Effective Educational Practices in Health Profession Education

(A Collection of Educational Projects completed by NTTC Alumni from 2006 to 2013)

A publication by
Alumni Association of NATIONAL TEACHER TRAINING CENTRE (NTTC)
Department of Medical Education
JIPMER, Puducherry, India

Editors
Z. Zayapragassarazan
S. Kumar
D. Kadambari
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Message from the Director

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Director's Message

June 17, 2020

Education science or pedagogy is a specialized field that seeks to understand the policy and practice of imparting education. Training in principles of education science is mandatory for those who seek to adopt teaching as a profession. However, such training has not received adequate attention in most of the Indian institutions that impart professional education. JIPMER, however, has been different in that it has had a separate National Teacher Training Center (NTTC) since 1976, which has over time evolved into an independent Department of Medical Education. The NTTC has contributed immensely to the cause of medical education in the country, having conducted a course, known as National Course on Educational Science for Teachers of Health Professionals, twice a year for the last 43 years of its existence. Thus, it has conducted 89 iterations of this popular course – including 82 onsite and 7 off-site, providing valuable training in teaching and evaluation methodologies to more than 2100 health professionals around the country. In addition, medical teachers from other countries, such as Bangladesh, Nepal, Mongolia and Afghanistan, too have benefited from training at the NTTC.

I am happy to learn that NTTC has now taken yet another useful step by publishing a compilation of the experience of its alumni, i.e. those who have trained at the NTTC, about good practices in medical education, in the form of a book titled 'Effective Educational Practices in Health Profession Education'. I strongly believe that this book will lead to wider dissemination of knowledge on successful experiments and best practices in the field of medical education in the country. This should lead to a greater adoption of such practices and, consequently, an improvement in the delivery of education in medical colleges and health science universities in general.

I congratulate the NTTC and the Department of Medical Education for undertaking this activity, and hope and wish that this book will receive due attention from the faculty and education administrators of health science universities and institutions. I also wish them all the success in their future endeavours.

17.6.2020

Rakesh Aggarwal

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Foreword

I feel privileged to pen a foreword to this compilation of project reports from 2006 to 2013. It gives me a sense of sweet nostalgia as perusing the list reminded me of all the project presentations that I have listened to on the last day of the 10-day NTTC courses over the two decades (1986-2006) I was associated with it (10 years as a resource person and 10 years as its project officer).

A project in education is a collaborative process involving teachers, students and at times, the educational support staff, which is a planned activity to achieve a particular aim or outcome in education. Every participant would commit on doing a project as a follow up of attending the 10-day residential training at NTTC, JIPMER. However, only 3 to 5 of them would ultimately complete what they had proposed at NTTC during their presentations.

Some cynics used to feel it was a waste of time and effort to see the failure of majority of the project plans. However, at NTTC, we chose to look at the positives. Most of those who had the fortitude to complete their respective projects, used the strong foundation of holistic education at NTTC and went on to be build their competencies as educationists of repute. A perusal of the list of NTTC alumni will reveal several national and international giants in Medical and Dental education.

Now, permit me to quote from the editorial that I wrote in March 2005 issue commemorating the 50th "Golden course" of NTTC: "In the 1970's, when WHO initiated a global movement to improve medical education, most did not realize its importance. Credit must go to Dr. D.B. Bisht for leading a team from JIPMER to the International Training Course in 1975 and showing leadership in setting up the first NTTC of India at JIPMER. Credit must also go to the Resource Persons of the early years of NTTC. They had to face indifference, derision and at times downright hostility from medical teachers. Those days, most of us thought that teaching was an art and like most art cannot be learnt or taught. They failed to see that educational science and technology was the fourth revolution in education that was sweeping the globe. Therefore, hats off to the initial cohort of Resource Persons of NTTC for their perseverance and for ultimately overcoming resistance."

Another significant factor in sustaining NTTC and maintaining its performance has been the line of Project Directors and Project Officers since 1975, who, without a single exception, have always nurtured NTTC as considered it a prestigious feather on their cap. Let me close with my sincere appreciation of the 40 successful educationists who have presented their projects and the present cohort of Resource Persons of NTTC, now upgraded to a full-fledged department of Medical Education.

KR Sethuraman

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Preface

The job of medical teachers is challenging. They need to teach as well as do medical research. Teachers of clinical disciplines also do clinical work and teachers of preclinical and paraclinical disciplines also do laboratory and other applied clinical work. Given this busy worklife, it would appear tough for medical teachers to find time for using innovations in their teaching. Hence, it is heartening to note that in our experience of National Courses on Educational Science for Teachers of Health Professionals of National Teacher Training Centre (NTTC)/Department of Medical Education at JIPMER, Pondicherry, We have found time and again teacher-participants not only suggesting innovative practices but also using them in their medical education.

There are three reasons for our editing this collection of Effective Educational Practices in Health Profession Education. First, it would help the authors get wider recognition for their work. Second, it would disseminate the ideas in the community of medical educators. Third, it would motivate other medical teachers to adopt these practices or use other effective practices. This e-book is free to download which would facilitate its wide distribution.

We would like to express our special thanks of gratitude to the NTTC Alumni Association of JIPMER as well as the JIPMER administration for their support and encouragement in completing this project. Each educational project needs views of great minds and involves various stages of preparation. We express a deep sense of gratitude and regard to the NTTC Alumni for their contributions to this e-book and permitting us to publish their articles in this e-book. We thank the fellow faculty of NTTC for being a constant source of inspiration and encouragement at each level of this project.

We extend our sincere thanks to Mr. D. Dhanasekarin, Mr. K. Kishore Kumar and other staff members of the Department of Medical Education, JIPMER for helping us in data preparation, digital compilation and typesetting for this book. Last but not the least, we sincerely thank all those who directly or indirectly gave us unending support right from the beginning in completing this book.

Pondicherry, India

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S. Kumar
D. Kadambari
V. Dinesh Kumar

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A physician who has learnt one science only cannot be sure of his own science and for this reason the physician has to be versed in many sciences.

-Susruta-Samhita

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The mediocre teacher tells.
The good teacher explains.
The superior teacher demonstrates.
The great teacher inspires.
-William Arthur Ward

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Computer Assisted Learning (CAL) a Tool for Teaching, Learning and Assessment in Clinical Physiology Practical

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The context that required the initiation of the educational practice

Today, classical education methods are rapidly being replaced with virtual education. By playing and using materials stored on DVDs, mobile phones, and other web-based resources, learning becomes more attractive and dynamic. Clinical examination of human subject in physiology clinical practicals is a part of MBBS curriculum. In present scenario; in most of the medical institutions clinical examination is conducted in physiology laboratory or demo room where patients are usually not available. Due to this First MBBS students may feel difficulty in assessing clinical signs, therefore in understanding applied physiology. CAL in medical education plays a pivotal role in the scholastic achievement of students by helping them through various ways. Worldwide studies on CAL in medical education showed that CAL helps to improve all the three domains of learning. Hence we suggest teaching clinical physiology with help of computer.

Objectives of the educational practice

- To investigate students' perception of CAL.
- To investigate students' understanding of clinical physiology with CAL.
- To find out advantages and limitations of CAL.
- To find out whether CAL enhances understanding of clinical physiology in First MBBS students and to assess their cognitive skills.
- To supplement classroom teaching by creating a virtual clinical experience using computer.

The Educational Practice

With due regard to this work, we will simply define computer assisted learning as the tutoring, learning, and interacting process facilitated through the use of computers. Under the guidance of medical education technology department we

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planned to teach clinical Physiology practicals using computer and internet. To find out effectiveness of CAL we designed a questionnaire to investigate the outcome of CAL in clinical Physiology practicals. Our intent of is to supplement classroom teaching by creating a virtual clinical experience using computer. From internet we downloaded images and videos of various diseases related to clinical Physiology practicals. While demonstrating on normal subject we explained students clinical features of various diseases using images and videos. It is found that students perception and understanding became better with CAL. First MBBS students appreciate and support CAL in physiology clinical practicals. Students have indicated that CAL helped them to understand the clinical aspects of physiology better. Students also felt that CAL fulfilled their learning objectives. CAL facilitated the First MBBS students to understand and study clinical signs better as they are not posted to clinical wards in hospital. In such case CAL is very helpful to First MBBS students to learn the applied physiology. Students can repeatedly study the clinical signs even after the class. Students felt that they can maintain visual impression of clinical features longer time. This will definitely improve their performance during exam. In this study it was found that many students can observe simultaneously with clear visualization of images and pictures of clinical signs by using computer and LCD projector. This will enhance learning process in students.

Evidence of the effectiveness of the educational practice

A survey with questionnaire was carried out. Self-designed prestructured questionnaire on clinical examination was prepared after going through literature review. Non CAL-test conducted after traditional way of teaching and CAL-test conducted after teaching with traditional method plus use of computer. They also filled a survey questionnaire on the CAL outcomes, advantages and limitations of CAL. The data collected and statistically analysed for proportion test using SPSS (version 16). In this educational practice 92% students perceived CAL better and 85% students claimed that their understanding improved which was reflected in the CAL-test as improvement in the knowledge. It was found that along with traditional method of learning; CAL is useful in learning clinical Physiology practical.

Obstacles faced and strategies adopted to overcome them

The design of good CAL software needs expensive equipment and cooperative team work. Trained laboratory staff is required. Web pages appear differently on different computer platforms (e.g. Windows, Mac). It sometimes makes students confused. Training learners to use computers takes students' time away from other educational

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activities. Trained teacher is required to prepare and run CAL class. Some medical teachers still they are teaching only with traditional methods, some of them are not interested in CAL and some are not competent in computer. Many students mentioned the limitation of CAL that CAL cannot provide actual feel clinical examination of human subject. While downloading some images copyright issue may arise. To overcome the problem from medical teachers side; all medical health professionals should undergo Medical Education Technique training.

Resources required

Internet, goggle search, YouTube search, medical DVDs, LCD projector, Central library AIIMS, Patna is providing various IP based links for students as well as teachers for teaching and learning.

List of web resources available at AIIMS Patna:
http://oxfordmedicine.com
http://elibraryaiimspatna.remotexs.in
https://www.clinicallearning.com/aiimspatna/index.php/
http://elibraryaiimspatna.remotexs.in
http://app.mypgmee.com/Instructor/login.aspx
http://onlinelibrary.wiley.com
https://ovidsp.ovid.com
https://onlinelibrary.wiley.com
https://accessmedicine.mhmedical.com
https://www.clinicalkey.com/uptodate
www.ermed.in/access.aspx

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Self-directed Learning using Pair, Read and Share Method

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The context that required the initiation of the educational practice

A medical undergraduate is supposed to read large number of subjects, all at a time. At the time of reading, many a times, things appear to be very simple, easy to comprehend and remember. But at the time of evaluation, some of the students are not able to retrieve those things from their memory, though basic understanding of the subject and topic is there, retention in memory poses a problem. Keeping these issues in mind an approach, "self-directed learning using pair, read and share" method was tried. When a student reads any study material to narrate it to someone else, before narrating, he makes an effort to retain things in his memory, he tries to recall things, and while doing it, he is able to identify the gaps, he goes through those faded portions once again. All these process help in fixation of memory, thus leading to improved retention.

