model making exercise helped the students to overcome their pressures and anxiety and motivate them to develop a better insight to the medical profession and enjoy learning based on their feedback. This also helped them to build a habit of self directed learning for improved understanding.(Fig.2) The positive influence in the attitude of student towards medical education will help them to achieve social as well as professional satisfaction.<sup>4</sup>

This method allowed students to enjoy learning, without disturbing their routine(95%) and was useful in understanding three dimensional architecture(95%) and created further interest to prepare such models(90%). 60% of students uploaded the images in the social media with the intention of sharing knowledge (90%) and for publicity(10%).

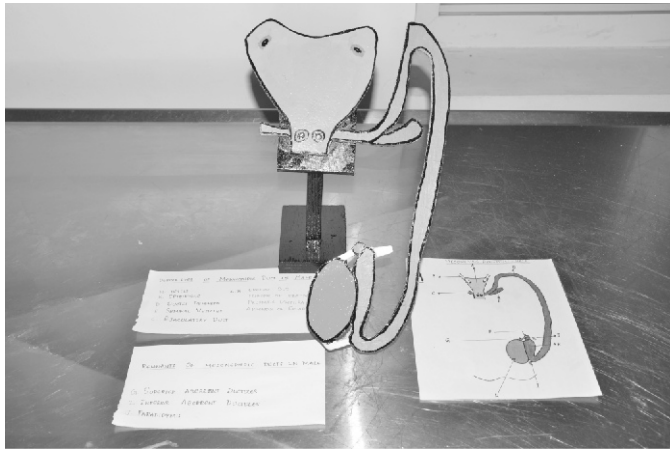
Overall perception of students based on the feedback, towards model making, reflected the improvement in

quality of teaching, learning activities. Improvement in cognitive domain needs to be assessed to know the level and depth of learning.

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**Fig -1: Derivative of mesonephric duct in male**



**Fig -2: Brachial plexus**

**How to Cite this article :**

Mallashetty N, Itagi V, Angadi A.V, Model making exercise- A new tool for teaching & learning anatomy and perception of students towards it. J Educational Res & Med Teach 2015;3(1):34-6.

Funding: Declared none Conflict of interest : Declared none