BEST MODALITIES OF TEACHING ANATOMY: TEACHER BASED ANALYSIS OF DIFFERENT MODALITIES OF TEACHING IN SKIMS MEDICAL COLLEGE BEMINA, SRINAGAR

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Abstract:
The Concept of Teaching has undergone a lot of change in recent times. Teaching of Anatomy as a subject has also undergone a lot of change. Few years ago the concept of Black board teaching dominated. With the advent of Newer Teaching methods, Use of Improvised Technology, Availability of Dummies, Models, Slide Projectors, DVDS, 3D Animations and simulators and smart Boards, many Doctors have resorted to use of Newer Techniques. The Satisfaction levels of teaching by different modalities differ and is different in case of different teachers. We have tried to have the Perspective from Experts in Anatomy as to what modality they prefer for different subtopics. In the same Context The Faculty and the staff of our College in which Each teacher was asked about the three most effective methods of teaching different modalities based on their experience and expertise. The staff participated in filling the Questionnaire. The observations were noted.

Key Words: Radiographic, Histology, Embryology, Osteology, Board, Power point, Models, Microscopy

Introduction:
Time Allocated to Teach Anatomy has undergone a considerable change. Everybody can’t perfect the art of Effective Teaching. It needs a lot of effort, innovation, knowledge and sense to impart perfect training. Despite various modalities available a class to be presented can be having a combination of Black board teaching, Power point presentation or use of support in the form of Models/ Charts, we tried to categorize the Best Modality for Each Subspecialty. Usually the methods used in the department for teaching for Regional Anatomy are by a combination of Power point Presentation, Videos, Models, Self-made notes, Charts and Chalk & Board teaching, For Histology in the form of Microscopy, Power point Presentation, Chalk & Board and Self-made notes, for Embryology in the form of Power point presentations, Models, Charts, Chalk & Board teaching and Self-made notes and for Osteology in the form of Bones, Chalk & Board teaching. As such no single
effective method of imparting teaching is on its own sufficient.

**Material Methods:**
The Faculty and the staff involved in imparting teaching in Anatomy were given a questionnaire about the teaching in Main Modalities. The staff itself is experienced and has been teaching different modalities by Circulation of Topics among themselves. Each Staffer was asked about the three most effective methods of teaching different modalities based on their experience and expertise. No feedback from students was taken into consideration as the study would apply only to the teaching faculty without any sort of influence from the recipients. With Facilities of teaching by different modalities are present in the department, the staff was independently asked to fill in the questionnaire. The Faculty, Tutor Demonstrators participated in filling the Questionnaire

**Discussion:**
Teaching any subject requires special Skill. Teaching Anatomy seems to be a more difficult job. Anatomy as a field of Medical Sciences has multiple dimensions such as Evolutionary Anatomy, Micro Anatomy, Embryology, Histology, Comparative Anatomy, Radiographic Anatomy, Osteology and Surface Anatomy. Each Branch of Anatomy is different from other and as a whole the mode of teaching each branch differs from the way we teach the other branch of Anatomy. Total Modernization of education based on Newer Techniques of Teaching is not at all an Effective Alternative (1)
The main bulk of Anatomy is formed by the Regional Anatomy in which different regions are studied stepwise. Each region is categorized by cauteration and the general overview of the human body is presented to students. This forms the solid basis of studying real Anatomy. Head and Neck, Thorax, Abdomen, Upper limb, Lower limb, Pelvis, Brain are studied one at a time. 3D Models, Animation and Video Lectures associated with Power point presentation of drawings supplemented by classic lecture taking proves to be the best modality. Line Sketches made by teachers outlining the basic Concepts and Anatomical relations makes the outreach perfect. (2) Supplementation by Drawings from leading atlases makes a perfect Combination. Division into Myology, Osteology, Endocrinology, Neurology, and Splanchnology and so on has enabled to study Regional Anatomy more systematically but due to limitations of time this Methodology has not been adopted as yet. (3) Embryology deals with the development of Embryo and the different phases through which an Embryo develops. Each stage of development is important and the teaching of Embryology is more Sequential and needs a systematic approach. Either teaching the Development in weeks or taking specific time periods and correlating with developmental stages of Embryo. One cannot pick up Random events in Embryology and form them as the basis of teaching. The methodology of teaching would need an intense knowledge within specific time events. Previously Slide Projectors were used within dark rooms and slides were shown sequentially, an art practiced by some nowadays as well. Lately with the advent of Animation and Animated Videos of High Quality and different color combinations the Teaching of Embryology has become Interesting. Each stage of Fetal Development can be studied. System wise development of Embryo within few minutes gives a real life experience about the changes in Development. Effectiveness in teaching should be the ultimate goal. (4) Digitalization of Teaching is not effective in every case. A human element with emotions in Teaching is Important. (5, 6) Micro Anatomy or Histology deals with the Microscopic study of tissues. Starting from Histological Technique to the Actual Observation of minute details under direct microscopy is the most common preferred method of teaching. The student gets a real
time view of what he sees in books as slides. Besides the Tissues would be observed under different magnifications and each magnification gives different types of images. High Resolution and High Definition Demonstration of slides of Anatomic Tissues by virtue of Projectors via laptops has added charm to the Teaching of Histology and submicroscopic entities can be distinctly seen. With the Collaboration of Pathology into Histology the Subject would get more interesting but our time limits and the maturity level of students suggests that we should not incorporate Pathology too deep into histology. The study of Normal should precede the study of Abnormal. (7, 8)

Radiographic Anatomy is taken as a low volume part of Anatomy. Radiographs of different Body parts are shown and mainly emphasis is given to First MBBS Students on Basic Radiology. However Good Institutions would take up teaching of fluoroscopic methods, basics of Ultrasound, CT, MRI as well in addition to a brief overview of procedures like Cholecystography, Hysterosalpingography Teaching of Radiographic Anatomy would be beneficial to Students for their higher classes.

Osteology or the study of Skeleton is taken separately and it forms the basis of Anatomy. Study of bones pertaining to Head and Neck, Thorax, Abdomen, Upper limb, Lower limb and Pelvis are studied sequentially. In addition the Ossification of bones is studied which is important for Forensic Sciences. 3D Animation of Skeleton along with Muscular Attachments, Origin, Insertion of Muscles and Actions of muscles adds beauty to the Applied Aspects of Anatomy. Additional Superimposition of Vascular and Neural Elements in relation to the bones provides Clarity of Concept. (9, 10)

**Conclusion:**

A Generalization can’t be made as far as teaching Anatomy is concerned. Preferences differ. Old methods of teaching can’t be said to be obsolete. With the advent of newer ways of teaching we can add to efficiency but can’t totally substitute the older methods. A blend of old and new is a perfect combination. For Different Streams of Anatomy, Different Teaching Modalities are preferred and individual choices differ, Chalk and Board method proves to be an Effective Modality despite all newer Techniques. The Advent of Newer Techniques is a welcome step but overdoing and overusing technology has not been advocated. Power Point Projections, Use of Models, Slide Projectors are supplemental to Effective Teaching but the Art of Communication does not lie in Technologies but the Teacher Himself.

**References:**

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Graphs:

Graph 1: Percentage of Time Spent on Classes among the Sub branches

Graph 2: Choice of Modalities in Preference for Regional Anatomy

Graph 3: Choice of Modalities in Preference for Microscopic Anatomy

Graph 4: Choice of Modalities in Preference for Embryology
Graph 5: Choice of Modalities in Preference for Osteology