Objectives of the educational practice

To assess the effectiveness of "self-directed learning using pair, read and share method" in reinforcement of learning.

The Educational Practice

Students were asked to come with books (or books were provided to them during class hour) for their revision class. Students were divided into two subgroups (group A and group B as per their roll number) and asked to sit in two different rooms. Pair, read and share method was used in group A (experimental group), whereas only self-reading was allowed in group B (control group).

Students in group A were allowed to sit in pairs (students sitting adjacent to each other in the class room were considered as pairs). A topic was selected for this purpose and the selected topic was divided into two parts; two different portions of the topic were allotted to each pair (one portion for one student, other portion for

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the partner student in each pair). ½ hour time was allotted for students to go through their own portion of study material. Next ½ hour was utilized for student to student interaction (each member of the pairs took turn to describe summary of the portion /content covered by him to his partner). Last one hour was utilized for evaluation of student and classroom discussion.

Students in group B were allowed to read the entire topic within 1 hr time period. Next one hour was utilized for assessment and classroom discussion.

Evidence of the effectiveness of the educational practice

An attempt was made to evaluate the students' knowledge and skill by asking various types of questions (using objective and subjective component for assessment). MCQs (10 in number, covering 5 questions each from both the portion of topic allotted) for each student using OMR sheet, and verbal discussion by asking questions randomly from must know area and high order thinking skill related question (problem based question). Students were also involved in peer assessment for evaluation of MCQ answer to save time and improve learning (answer sheets were exchanged between the partner students in each pair and answer for MCQs was displayed using overhead projector). The above method was applied in revision classes for various chapters in different batches. It was realized that, "self-directed learning using pair, read and share" method made the class more interactive and lead to better retention of topics in comparison to self-directed reading only (t test and paired t test). It ensured active participation of all students, saved time, improved the presentation skill/ expression ability of the students (learning by narrating). Studies carried out by different authors also show effectiveness of various active leaning learning techniques.

Obstacles faced and strategies adopted to overcome them

1. Some students suggested to make pair as per their convenience, but the author anticipated some problems (the process is more time consuming, and some of the students may not be chosen at all), so the suggestion was not accepted.
2. When there are odd numbers of students in the class (experimental group), it is not possible to make pair, in such scenario, the last student was asked to sit with the last pair (making a group of three instead of two).
3. Time required to do such type of intervention is approximately 2 hrs. Most of the theory classes are of 1 hr duration. So it was decided to do this intervention in tutorial /practical classes (the class duration is more and small

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group teaching is the usual practice, so students get automatically divided into two subgroups, revision of topic is also feasible in such classes).

4. Baseline knowledge may be different in both the groups. So a pre test was incorporated to compare both groups.

Resources required

1. Book/ Xerox of the topic (for students who did not carry their books for the revision class)
2. Set of questions to assess knowledge of a student (MCQ for all, question from must know area, problem based question for verbal discussion)
3. OMR sheet for MCQ
4. White paper for drawing flow chart or diagram
5. Projector & pen drive/laptop to display MCQ
6. One extra faculty/SR to manage group B students

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المنارة للاستشارات

Cafeteria Method of Teaching Learning (CTL)

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The Context that required the initiation of the educational practices

Teaching community medicine theory in lecture class is a challenge as the student community in our setting finds it less interesting and not much useful. Absenteeism is high up to 30 percent. The students feel they can self-learn by reading textbooks rather than attending classes.[1] Even the PowerPoint as a media has failed to generate enthusiasm among students. Both students and teachers consider lecture classes as necessary evils. This phenomenon is not new and every teacher faces this time and again. Strict attendance policy for some time made them present physically but lost mentally.

Objectives of the educational practice

- To start participatory leaning in lecture classes
- To convert didactic lectures to activity loaded sessions with continuity being maintained between classes with serial integration

The Educational Practice

Once a chapter is selected the following strategy was used.

In the first class: The chapter is introduced along with number of hours allotted and specific learning objectives for this entire chapter was given to the class. Information on Reference books and material was shared in advance. The class was supplied with a list of possible activities by student groups in the coming lecture hours (stipulated lecture hours). The following activities were included covering various components of the topic. The purpose of this method was to have high quality cognitive engagement and deep learning.[2]

- Student seminar (given by one group) (1-2 lecture classes)
- Role play (given by one group) (1 lecture class)
- Debate (Interested teams) (1 lecture class)
- Reflective writings and narratives as assignments
- Any other method of student's choice

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The students can get into any one of these groups based on their interests in the first class itself and their names will be announced in social media next day for follow up. Different segments of the topic are classified to suit above methods of learning and group leaders are selected. Teacher will act as facilitator/mentor. Since this is student directed learning with choices I call it Cafeteria method. So we have student teams voluntarily choosing any of the methods and performing them in different lecture classes related to a topic with well-defined specific learning objectives. The students get feedback from teacher as well as peers about their performance. Students who do not take part in any of the above will give summary of the entire topic in the last class. It is not necessary for all the students to participate in one chapter as they can take up activities in the next chapter.

Evidence of the effectiveness of the educational practice

For some classes the attendance slightly increased. Students started preparing for the classes rather than the teacher. Many innovative tools were used by students. Most importantly for the first time students started asking questions. They started working in teams. There was a sense of ownership in learning.

Obstacles faced and strategies to overcome them

In a class of 150 students it is really difficult to involve all the students as some will not participate despite the best efforts. It requires elaborate advance planning and cooperation from department. The strategy was to include some students in the planning of the entire T/L process right from the beginning. The left out (non-participants) were made leaders for the next chapter.

Resources required

The beauty of this method (cafeteria method) is it can be adopted with the existing resources. If we have social media like WhatsApp is enough to connect. This is all about students taking center stage with experiential learning and teacher is a guide by the side.

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المنارة للاستشارات

Effect of Focus Group Training on Knowledge, Attitudes, Beliefs and Experiences among MBBS Students: Experiences from an Indian Medical School

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The Context that required the initiation of the educational practice

Last year (July 2015) external examiners comment on MBBS students' knowledge in theory was satisfactory but in Physiology practicals their performance was not upto the mark (Faculty Judgement).[1]

Getting this feedback, we formulated an action plan (project) (Need Based).[2]

The Tutor assists the students to acquire the reasoning or problem solving process by encouraging them to Hypothesize, Justify, Experiment and Question their reasoning process (Mayo and Donelly 1995)

The faculty is more familiar with directing students in lecture. Hence they can have difficulty adapting to the role of PBL tutor, even after training and staff development sessions (New Field and Barrows 1974).

Questionnaires are frequently touted as an objective means of collecting information about people's knowledge, Beliefs, Attitudes and Behaviour.[3]

Improve curriculum that enhances creativity in asking original questions and substantial hands on experience in designing and conducting practicals by students.

Problem based learning is recognized to be a student centric, goal oriented active learning process, wide variety of styles of PBL is followed in various Universities of the world based on curriculum, Convenience and priorities while the basic principles remains the same.

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Objectives of the educational practice

To ascertain the effect of focus group training on knowledge, attitudes, beliefs and experiences among MBBS students

The Educational practice

A maximum of six sessions with an optimum of eight and a maximum of 12(twelve) were offered to MBBS students.

WHAT WAS THE INTERVENTION[4]

1. Teacher will modify teaching-learning method by anonymous unlinked Questionnaire evaluation.[feedback from 2015 MBBS students]
2. Focus group discussion (student section). Teacher will modify his/her teaching learning method by their feedback.
3. Hundred(100) student learn a different way.
4. Introduction of problem based learning classes.
5. Vertical integration with Medicine,Surgery and other department.
6. Horizontal integration with Community medicine,Pharmacology and Biochemistry department.
7. Inclusion of Medical Genetics in the curriculum with consultation of Medical Genetics department.(Sanjay Gandhi Postgraduate Institute Of Medical Sciences,Lucknow India)
8. Inclusion of Practical(part completion test)which was not inducted before.

I have shown CT Scan of brain(plain) and shown them various regions of the brain to emphasize the importance of Neuroanatomy[5] in the clinical Physiology/Medicine.I have shown MBBS students live photograph during early stages of Basal ganglia lesion, such as finger movement of wrist joint was not perfect,grasping a pen was not smooth,walking(Rhythmic stepping) was not perfect.(Postural Imbalance)

Blood 1) Practical demonstration of osmotic fragility test for diagnosis of hereditary Spherocytosis.

I have presented picture photograph of 2 cases:

1) Duchene Muscular Dystrophy

A young child with difficulty in getting up from the sitting position, needs support of the hands.

A young bedridden adults in the second decade of life having severe wasting of muscles except those of calf muscles.

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2) Patient with Thalassemia major have to undergo transfusion, of packed red blood cells(RBC's) every 2-3 weeks.
I have shown x-ray plates (for) Pleural effusion, Fibrosis of lungs. Interstitial Lung disease and Emphysema of lung.

MCQ-10 MCQ on Endocrinology is presented and explained how it can be solved.
Case based learning
A. 55 year old women, diaphoresis and falls back.
B. 73 year old woman, with chronic anemia.
C. 68 year old woman, presented with h/o sudden onset of right sided weakness, Since 11AM on yesterday. Patient known case of hypertension, no h/o DM, no past history of CVA.

Obstacles faced if any and strategies adopted to overcome them

The obstacles initially I faced with some faculty members.
They are hesitant to do this.
They said it might have an impact on their performance appraisal0.
On year August 2015 for MBBS students ,we conducted the planned anonymous unlinked Questionnaire for evaluation(assessing)Physiology Teaching-Learning Students feedback(The Pilot Study).
Sample Size(41+36)(Male+Female)

70% of the respondents were unanimous that lecture classes are monotonous only presentation of slides,(copying from textbooks),do not invoke thinking doubt clearing time was not available.

But it is H.O.D's assurance to faculty members that it will have no impact on their performance appraisal.(who is also the head of Medical Education Department).

Evidence of the effectiveness of the educational practice

The data was collected pre and post training through a self-administered Questionnaire-Physiology teaching learning method in Physiology, Knowledge, Attitudes, Beliefs and experiences scale.

The scale is a 31 item self-report measure consisting of both Qualitative and Quantitative data.

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The full version of the Questionnaire is given in Annexure-1

AUQE Physiology Teaching-Learning scale was pilot tested for test-retest reliability and was then used for assessing participants (MBBS)before and after the programme as a primary outcome measure.

The data were initially mined and entered for analysis by another blinded Medical Teacher.

All analysis were done using SPSS 11.5 for windows at 95% confidence interval.

A score of 5,4,3,2,1 respectively was given for Strongly agree, Agree, Uncertain, Disagree, Strongly Disagree.

There was a significant change(13.94-16.28) in Knowledge, Attitudes, Beliefs and competency(overall) subscales of AUQE-Physiology Teaching Learning Scale when analysed using paired t-test(Table 1).

