

Study on Recent Advancements and TL Pattern of in Medical Education in Context with Basic Sciences

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Abstract

Background: An updated and perfect knowledge of all the medical subjects is must for becoming a good physician and practising medicine Despite extensive digitalization and modernization of education field traditional teaching methods like following cadaveric dissections and chalk board methods etc even now hold an importance It is becoming practically acceptable now that no modern technologies or 3D models could replace traditional teaching methods.

Methods: Recent studies on advanced teaching methods for undergraduate medico and non-medico students and their impacts are studied.

Results: Despite latest advanced methods of teaching, there is still an advantage of old learning styles and methods like cadaveric dissection which helps the students get efficient and proper practical knowledge.

Keywords: Modernization of education, problem based teaching and learning, virtual dissection, 3D models, You Tube learning.

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Introduction

According to latest trends, the important aim and object of basic science education in field of medical as well as paramedical streams is giving students a deep knowledge of learning morphology, as well as configuration along with spatial relationship[s, like connectivity. For accurate surgical procedures the learners must have proper knowledge of locating proper anatomical structures. Awareness should be present regarding variable morphology and structure, like of branching patterns of nerves and lymphatic

systems also some vascular structures. Traditional methods for basic science education had lectures, text books and demonstrations. Along with key requirements, students must be able to correlate a base of a disease and also explain the concepts of symptoms for a specific particular pathological state This is not present in many medical colleges however it is the basic and prime demand from a Indian medical graduate and also the guidelines of the governing body demands the same from the students. The most

probable reasons may be insufficient time lack of demonstrations skills inefficient trained staff of clinical departments and last but not the least improper and insufficient interest by the teachers. Although the clinicians have enormous clinical skills and lot of clinical knowledge in India but there is lack of attitude and ethical behaviour by them due to which the common people give those negative remarks and the main reason behind this is inefficient communication skills. This is the reason why the governing bodies in medical schools have given a lot of emphasis on developing communication skills in their curriculums along with developing clinical knowledge by the student and is made a compulsory part of the syllabus.

An overview of methods used for medical education:

No doubt the advancement in the medical technology has contributed medical science learning and teaching in a proper way and has also developed interest and enhanced motivation of the student resulting in permanent learning outcomes using models, plastic models, and computer based simulator technologies and not traditional methods is taken to be a component of ethics and communication. Benefits of simulation process techniques include following of a prime base of bioethics of imposing no harm to anyone and also gives and provides equity of learning experience and practise and repeat several times as they want. According to *Kurt E et al* latest technologies does not replace the old type of education and give help for the same.⁽¹⁾ In this modern technology state looking at the basic fulfilment of the requirement of a medical graduate, the style or method of imparting education must be thoroughly updated To know the three dimensional states the method of Cadaveric teaching is essential because it gives the proper understanding of knowing the diversity of the body. Although the updated technologies gives the opportunities of lessening the needed time for imparting the

required training along with less burden of cost and cost cuttings. The modern method of teaching helps to create a good hygienic environment along with giving accurate standards We are aware of the fact that the use of synthetic and modern laboratories and simulation labs minimize development of pathologies arising as a result of formalin but they definitely do not give sufficient knowledge of monitoring variations pathologies and deformed structures of human body. All these points lead us to give a second thought for managing some negative issues and aspects and so the old traditional technology is yet taken to be more proper leading to day to day use of cadavers in the field of medical education.