Whether this change(13.94-16.28) is statistically significant or not.We analysed it with paired t-test with 95% Confidence interval.

It was found that significant change in score of 13.94±4.362 points (31.29% change) when analysed using paired t-test(Table 2)(p value .000)

Table 1

Gr	N	MEAN	Std. Deviation	Std. Error Mean
1	50	13.94	2.402	.340
2	30	16.28	2.935	.415

Table 2

GROUP STATISTICS
INDEPENDENT SAMPLES TEST

T-TEST FOR EQUALITY OF MEANS						
t	df	Sig. (2-tailed)	MEAN DIFFERENCE	STD. ERROR DIFFERENCE	95% Confidence interval of the difference	
-4.362	98	.000	-2.340	.536	-3404	-1.276

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Annexure- 1

Anonymous unlinked questionnaire evaluation: Physiology Teaching-Learning 2015 MBBS Batch

A. Evaluation of the teaching-learning sessions

	Particulars	Useless	Not useful	Average	Good	Very good
1	Relevance					
2	Sequencing/coverage of topic					
3	Effectivity of discussion & interaction					
4	Declaration of schedule well ahead					
5	Rate your knowledge (Before)					
6	Rating your knowledge (After)					
7	Rate your attitude (Before)					
8	Rating your attutude (After)					
9	Rating your competency (Before)					
10	Rating your competency (After)					
11	Sometimes I feel like					
12	Overall rating of presentation					

B. Presentations of the Faculty Members in the teaching-learning sessions:

	Particulars	Useless	Not useful	Average	Good	Very good
1	Depth in Knowledge					
2	Preparedness					
3	Ability to communicate/interact					
4	Ability to clarify doubts					
5	Open to ideas					
6	Providing prompt feedback					
7	Accessibility outside classroom					
8	Linking theories & practice					
9	Overall rating of the faculty					

C. Grade different Teaching-Learning methods that helped you prepare to be a competent primary care physician

	Methods	Useless	Not useful	Average	Good	Very good
1	Lecture- Demonstration					
2	Tutorial					
3	Practical- Demonstration					
4	Seminars					
5	Laboratory Manual completion					
6	Strictness of attendance					

D. How much time, according to you, is adequate for MBBS Physiology teaching-learning?

Semesters: 1☐ 2☐ (Present Practice) 3☐ 4☐

E. Number of hours/sessions allotted in each of the above teaching-learning methods

	Lecture	Tutorial	Practical/Demonstration	Seminar	Others(if any)
Optimum	Yes / No	Yes / No	Yes / No	Yes / No	Yes / No

F. Name the Teaching-Learning sessions that have increased your competency levels on the topics covered:

Strongly agree	Moderately agree	Agree	Moderately disagree	Strongly disagree

G. How the Physiology teaching-learning methods can be better:

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Resources required

Active involvement of faculty members and other staff of Physiology department along with medical education department is essential.
Participants of MBBS students of this college was spontaneous.
For Statistical analysis Community Medicine department faculty is actively involved.
Educational tools and gadgets all are provided by Medical Education and Physiology department.
Our sincere respect is to our Head of the Department for full co-operation in this Educational intervention process.

Our sincere thanks to Non-teaching staff of Physiology department who were actively involved for collecting data and helping us.

The intervention method was approved by institution ethics committee.
Individual participant(student)consent was obtained in two stages during anonymous unlinked Questionnaire evaluation.
Written consent was again obtained at the time of the outcome assessment.

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Poster-competition: An Effective Active Learning Technique for Undergraduate Medical Students

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The context that required the initiation of the educational practice

Over the past decade, reform efforts in medical and health care education curricula have emphasized the importance of active learning to improve student engagement and critical thinking skills.[1,2,3] Medical Council of India endorse educational strategies designed to develop "self-directed and life-long" learning habits among Indian Medical Graduates.[4] Active learning is generally defined as any teaching strategy that engages students and encourages reflection.[5] Case based learning, experiential learning, peer problem solving are some common Teaching-Learning techniques that satisfy the major goals of active learning activities i.e. a) Providing opportunities for group problem solving b) Developing and practicing interpersonal and communication skills c) Introducing a technique for conveying complex medical concepts in an accessible simple way etc.

Poster making and poster presentation is also an active learning strategy. It is commonly used for research communications but it can also be used for undergraduate medical education as a cost-effective active learning tool.

Objectives of the educational practice

- To promote deep learning of some complex physiological concepts
- To encourage students to think out of the box
- To develop a cost-effective active learning tool for undergraduate medical students

The Educational Practice

200 (Roll no 1-200) 1st Year medical students were divided in four groups (each 50 student) according to four topics A. Primary Active Transport (Roll No 1-50) B. Secondary Active Transport (Roll 51-100) C. Mechanism of gastric HCL secretion (Roll No 101-150) D. Excitation-Contraction coupling of skeletal muscle (Roll No 151-200). Each group was further subdivided into 5 subgroups containing 10

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students each (A1-A5, B1-B5, C1-C5, D1-D5). Group A1-A5 were instructed to make posters on Primary Active Transport, Group B1-B5 were instructed to make posters on Secondary Active Transport, Group C1-C5 were instructed to make posters on Mechanism of gastric HCL secretion, Group D1-D5 were instructed to make posters on Excitation-Contraction coupling of skeletal muscle. Competition was held at department of Physiology, Calcutta National Medical College. (The date was 26th October,2017, 1pm-2pm) Notice was given 15 days prior the competition. Size of the poster was mentioned. Only Hand written and hand -made posters were accepted. Each group of Posters was judged by Two Faculty members who given marks on a scoring rubric as given below:

1. Display	**20 marks**
A)	Clarity 10
B)	Innovative idea 5
C)	Legibility 5
2. Presentation	20
A)	Clarity 10
B)	Depth of knowledge& Crossing 10
3. Team work	10 marks
A)	Involvement of team members:5
B)	Inter-personal communication of members: 5

Best Posters from each group were awarded and posters were laminated and mounted at the wall of Physiology hall.

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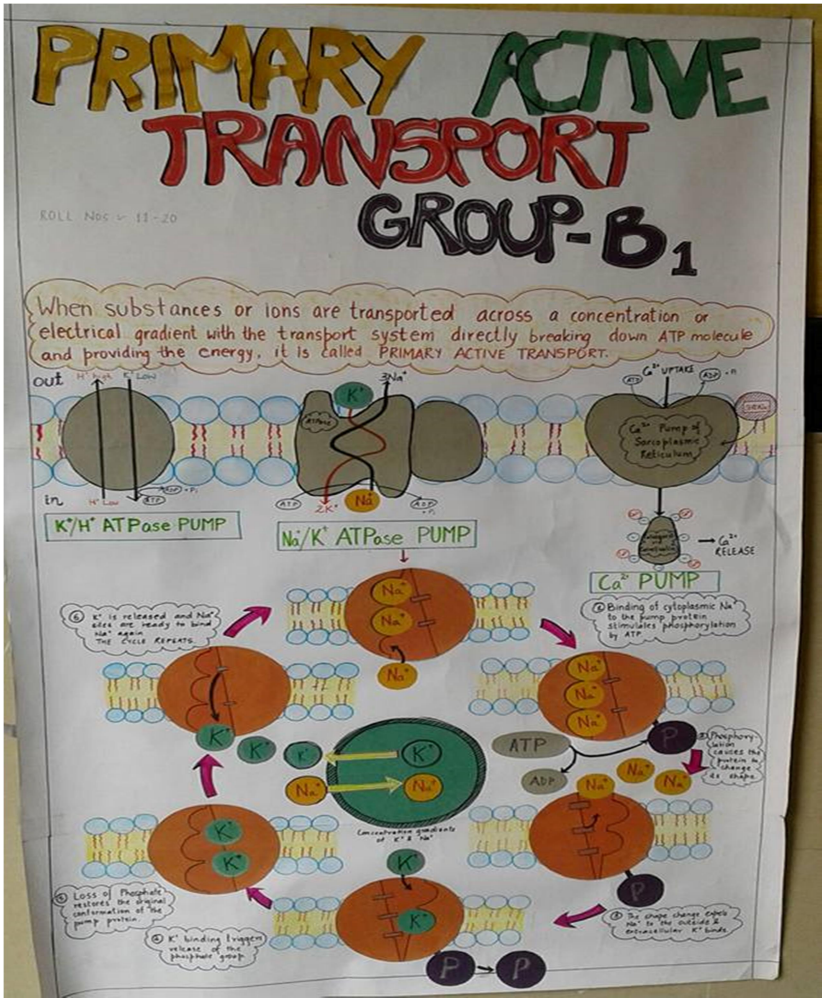

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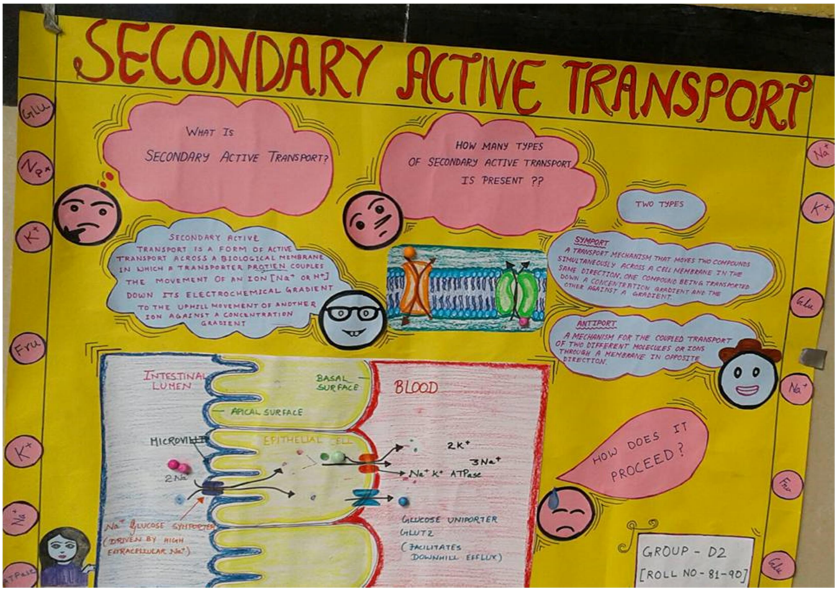

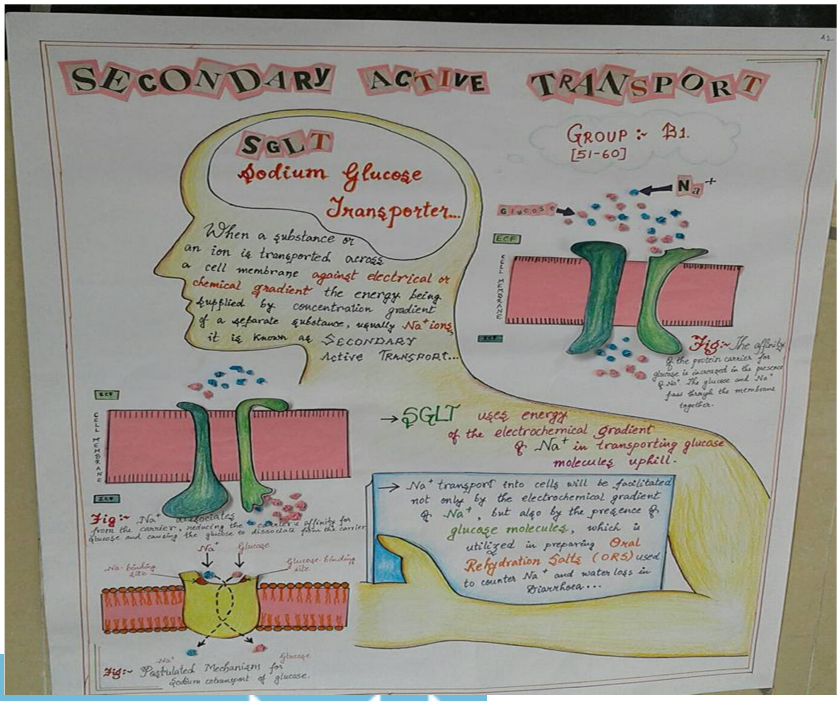

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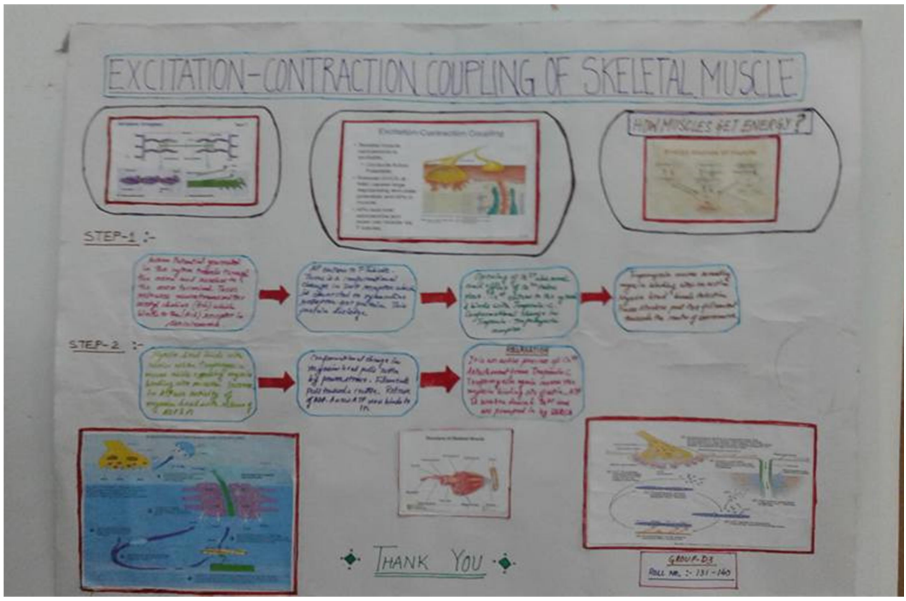

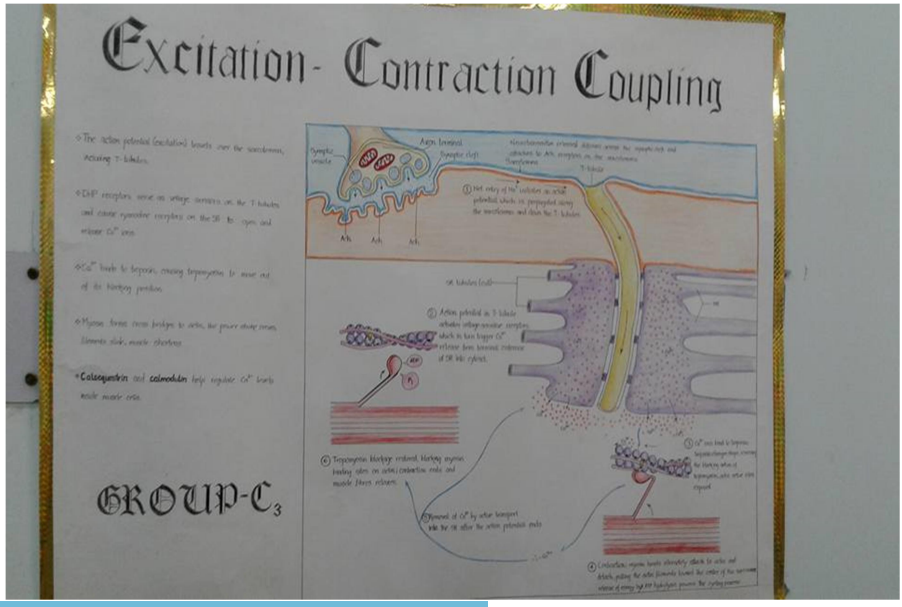

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Obstacles faced and strategies adopted to overcome them

- Involvement and participation of faculty members: A departmental meeting was held to explain the procedure. The idea of using the posters as charts during MCI inspection was appreciated by the faculty members. (The time slot of Poster session was 1pm -2pm, during a regular physiology lecture class schedule. This slot was allotted to me. I had to take permission of HOD for using this time slot for poster competition)
- Assigning space for each group: Planned and organised accordingly as per decisions made in the departmental meeting.

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- Involving students: They were encouraged to win the competition. Marks were allotted for good team work and participation of team members, innovative ideas and students were informed about that.

Evidence of the effectiveness of the educational practice

- All the groups tried their best to do something new or innovative. They described complex physiological concepts in a very lucid way.
- They tried to add some new points regarding history, experimental basis or recent advances on the topics. Hence their self-directed learning habit was encouraged. This learner-centric approach improved the higher order thinking of the students.
- Students' ability to work in a team and inter-personal relationship among team members were improved.
- Students' performance on item exam on these topics were remarkably improved.
- Students enjoyed this learning activity and this is the basis of adult learning principles where intrinsic motivation is the need.

Resources required

- Space for poster attachment
- Judges i.e. faculty members
- Awards for best poster group (e.g. certificates, pen etc)
- Stationary: Cello tape, scissors
- Cost for Laminating five best posters

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Innovative 3D Models for Enhancing Surgical Skills among Postgraduates

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The context that required the initiation of the educational practice

As per DCI regulations 2007, postgraduates in the Department of Periodontics must be able to perform surgical procedures independently. Since time immemorial, teaching surgical skills have always followed the principles of tell-show-do.

Problem based learning[1] with dental study models will refine the surgical skills prior to performance of the surgery in the patients which is essential in todays practice.

Study models of the teeth[2] and the perioral structures have been used in the past as preclinical exercises for e.g. splinting of mobile teeth. However, no such model exists in which the students can plan the periodontal surgical procedure and practice basic steps to gain confidence. Thus a 3D study model with elastomeric impression material has been used to practise various surgical procedures.

Objectives of the educational practice

- Use study models of the human teeth and perioral tissues to mimic that of the oral cavity and practice the various surgical procedures in these models before attempting them on patients.
- Enhance the periodontal instrumentation techniques
- To develop a cost-effective active learning tool for postgraduate dental students

The Educational Practice

The second year postgraduate students were asked to make study models of the maxillary and mandibular arch using type III dental stone. (figure 1). Elastomeric materials e.g. Addition polysilicon (putty material) was used to contour the gingiva

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on the study model. The putty material, available as a base and catalyst paste, was mixed together and adapted to the study model so that it mimics gingival architecture in pathological conditions. (figure 2). After the putty sets, correct positioning and handling of the BP blade (no 15) and B.P handle (no 3) were demonstrated to the students. Holding the study model in the left hand, various incision techniques were demonstrated to the students using the appropriate finger rest and grasp. (figure 3). Elevation of the periodontal flap and use of the surgical curette to remove the granulomatous pocket epithelium were also demonstrated. (figure 4).