Education with help of for YouTube application:

The generation belonging to YouTube has a specific mindset and a different attitude and is rather not defined by age. The above group is important component of the audience now for YouTube and constitute around 80%. of the total youth generation. All the more approximately greater than three-fourth of the generation updates their online profiles on the platforms of social media. Approximately all of these have electronic equipments and super developed electronic devices like smart phones, lap tops, tabs and computer. We would like to mention the survey results done in our PMU campus We asked the students to opt and to select the method for solving a difficult query in their subject during learning process and majority (more than 76 percent) switched to web-based platforms for getting the answers through Internet search engines (69%) along with different other websites on social media (6 %). Although 36% students went for different textbooks, and 6% wanted some guide for help. In agreement with early studies, 62% of students wanted YouTube for viewing video clips in their respective subjects and 8 percent looked for coaching methods available on social media, Face book (8%), and other than these on social media (19%)

said that the diversity lies on what type of query is there and they select the media. The above study results analyze that because the development of social medias and specifically YouTube is more nowadays because these are aiding in student learning process and updating their knowledge in all the subjects in school of medicine. We suggest that the faculties must change their point of views and old perceptions in view of better and updated knowledge of the learners who use social platforms for different subjects, given that a handsome part of students do consider online resources like YouTube or Face book and do not hunt for a facilitator at the eleventh hour for any help.

Problem-Based Learning

“Problem-based learning (PBL) has been promisingly followed in varied fields and medical contexts to enhance critical analysis and solving problems in authentic learning situations. During PBL learning, the key answer is triggered by a problem which requires solution [2]. Basically it got recognition due to nearby affiliation with workplace collaborated and integrated learning for applying to streams like health science, management and technical engineering. With progress of PBL in many settings like in education, organization, many surveys were there to study and examine its effect on the quality of learning and how much will be the limit to which it will inculcate and develop self-directed learning habits along with developing problem-solving skills and proper disciplinary habits can be attained and gives an intended inference. “PBL is an approach that enables learners to gain knowledge while engaging actively with meaningful problems”. Opportunity is given for students and they are told to solve a problem as a collaborative setting by making mental models for proper learning, and inculcate in them self-directed learning habits via practicing and writing reflections. So, the key concept of PBL is “learning can be taken as a “constructive,

self-directed, collaborative and contextual” activity. “Longer term knowledge attainment and retention is in favour of PBL”.

Modern Technologies:

Some of the basic sciences subjects like Anatomy and Biochemistry study should not be completed in pre and para clinical year of medical teaching but there should be such a syllabus and a harmonized curriculum which must be a continuous process and can go on in the following semesters also in terms of optional/facultative/early clinical approach in form of clinical anatomy/imaging anatomy/joint biomechanics/clinical biochemistry and so on and so forth for other basic sciences subjects. We will definitely get a positive feedback and reflection from the learners who are actually interested in the subject knowledge if we continuously make use of procedures and trainings which include cognitive and behavioural training,

We can also get maximum attendance and active participation by students in the classes by using flip settings, table discussions, different quizzes, counselling and mentoring, model answer paper outline, peer group teaching, discussions, are included in the teaching schedule along with a proper management of schedule and time. With regards to the stream of basic sciences like Anatomy, Biochemistry Physiology, the faculty has to remain updated and continuously work on the improvement of their presentations and method of teaching.” The faculty keeps on working and always try to create a balance between the quantity of providing concepts and the iconography quality. We have a query that since the role of a teacher is compared with actors who have a role to play and then films are released, it would be best in next generation to use three dimensional images with all the basic sciences teachers. Therefore, qualities could be improved and the teacher can just be seated interacting in the amphitheatre.

There can yet be queries from learners about the understanding of some basic concepts. The teacher can then be likely to satisfy the students on one hand, access the images and demonstrate to clarify their doubts and clear their concepts and upgrade their curriculum on the concept of redundancy and importance of questionnaire. Assessments are the final summative results for any educational process. However there are many controversies. The contemporary old methods of examination had practical and theory exams.

The classic practical exam involves the identification of spots. We can include and add identifying anatomical slides projections clinical cases and para-clinical investigation images like X-rays and nuclear magnetic resonance [1].