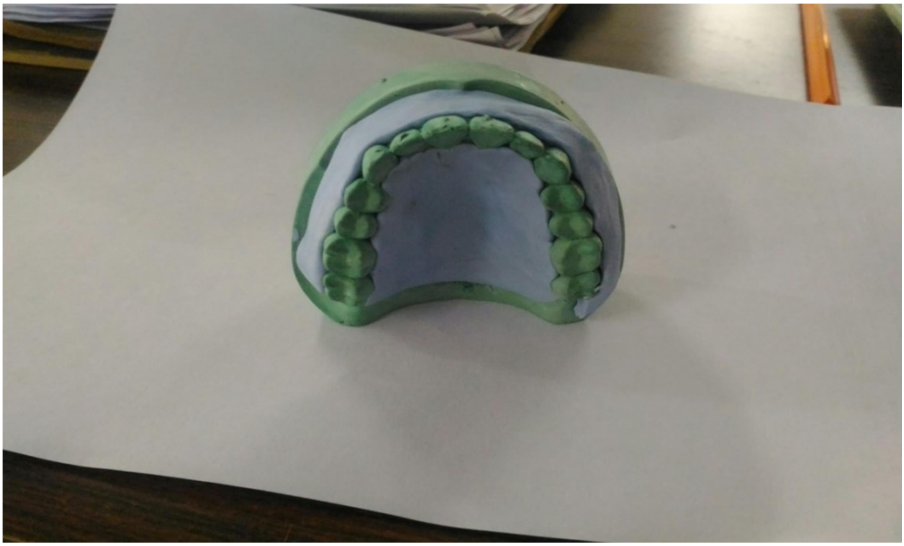

figure 1

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figure 2

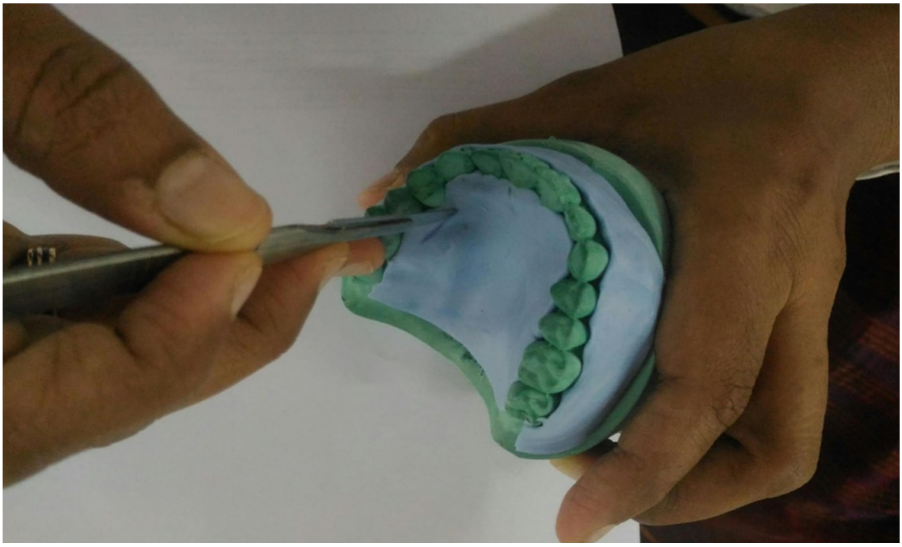

figure 3

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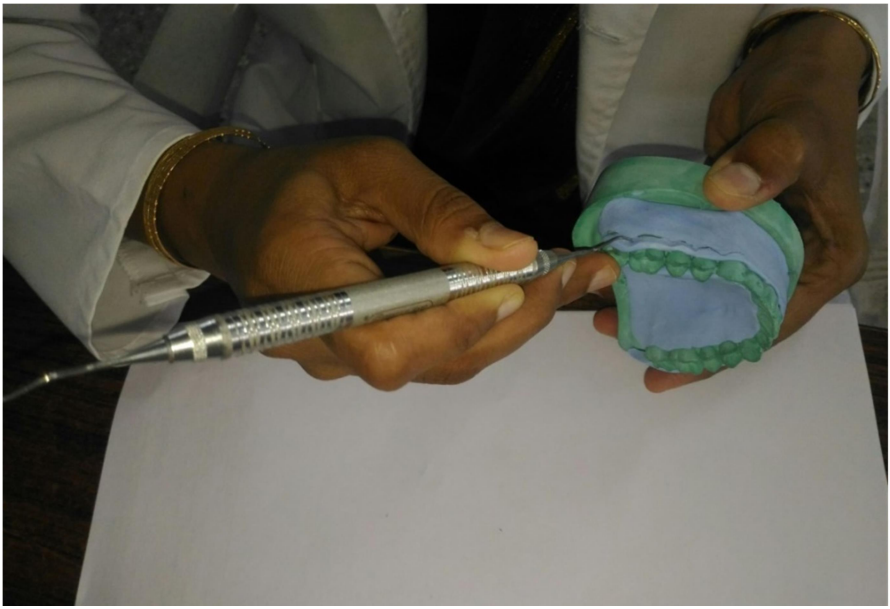

figure 4

Obstacles faced if any and strategies adopted to overcome them

The study models do not mimic the spatial arrangement of the oral cavity. Hence phantom head models may be used with the typhodont teeth and putty material. Not all the surgical procedures can be attempted preclinically using this study model. For e.g. periodontal plastic surgical procedures requiring lateral, coronal or apical displacement of gingival flap cannot be practised due to the stiff nature of the set putty material.[3] Better materials must be researched to overcome this limitation. No bleeding is encountered while using this study model. However, while performing periodontal surgical procedures, bleeding is commonly encountered, impairing vision.

Evidence of the effectiveness of the educational practice

The effectiveness of the educational practice was made evident from the improved students' ability to identify and handle the various instruments. They were able to freely interact with the staff members regarding any doubts arising before the actual surgery. This lead to a well-planned and well executed surgical procedure resulting in better healing outcomes.[4] Students' theoretical knowledge on the

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surgical topics improved. Students enjoyed this learning activity with enthusiasm which forms the basis for effective adult learning. Students' confidence levels were increased and they were able to alleviate patients' anxiety in a much better manner before starting the surgical procedures.

Resources required

- Dental models poured with type III dental stone
- Addition polysilicone material (putty)
- Scalpel blades, BP handles, periosteal elevators and surgical curettes

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An Effective Learning Method for Undergraduate Medical Student

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The context that required the initiation of the educational practice

Every medical graduate should have the capability of providing basic emergency surgical care for which basic surgical skills are a must. Studies from Europe and Australia indicate that exposure to basic surgical technique is little.[1] There is evidence to suggest low surgical exposure during undergraduate period can have adverse impact on recruitment of future trainees.[2] Traditional class room teaching regarding management the patients with trauma has failed to optimally train interns, residents and even senior residents to provide the level of care they are expected to provide. So we designed the workshop to facilitate small group teaching of undergraduate students and interns regarding basic surgical techniques and emergency procedures. The workshop facilitated practice the skills with a mentor and to master the technique to perform in real life scenario.[3]

Objectives of the educational practice

- To training the participant to independently diagnose life threatening emergencies after trauma
- To train the participant to provide basic care in a patient of trauma to tide over life threatening emergencies and facilitate transfer to a trauma unit
- To train them to be able to do the basic surgical procedures on patients

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The Educational Practice

Basic Trauma Life Support

A full day workshop on basic trauma life support was conducted with support of critical care team, orthopaedician, radiologist and neurosurgeon. An interactive session of not more than thirty minutes was conducted for a group of fifty interns. The complete workshop was divided into eight lectures and six skill stations. The theory topics included introduction to trauma, initial assessment and management, airway, breathing and ventilation, circulation and haemorrhage control, thoracic trauma, abdominal trauma, head injury, pelvic and musculoskeletal trauma and Triage. The skill stations included airway, cricothyroidotomy and tracheostomy, needle, thoracentesis, pericardiocentesis, intercostal chest tube drainage. FAST, cervical spine, splint, pelvic binder, helmet removal, log roll and venous access. Skills were demonstrated on mannequin and a goat chest. Students were divided into six groups (eight each) and were circulated in each station. A pre-test and post-test evaluation was done.

Basic Surgical technique

Four stations of thirty minutes each were conducted by a faculty member accompanied by a senior and a junior resident. The maximum number of participants was fixed as eight. These stations were

- Gloving and gowning
- Nasogastric tube insertion and catheterisation
- Suturing
- Hand Knotting

After demonstration by the faculty, every studentwas asked to practice and clear their doubts. Residents helped them to master the techniques and in doing so they refined their own techniques as well and exposed themselves to teaching.

Both the workshops received positive feedback from the students and are translating to better approach to trauma patient and capability to demonstrate basic surgical skills in patient care.

Evidence of the effectiveness of the educational practice

- Significant improvement in post test score was one of the evidence of the effectiveness of this practice.
- Active involvement of students during skill stations and triage scenario was another evidence of effectiveness of this workshop.

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- Student feedback of workshop and demand for regular conduction of workshop shows the success of this TL method.

Obstacles faced and strategies adopted to overcome them

Obstacles

- Involvement of multiple faculty members and staff - involving multiple faculties at same time was a challenge. The workshops were organised on Saturday and Sunday. Faculties were able to devote the time but organising the venue, support staff and equipment were real challenge.
- Arrangements of consumables like suture, suturing boards, gloves, catheter and ryles tube was difficult.
- Arrangement of Ultrasound machine and goat needed special permissions.

Strategies adopted to overcome the obstacles

- Basic trauma life support workshop duration has been reduced to half day programme this time. We realised few sessions like head injury, abdominal injury, thoracic injury and musculoskeletal injury can easily be covered under single session of secondary survey in twenty minutes.
- Timing of skill stations were not decreased but were subdivided into two substations so that students can be rotated.
- Students were involved in construction of mannequins for catheterisation, nasogastric insertion and suturing board.

Resources required

- Space for workshop
- Faculty members
- Consumables – Catheter,Gloves, Rylestube,Suture,Animal model
- Mannequins
- Permission for using USG machine, animal
- Disposal of animal body
- Lunch/Food packets for participants
- Projector
- Laptop/Computer

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Brief Clinical Projects: A Problem Based Approach of Promoting Active Learning among Medical Undergraduates

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The context that required the initiation of the educational practice

Information imparted in medical education is far more than that can be humanly comprehensible. Technology in the form of power points has been a value addition to Lectures - the traditional method of teaching. Power points although appear to be excellent tools for teaching but they do not necessarily translate to an effective mode of learning as the brain has a limit to how much information it can process at a time.[1] Moreover the knowledge acquired by such methods often decay long before it is utilised.[2] Problem based learning in the form of small group tasks was initiated in our unit, during the clinical postings of undergraduate students, who were expected to apply the knowledge acquired on actual cases to find the answers.

Objectives of the educational practice

- To encourage self-acquisition of knowledge on the project allotted and help them to identify the clinically important areas.
- To ensure the knowledge is applied on actual patients to get the answer which will translate into long term memory.
- To help the student develop certain psychomotor skills and to some extent the affective domain.

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The Educational Practice

Batches of 25 students are posted to the department for clinics for nearly 40 days in their 5th and the 6th semesters. As per the MBBS curriculum of the Institute, the students visit either to the IPD or OPD for seeing patients, taking history, examining patient and presenting the cases. There is little stress on other practical aspects e.g. grading the skin and soft tissue infections or writing consent for surgery, skills they are expected to have as Interns. In fact these topics having been covered in the lectures during the 3rd and the 4th semesters are forgotten long before they could be actually applied.

Hence the batches of twenty five are divided to small groups of five students each. A brief clinical project (as in Table-1) is allotted to each group to prepare e.g. Systemic inflammatory response syndrome (SIRS) in the patients admitted to the Surgery IPD on a particular day. The following day the group of students are supposed to survey the patients admitted in the IPD and find answers to the task given and prepare a report. The consultant would need to verify the report, discuss the problem, ask question as a part of assessment of the knowledge they have acquired and clear misconceptions if any. Thereby five small topics can be actually covered in a day. The task allotted for the subsequent day would be changed avoiding any repetition.

The students thereby not only have to come well read, but also the knowledge gets reinforced when they actively look for the answer which further gets cemented during the discussion with the consultant. The students acquire certain skills like doing small dressings, understanding the components of a consent form, ability to identify SIRS etc. The method has the versatility of adding many clinically important topics to this method of teaching and learning.

Table-1: A model for Brief Clinical Projects

Group	Roll number	Project
A	1-5	Looking for Systemic inflammatory response syndrome (SIRS)
B	6-10	Interpretation of serum biochemistry reports
C	11-15	Rationality of antibiotics prescribed in post operative patients
D	16-20	Auditing the Problem oriented medical record
E	20-25	Auditing the Catheter care

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Evidence of the effectiveness of the educational practice

- There is a lot of enthusiasm among the students as they are actively involved in auditing and there is a scope for everybody to interact, discus and clear the doubts.
- The Consultant who is involved the discussion get a chance to assess the students almost immediately and point out any lacunae in their project report. Both the student and the teacher get a feedback of the Teaching as well as the Learning instantaneously.
- The Interns who had been exposed to this method of teaching as seen to be better at their assessment of the patient condition and patient record keeping.

Obstacles and Strategies adopted to overcome them

- Lack of fellow faculty participation would make the method unsustainable, so the method was adopted discussed and agreed upon on a departmental meeting.
- It is relatively time consuming. The days of these activity limited to the grand round days ie. Twice weekly and case presentation was continued the remaining days.
- In the initial days, it was not objectively verified if any of the group members did not read or participate in the task given in the ward. Individual beds were allotted to the students whenever feasible (depending on the group activity) and the discussion was started randomly from any of the members at the consultant's choice while the rest would be encouraged to participate in the discussion.

Resources required

- Adequate faculty members
- Designated time and curricular changes to accommodate such teaching activities

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Improving Communication Skills of Medical Students through Community Interaction

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The context that required the initiation of the educational practice

The present millennium with its mind boggling pace and facilities for instant communication also witnesses increasing problems in health sector due to lack of communication. Patient dissatisfaction, mistrust, malpractice issues etc. are often related to communication problems rather than clinical incompetence. Communication skill which is a core skill in the affective domain needs to be taught at the undergraduate level itself. The challenge lies in offering students adequate and appropriate learning experience so that he / she acquire the right attitudes and skills during their undergraduate days.