Teaching basic sciences in New Aspects and future prospective:

Taking an example of gross anatomy and Biochemistry, under graduate medicos gets a slight point of view regarding the basic structure of the body and early clinical exposure which is key factor for attaining and understand some subnormal and abnormal clinical states. Although the importance of teaching basic sciences to students remains undoubtedly non-disputed, there will every time be a relevant debate regarding methods of delivering lectures. Recently, the time given for basic sciences teaching has been surprisingly less even below to a proper standard³. Worldwide curriculum reforms, which have resulted in a reduction both in teaching hours along with its context, results in a specific and must-do review of the method in which the subjects are taught.

Furthermore, unavailability of faculty of demonstrator's positions has increased the problem of getting scarce surgical trainees who are very important and a source of valuable exposure to clinical medicine and furthermore a new generation of surgeons are thereby grabbing operative

responsibilities despite poor knowledge.⁵ The question comes as why students are not confident enough for practicing safely and efficiently with proper and sufficient basic sciences knowledge. There are varied reflection and feedbacks for this like fewer hours of teaching to more advance and developed teaching methods, not making dissections compulsory, light microscopy sessions.

It is emphasized strongly that basic science subjects are to be integrated horizontally and vertically in medical education integrated vertically into medical education thus allowing the students full exposure to all basic concepts all over their undergraduate (preclinical and clinical), postgraduate, and ultimately for their professional training. There is no second thought in the concept that the developed methods of teaching which includes modern digitalized technologies for all subjects and are without any doubt very useful.

However, we need to give advantage to an under graduate student by body donation process which will be beneficial for new medical students, and also by re-integrating dissection procedures in medical training. "Computer-assisted learning, PBL, and newly developed techniques should be considered for enhancing and supporting anatomical delivering of lectures and learning by medical graduates in medical education". Learning about full structures in anatomy by dissection cannot be undermined in a modern medical curriculum, because it provides a 3D experience in real life that is difficult to be attained by the recently advanced digital programs [2].

Basic sciences teaching for nonmedical students: an innovative approach by to the health professionals

There have been a vast study which has been important in today's scenario which has resulted in a new course and curriculum which has a focus on learner and has helped in identifying a different learning attitude

from the point of view of a student [6]. According to the results received, a majority of student's acceptance was there for the blended learning, but there is still a query for its impact on learning. The point of view was explained by the mainstream learners who learned all three subjects by total memorization and did not follow strategic learning; they realized that the learning was daunting and stressful. A gamified element (games, quiz, and animations) in health sector education has attained a proper all round attention as an active learning strategy [4].

Use of Virtual Rooms and Models for Educational Purposes

The world is developing and there is an overall urge for a digital environment. With an improved and advanced technology in health sector and development of multimedia the 3D presentations of information are in good use in medical education and for health care.

So modern teaching methods may include the use of multimedia presentations, radiological images next to traditional methods like cadaver dissection depicting surface anatomy, manual methods of screening, early clinical exposure, and discussion of clinical cases by computer-based (3D) interactive models of all the subjects. Online education methods have recently evolved from last few years with advances in computer technology and web-based education curricula. "Such models shall be used outside the classical teaching environment in a "blended learning approach" or—in with respect to the absence of dissecting facilities—as a tool to replace dissecting practical." [5]

Practical approach for 3D Digital Modelling

Learning environment is continuously changing with a rapid progress in the present advances in the technology. Many digital applications are replacing old traditional manual applications and are implemented into both syllabus of

undergraduate and postgraduate medical teaching. We are all knowing that no doubt cadaveric dissection, various manual estimations and basic physiology manual machines are not replaceable, but then too, the digital technology without any doubt can immensely facilitate the teaching learning. Interactive three dimensional digital models, autoanalyzers and digital computer applications definitely has a improved impact and better understanding of complicated structures, special relationships and help in improving "manual skills along with hand-eye coordination". If we look at the logistical approach and convenience the digital mobile technology is very promising and appeals a lot in the present scenario of learning basic sciences. It helps the students to be engaged more [8]. A varied number of digital media is being introduced like collage, wire modelling digital multimedia for a conceptual learning experience and for integration of basic knowledge in implementing relating structure and functions effectively [6].

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