Situation analysis

The revised MCI curriculum 1997 has increased teaching learning hours in community medicine in order to lay emphasis on community based learning. As per this, a medical student has two and half months of practical postings (forenoon – three hours / day) in Community Medicine. During this period, the student gets ample opportunities to interact with various sections of the community. Hence this is the ideal time to introduce the concept and practice of appropriate communication skills.

Objectives of the educational practices

To improve group communication skills of medical students through exposure to varied groups in the community during their posting in Community Medicine

Methodology

Batch of 8-10 students each coming for 5th semester posting in Community Medicine was chosen.18 students were studied in 2 batches. The process involved:

- Development of a checklist to assess the process of communication. Checklist included 10 areas [Arousal of interest, specific objectives, content, nonverbal cues, voice, use of Audio visual aids, interaction, summarizing and time

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management.] each carrying 5 marks. Final score was determined by adding the total marks.

- Deciding a group in the community: - Adolescent girls of 30-50 in schools/community.
- Allotment of a topic: - Adolescent health was the chosen topic. Different aspect of the topic was given to each student.
- Mock presentation of the allotted topic for 10 minutes was carried out in the department on the next day. 4-5 faculty members scored the students based on the checklist and average score taken as pre intervention scores.
- Intervention: the positive and negative aspect of presentation of each student was discussed jointly by students and faculty. Ways to improve group communication skills were evolved.
- Post intervention activity. Each batch presented their topics to the group in the community. Each session was followed by question & answer session.
- Post intervention scoring:- The scores of each students on all days were assessed by 4 faculty members based on the same checklist and averages scores determined .
- Feed back

  Feedback was taken from

  - Adolescent girls in school/ community to assess usefulness of the program.
  - Medical students themselves to evaluate their own experience
  - Faculty members to identify areas of strengths and weaknesses of the programs

Results

The first batch comprised of 10 students.

Pre & post intervention scor`ing of 1st batch is given in Table I

Table 1

Students No.	Pre-intervention Total Score (50)	Post intervention scores		
		Day 1	Day 2	Average Score
1	19	32	27	29.5
2	16	26	30	28
3	25	29	37	33

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4	21	26	31	28.5
5	19	27	Absent	27
6	14	23	Absent	23
7	25	33	38	35.5
8	28	37	37	37
9	28	28	32	30
10	20	33	Absent	33
Class A	21.5	29.4	33.1	30.45

The second batch comprised of 8 students of 5 girls and 3 boys. Classes were imparted by the 5 girls repeatedly to groups of 30-50 adolescent girls attending adolescent camp of Anganwadis in 4 Panchayats in the area. 3 North Indian boys could not participate in the programme due to languages barriers. Pre & Post intervention scoring of 2nd batch is given in Table 2:

Table 2

		Post intervention scores					**% Improvement**
Students No.	**Pre-intervention score**	**Day 1**	**Day 2**	**Day 3**	**Day 4**	**Average post-intervention score**	
	23	23	25	29	27	26	13%
2	25	27	28	29	Absent	28	12%
3	24	28	29	32	32	30	25%
4	17	29	25	30	29	28	64%
5	25	26	28	33	32	31	24%
	22.8	26.6	27	30.6	30	28.6	

There is marked improvement between pre & post intervention score, in individual post intervention scores with repeated exposure and in average class scores and average serial post intervention scores when compared to pre intervention scores.

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Feedback from adolescent girls in the community

80 adolescent in 2 schools & 160 adolescent girls in 4 adolescent camps gave the feedback that they liked the programme as it was useful. Student in schools gave feedback in writing for each student presentation. Even though it consumed a lot of time, their feedback stressed the usefulness of each talk and ways to improve the talk. Adolescents conveyed that the topic was relevant and that they could get information about issues, which they felt shy to discuss with. They were happy that their doubts were clarified. They gave cues like 'reduce pace of talk, increase clarity, nervousness to individual students. Feedback from medical students showed that the process helped to identify the strengths and weaknesses of their group communication skill. Each student felt more confident to face a crowd, had less tension with repeated performance and enjoyed the challenge of the process. They suggested that chance should be given to take classes for different groups. Feedback from Teachers found the process useful to improve communication skill of students. Faculty could identify areas where improvement and changes can be made with the next batch like encouraging use of more visual aids.

Limitations

- Students with lower scores and problem like stammering failed to turn up after the 1st post intervention class. Strategies to identify such students and further empower them need to be identified.
- North Indian students could not participate in the process due to language barrier. Alternate learning experiences need to be given to them.
- Repeating the same topic to two or three groups initially improves the confidence and performance but when repeated more than that can turn not to be monotonous and less challenging for students.

Conclusion

Exposure of medical students to adolescent groups in schools/community to exercise their group communication skills showed marked improvement following an intervention as assessed by pre & post intervention scores. The process gave an exciting and challenging teaching learning experience to faculty and medical students and was useful to the adolescent group in the community as assessed by feedbacks.

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Efficacy of Group Discussions in Improving Learning Outcome in Biochemistry

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Definition of the problem

Lecture, as the most common and dominant teaching method, suffers from several disadvantages. Among others, receptivity and retention after an average lecture session has been documented to be low. Thus other Teaching-Learning methods (T-L methods) used in conjunction with lectures may serve to reinforce and consolidate the learning outcome. Group discussion (GD) offers several advantages over traditional lectures to make it an effective T-L method to supplement lecture sessions. Hence, in the present project, group discussion has been selected as the preferred T-L method to study its efficacy in improving learning outcome (LO) when applied as an adjunct to lectures.

Situation analysis

The existing protocol of under-graduate biochemistry theory teaching at our institution includes consecutive lecture classes of duration 60 minutes each for 150 students covering a particular topic or section. After completion of the topic, some 'tutorial classes of duration 90 minutes each are allotted on the same topic with groups of 50 students. At present these sessions lack predefined lesson plan or specific T-L method to maximize learning outcome, nor does it have a proper evaluation procedure for testing the efficacy of the whole programme. In the present project, a pre-planned programme with group discussion as the preferred T-L method was implemented during these classes. This was coupled to an evaluation procedure comprising of pre and posttests to study the efficacy of the overall protocol.

Objectives of the educational practice

- To assess the efficacy of group discussion in improving learning outcome.
- To compare and contrast its effect on various performance-based student cohorts.

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Methodology

After completion of each section in a series of theory classes for 150 students, a pre-test on the topic was taken in the last lecture class. This test was of 40 minutes duration with a total number of 30 questions were asked. Questions were of one word answer type, multiple choices, matching type and true/false type to minimize subjective error in correction. Pre-validation of the questionnaire was done by discussion with the fellow faculty members in the department. Pre-test was followed by sessions of GD on 3 consecutive days of a week including 50 students per day. For each of these GD sessions, the 50 students in each group were further subdivided into 4 subgroups with 12 to 13 students in each subgroup and were assigned to a particular teacher who acted as the subject expert or resource person for the particular GD session. Thus 4 faculty members were required to conduct the discussion for each batch of 50 students. Each GD session lasted approximately 55 to 70 minutes. The number of these sessions allotted for a particular topic was prefixed at a ratio of 1 GD session for every 3 lecture classes such that the full topic could be covered adequately. After coverage of a complete topic in GD sessions, the students were asked to appear for a post-test comprising of same or similar questions and of same duration as the pre-test. Also, a feedback from the students pertaining to their subjective evaluation of the overall process was collected after the post-test using a preset proforma. Both the pre-test and post-test papers were evaluated. Results of all students with less than 80% attendance separately in lectures and group discussions were summarily excluded from the study.

This protocol was repeated for other topics as and when they were completed.

Results

Altogether, 6 separate sections from biochemistry curriculum were covered under this programme in 32 lecture classes and 12 GD sessions during the course of the study period between October 2005 and December 2005. After excluding the students with less than 80% attendance, performance result of 132 students were included in the present study. For purpose of statistical analysis, these students were classified into 4 groups A, B, C and D based on their performance in pre-test as shown in the Table. The post-test score was compared with the pre-test score for individual students, between each group and also for the entire study cohort.

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The following observations were made from the study:

1. There was a significant difference ($p<0.01$) in means between pre test (46.96 ± 21.81) and posttest (53.05 ± 24.29) scores.
2. There was a significant increase ($p<0.01$) in means between pre and post test scores of groups B and C.
3. Means between pre and post test scores of groups A and D increased after GD but this increase was not statistically significant ($p>0.05$).
4. There was a significant positive correlation (Pearson's correlation coefficient = 0.934, ($p<0.01$) between pre and post test scores in all students.
5. Altogether, 79.54% (n= 105) students showed an increase in their post test scores as opposed to 20.45% (n=27) students who had either equal scores or had a decrease in their scores.
6. The percentage of students with > 50 % marks (cut-off for pass) increased from 50.76% (n=67) to 59.85% (n=79).

Discussion

In this study, a significant difference in means between pre and post test scores was observed. Thus it may be suggested that, in general, GD exerts a considerable influence on improvement of LO over and above traditional lecture sessions. But when analyzed for variation within separate performance based student cohorts, it was observed that mean post test score increased significantly over pre test score only in groups B and C comprising of students (n=92) with predominantly intermediate performance level who scored 25% to 75% marks in pre test. On the other hand, groups A and D, comprising of students (n= 40) who may be otherwise classified as 'High achievers' and 'Low achievers' respectively, failed to show any significant difference in means. From these findings, it may be inferred that GD was found effective in improving LO in a majority of students who comprise the mid-performance segment of any student cohort and consequently possess the maximum scope for improvement. However, GD fails to significantly influence the LO in 'High achievers' (Group A) presumably due to absence of scope for any further improvement as also in 'Low achievers' (Group D) perhaps highlighting the limited effectiveness of GD in this group of students. The reasons for this may be a relatively poor preparation and inexperience of this group, low learner aptitude perceiving the proceedings as too fast to be effective as also the inherent inability of this group of students to participate actively in group activities, thus underscoring the need for implementing other specialized T-L programmes targeted specifically at this group of students.

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The significant positives correlation between pre and post test score through all groups may illustrate that the beneficial effect of GD was proportional to individual performances in all groups and that all students benefited from these sessions at a rate consistent with their individual aptitudes and intelligence levels. Thus altogether, 105 students who formed 79.54% of the study population showed a net increase in their scores as opposed to 27 students comprising 20.45% of the study population who had equal scores in both tests or had a decrease in their performance. Furthermore, the increase in the number of students securing more than 50% marks after GD may suggest that GD, as an adjunct to lecture, elevated the LO of a greater number of students to an acceptable average, which may be regarded as one of the primary objectives for any T-L programme.

Limitations

The present study, though adequately illustrating the efficacy of GD after a session of lectures, was confounded by the fact that GD served as a revision session for the students enabling them to internalize in a better way the basic concepts already learnt in lectures.

Thus the difference in pre and posttest performance may, at least in part, reflect the advantages gained from revision rather than due to any particular T-L method. The study period was also relatively short. We intend to further improvise upon the method to overcome these limitations as we continue the programme for the next few months.

Conclusions

GD was found to be an effective T-L method when used as an adjunct to lecture classes. A majority of the students showed significant improvement in performance after attending GD sessions. However, the improvement varied between different student cohorts based on the performance in pre test scores. The majority of the students comprising the intermediate performance segment showed the maximum improvement. Low achievers failed to show significant improvement underscoring a need for implementation of other specialized T-L programmes targeted specifically at this group.

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Table

Mean and Standard deviation of marks obtained in pre-test and post-test among different performance-based student cohorts

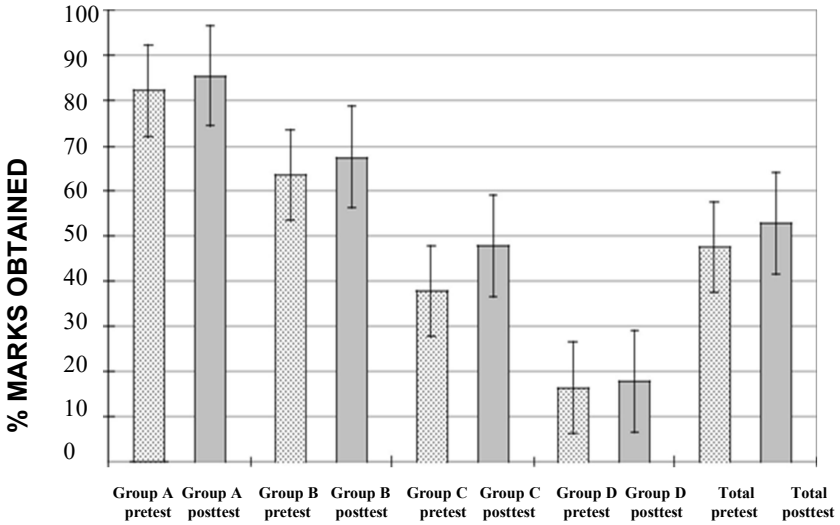
Grouping			Pre -test Score		Post-test Score					
Groups*	% Marks**	n	Mean	SD	Mean	SD	t	df	P value	significance
A	75 – 100	12	81.67	5.47	84.08	8.75	1.192	11	0.258	Not significant
B	50 – 74	55	61.18	7.38	68.73	11.15	6.388	54	0.001	Significant
C	25 – 49	37	38.27	7.93	46.86	12.74	5.486	36	0.001	Significant
D	0 – 24	28	15.64	5.91	17.11	6.81	1.393	27	0.175	Not significant
Total	0 – 100	132	46.96	21.81	53.05	24.29	8.040	131	0.001	significant

* Sub grouping based on pre-test score

** denotes the % marks obtained in pre-test

Figure

Bar graph showing Mean and Standard deviation of marks obtained in pre-test and post- test among different performance-based student cohorts



***Note:** Individual groups are defined as per Table

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Improving Listening Activity and Student's Active Participation in Group Discussion in Pharmacology Lecture (Theory) Class in Para Clinical M.B.B.S. Students using Fish Bowl (Group Dynamics)

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Introduction

It is found that many students are not attentive and active during lecture classes. The objective of the project was to use fish bowl (group dynamics) technique to improve listening activity and active participation of students in theory lecture classes. The para clinical students (II MBBS) in Pharmacology department were the target subjects.

Methods

Fish bowl (group dynamics) technique was used after the lecture class. Introduction to group dynamics (fish bowl) was given in the lecture class. Fish bowl (group dynamics) was conducted according to standard methodology. Two groups of 10 students each were used as per the following strategy:

Group I	-	10 students (inner circle) (group discussion)
Group II	-	10 students (outer circle) (observation)

Later Group II students had group discussion and Group I students were observers. The two group discussions were followed by plenary presentation. One student is fish for each of the ten students and report about their active participation in group discussion to the staff in-charge after standing and watching the fish. Each session lasted 1 hour. One session was conducted every 15 days. Total of six sessions were conducted over 3 months.

In 6 classes (6 hrs.) after lecture class, the topics given in pharmacology for group dynamics are presented in Tables 1 and 2

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Table I

Group I – for discussion (10 students)
Subject – Pharmacology
Discussion: Time – 20 minutes, Presentation – 10 minutes, and
Total Time = 30 minutes

1. Common drugs causing teratogenicity
2. Drugs used in glaucoma
3. Shared toxicities of aminoglycosides
4. Oral contraceptives
5. Prophylaxis and treatment of migraine
6. Multi-drug regimen in tuberculosis

One person from group presented in plenary.

Table II

Group II – (10 students) were observers
Topic for discussion:

1. Drugs of addiction
2. New drug delivery systems
3. Rational use of antibiotics
4. Newer NSAIDS
5. Oral hypoglycaemic agents
6. Newer antihistamines

Group I acted as observers: Time: 20 minutes
Plenary presentation: Time: 10 minutes
Total Time: 30 minutes, for each day / group

Evaluation was done by observation and by plenary presentation of students.

Results

Evaluation and feedback showed that group dynamics has improved the following:

1. Students' active listening in theory class.
2. Students interaction

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Presentation by groups showed:

a) Active participation
b) Reduced stage fear
c) Highlighting by topics dealt in lecture class

Discussion and Conclusions

The study has shown that group dynamics (fish bowl) technique improved active listening and active participation in theory lecture classes. Group presentations showed active participation, reduced stage fear and highlighting of topics dealt in lecture classes. This technique can help improve student performance during oral examination.

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Facilitating Learning by Specific Learning Objectives in Pharmacology Lectures

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Introduction

It is found that many students are not aware of the contents of the lecture and 'must know' areas in a topic. The objective of the project was to explain the specific learning objectives in theory lecture classes. The para clinical students (ll MBBS) in Pharmacology department were the target subjects.

Methods

Three theory lecture sessions were planned and the learning objectives for each lecture session were clearly stated as given below:

At the end of the class, the learners shall be able to:
Lecture session 1: List the drugs used in prophylaxis of migraine
Lecture session 2: List the side effects of anti-tuberculous drugs
Lecture session 3: List the uses of macrolide group of antibiotics.

After the lecture class (treatment of tuberculosis and treatment of leprosy) the following topics were given for plenary presentation using black board, extrans and overhead projector and audio-visual aids. 10 students were randomly selected for the presentation.

- List the first line of drugs used in tuberculosis.
- Discuss the second line of drugs used in tuberculosis.
- List side effects of rifampicin.
- List the multiple drug regimen followed in India under National Tuberculosis Control Programme.
- Name the drugs used in pregnant women for tuberculosis.
- Name the drugs used in breast feeding women for tuberculosis.
- List the antileprotic drugs.
- Define lepra reaction.
- List the drugs in multi drug regimen in leprosy.
- List uses and side effects of dapsone.

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Each lecture combined with plenary session lasted for two hours. Three such sessions were conducted over three weeks.

Evaluation

- By plenary presentation of students
- By observation during plenary presentation

Results

It was observed that the use of specific learning objectives has improved:

- Students' orientation to the topic
- Students' active listening in theory class
- Students' presentation using black boards and AV aids
- Skills in presenting in “must know” areas

It was also felt that presentation in university theory oral and practical (prescription writing) exams also improved.

Discussion and Conclusion

Use of specific learning objectives improves students' understanding of “must know” areas of every specific topic.

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Early Internship Exposure – a Primer for the Final Battle

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The context that required the initiation of the educational practice

Internship is a difficult period in the life of a medical graduate; it is also one of the most enriching experiences as a clinician. For decades, our curriculum has been literally throwing students clearing their final MBBS examinations into the ocean of clinical practice; they become interns (or house surgeons in some institutions) overnight. Many of them are neither prepared nor equipped to face the challenges that lie ahead. Induction programs and orientation sessions prior to start of internship are now quite common in all medical schools; however, such sessions probably do no more than sensitizing them to the internship program. In our institute, we found that a significant number of interns lacked in several basic skills ranging from accurate blood pressure measurement to communicating effectively with patients. The medical education unit and the curriculum committee formulated a structured program termed 'early internship exposure' to address this issue.

Objectives of the Educational practice

The early internship exposure (EIE) aimed to provide all medical students opportunity to experience what they are likely to encounter as interns later in their course. We presumed that the pre-final year (6^{th} semester) would be an ideal time and rotated groups of 25 students across three broad specialties – Medicine, Surgery and Pediatrics, each rotation lasting 2 weeks. During this period the students were free from regular lectures, internal assessments and clinical postings of the pre-final year subjects. They were expected to see patients in the wards, talk to them and prepare problem-oriented case reports rather than the conventional

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case sheet that stresses on the different aspects of history taking and physical examination **(figure 1)**. They had to document the daily activities on a log book to be verified and discussed daily by a consultant tagged to each student. Students were provided a list of procedures that they had to observe, assist or perform by the end of each rotation **(table 1)**. Within the broad specialties, the students were exposed to different care areas like the Intensive care units, the emergency room, the operating rooms and the general wards.

Preparedness and execution

Such an activity cannot be initiated and propagated without the support from multiple stakeholders. We convened several meetings with the ward nurses, consultants of concerned broad specialties and the students before finalizing the structure of the program. All students undergoing rotations were provided special badges, allowing them to be identified as 'Early Interns'; this enabled nurses, residents and consultants to recognize them and facilitate their learning. In each broad specialty, students were tagged to consultants, who would monitor their attendance and provide feedback on a daily basis about their case records and procedures. Whenever a procedure is observed or performed under supervision, the supervising staff member (nurse in charge, resident or consultant) would countersign the log to provide evidence of the same. We also specified the minimum number of times a procedure has to be observed or performed under assistance, depending on whether it was a high-stakes or low-stakes procedure. For example, we mandated that a simple 'must know' skill like measuring capillary blood glucose must be performed independently at least five times during their rotation.

After regular work hours, the students were also required to attend to calls in the emergency room along with the duty residents and junior consultants on a shift basis. During these postings they were asked to observe the encounters in the ER and record them, apart from doing physical examination of the patients and presenting a summary to the residents or consultants. They were provided opportunity to observe and assist emergency procedures like endotracheal intubation, central venous catheter insertions, paracentesis of ascitic fluid and pleural fluid and starting an intravenous infusion.

Although we could not conduct a pre and post intervention assessment of this strategy, feedback from students on the initiative was promising. Ninety percent of them rated the posting as very useful and also said that they would definitely

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recommend a similar program for future batches of students. The opportunity to see and be part of actual practice of medicine was mentioned by many students as the highlight of the program. They also perceived that their confidence in encountering patients and performing procedures would be higher when they enter internship because of this exposure. Thus, evaluation wise, we have only been able to touch upon Kirkpatrick level 1 (reaction of students). The other aspects including higher Kirkpatrick levels are ongoing and the first batch of students who underwent this program are currently in their internship. Feedback from these interns revealed that they feel more prepared to enter internship and are confident to deal with patients. In many other countries, similar exposures during the undergraduate course is termed the Clerkship phase.[1] However, unlike our practice, the clerkship is a prolonged phase with longitudinal integration with clinical disciplines and in some places like Australia even with rural and urban health practice.[2]

The strengths of this program are its relevance to medical students as they are exposed to settings where they are likely to work as interns. The program was designed after several rounds of deliberations with all stakeholders. However, because of the gap between this exposure and actual internship, there may be considerable attrition of skills and confidence gained over a period of time. We have not emulated the clerkship model in its entirety due to constraints of the Indian Medical Curricular framework. Further, practical difficulties of another posting like this to the final year when students are immersed in final examinations prevented us from implementing it closer to internship. Nonetheless, we feel that the exposure serves as a primer to sensitize students to face the challenges during internship. Detailed analysis of several reports on clerkship model of learning indicate that learning occurs by students participating in practice. This participation in turn occurs when there is adequate support at three levels – pedagogic (teachers), organization and emotional.[3] All this ultimately lead to real patient-oriented learning.[4] As more and more batches receive this intervention, we hope that a gradual change in the internship quality would also happen for the better.

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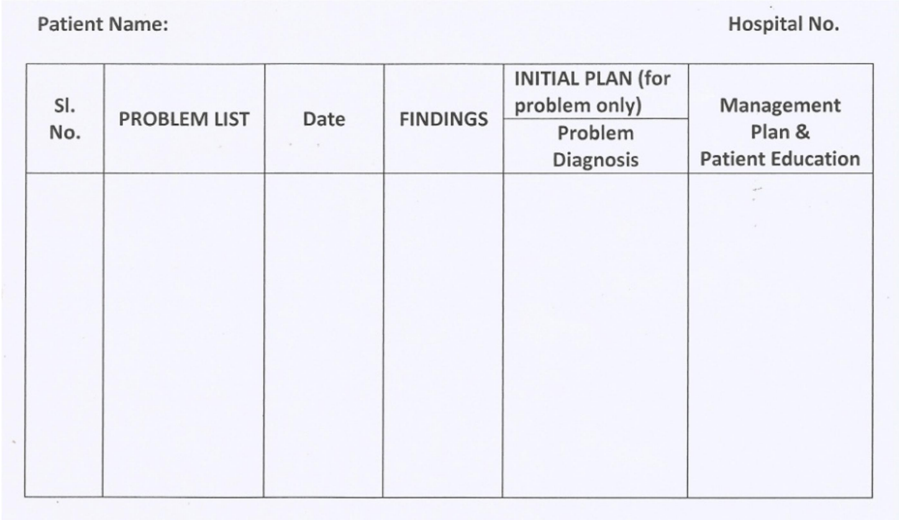
Figure 1. Problem-based case record for an individual patient encounter



Patient Name: Hospital No.

Sl. No.	PROBLEM LIST	Date	FINDINGS	INITIAL PLAN (for problem only)	Management Plan & Patient Education
				Problem Diagnosis	

Table 1: List of procedures to be done/ observed/ assisted

To be done independently	To be Observed & Assisted
1. Phlebotomy	1. Arterial blood gas
2. IV line insertion	2. Lumbar puncture
3. IM / SC/ IV injections	3. Bone marrow aspiration
4. Glucometer RBS	4. Thoracentesis
5. Oxygen therapy and nebulization	5. Chest tube insertion
6. Urinary catheterization	6. Ascitic fluid aspiration
7. Naso - gastric tube insertion	7. Central line insertion

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Flipped Histology Classes – Ascending Bloom's Taxonomy to Achieve Effective Learning: A Pilot Observational Study

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Background

In contrast to traditional lecture classes where the teacher stands in front of the class and students remain as passive recipients of disseminated knowledge, flipping helps in fostering higher order thinking skills. It has been proposed that a learner undergoes five stages in the learning experience and the responsibilities of the teacher varies according to each stage[1]. In the first phase, the learner's existing knowledge is challenged, followed by a second phase where the learner finds out explanation for the pertinent problem and this leads to generation of newer concepts which later gets organized. The organized knowledge is tested by application and then reinforced in a better way[1]. Flipping the class allows the students to go over the lower levels of learning in Bloom's taxonomy (knowledge and understanding) individually. Learning histology often pose a unique challenge to first year students. It has a central visual component by which students have to analysis and interpret the micrographic images.[2, 3] Students need to visualise the two dimensional microscopic images and reconstitute it into three dimensional structures. The aim of the present pilot initiative was to assess the effectiveness of flipped classroom teaching in improving student's learning outcomes.

Methodology

The objectives for our flipped histology classes[4] included: a) using outcome oriented focussed learning approach b) developing a precise plan keeping in mind the educational principles and available resources c) make the students utilise the reading material in person and applying it in common d) adequately preparing for taking part in laboratory sessions e) climbing the Bloom's taxonomy.

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The conventional histology curriculum consists of weekly theoretical sessions (one hour duration) and laboratory practical sessions (two hour duration). This pilot initiative was administered in three topics (lymphatic system, salivary glands and skin) and all 150 students were requested to involve in this. The topics were selected after ensuring the implied clinical importance. The flipped class protocol is includes:

Table 1: Pedagogical strategies involved in various components of flipped histology classroom

	COMPONENTS OF FLIPPED HISTOLOGY METHODOLOGY	PEDAGOGICAL STRATEGIES INVOLVED	PLACE
1.	Pre reading material circulated to the students	Self-guided learning	e-learning platforms
2.	Questions based approach as a part of in-class activities	Guided inquiry based learning	Lecture hall
3.	Discussion among students / group interaction in laboratory	Cooperative learning	Lecture hall
4.	Generating concept maps	Motor based learning / Ausubel's assimilated theory of learning	Lecture hall
5.	Learning with pre-set microscopes	Instructor guided learning	Histology laboratory
6.	Learning with image projection and briefing before practical	Instructor guided learning	Histology laboratory
7.	Brainstorming questions at the end of practical	Higher order thinking skills and critical thinking	Histology laboratory

The flipped histology classes presumably suffice all the four type of learners identified by *Kolb*[5]. The ''divergers'' enjoy engagement and discussion that exposes many different points of view, ''assimilators,'' use theories and concept maps to develop their understanding, ''convergers,'' enjoy solving problems and ''accommodators'' enjoy visualisation brainstorming questions. Feedback from the students were collected using anonymous audience response system (clickers) and tabulated.

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Results

We collected feedback from 125 students out of 150 who had attended the flipped histology teaching using audience response system. The results are tabulated as given below:

Table 2: Perceptions of students' regarding flipped histology classroom

S.No	Questions	Mean score
1	Flipped histology classes were useful in learning histology better	4.2
2	Flipped histology classes highlighted important topics necessary for practical examination	4.2
3	Flipped histology classes helped me in better retaining the histological concepts compared to traditional teaching	4.1
4	Grade the Usefulness of pre-reading material provided	3.9
5	Grade the effectiveness of Flipped histology classes in making you understand the topic as a whole	3.7

Table 3: Evaluation of Flipped Histology methodology (according To level 1 of Kirkpatrick evaluation model for teaching-learning methodology)

S. No	Questions	No of responses (%)	
		Yes	No
1	I Prefer Flipped histology teaching methodology over traditional teaching for improving knowledge	98	2
2	I like to have more sessions of this sort in future	99	1
3	Flipped histology teaching was more engaging and interesting than conventional teaching	98	2
4	I would also recommend same kind of sessions for gross anatomy teaching	47	53

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Discussion

The aim for developing this methodology was to extend the view of students beyond "visual memorization" and make the students aware of the structure – function relationship which makes them understand the disease manifestation better. Rampant increase in the availability of online materials and high quality images, has facilitated induction of flipped classroom in histology[3].

Our results lie in concordance with a study[6], where 80% of participants believed that their problem-solving abilities relevant to histology had been dramatically enhanced by joining the flipped classroom. In structured learning environment, discussion will increase the amount of practical knowledge and teachers can help students move into unknown areas (guided inquiry based approach) through a careful choice of task, resources (explained as in "JoHari window")[7]. To consolidate the knowledge constructed via in-class activities, we used the process of "concept mapping", graphical presentation of knowledge related to the study topic and demonstrating the relationship between its subdivisions. Concept map, grounded on Ausubel's assimilation theory of learning tries to present information in visual form and this is found to increase the knowledge recall and critical thinking[8].

Conclusion

An overwhelming majority of the students found these sessions beneficial and advocated their continued use. Our future goal is to study the difference in the level of performance caused by this methodology before it can be reliably implemented as a validated teaching modality.

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"GOOD DOCTOR" and "BAD DOCTOR": A Qualitative Study of First Year Medical Students' Views on Professionalism

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Introduction

Since the days of Hippocrates and Maimonides, the foundation of medical professionalism is said to be primacy of patient interest and subordination of self-interest[1]. Professional identity formation is a dynamic, inter-personal and subjective process that matters for future doctor-patient relationships[2]. The increasing concern on professional identity formation in professionalism education insist on "lists of values and behaviours" that can be generated by students themselves[3]. Owing to the highly competitive environment in the medical school, the desired 'professional identity' for medical students at earlier stages are mostly individually focussed. The important task of the medical educators is to help out the students in transforming into social justice oriented altruistic physicians. *Cruess et al.* [4], suggested that the real objective of teaching professionalism is to help the students develop their own identity as a physician. It can be said that, the rhetoric question of asking 'who they are' would guide, 'what they do' in future as physicians. When students enter into medical college, they have pre-existing visions and beliefs about medicine as a career. Medical educators, who wish to frame methodology for teaching professionalism, should take these predispositions, as a critical baseline for professional development[5]. Amidst the considerable proportion of literature addressing the negative issues of professionalism i.e., bad attributes of a doctor [6, 7], few studies have documented student's perspectives on the positive constructs of being a "good doctor".[8, 9] The principal aim of the present qualitative study is to allow the student to explore their own values, beliefs, and biases within the realities of societal norms.

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Methodology

The originating question we had in our mind was to find out in what ways the first year medical students in our institution perceive the constructs of "good doctor" versus "bad doctor". This study aims at elucidating themes from the self-reflective transcripts that challenges the students to consider the physician's obligations towards the society and reflect upon how they would be in their future careers.

Using the framework of *Cruess et al.,*[10] and *Bebeau et al,*[11], we developed a questionnaire based on the concepts of professional identity formation which had trigger questions like, "What are some of the reasons you decided to pursue a career in medicine?", "When you think of 'a good doctor,' what examples immediately come to mind?" It also contained dichotomous open-ended questions like, "What specific characteristics would you like to find in a doctor?" "What specific characteristics would you not like to find in a doctor? In the second phase, 150 students were divided into 6 sub-groups of 25 students each. Data were collected through Nominal group discussions amidst first year medical students. We used Nominal group technique because of its potential in inducing a discussion among the students, which could help in constructing knowledge from varied perceptions. We analysed the transcripts using the principles of grounded theory approach to generate themes and sub-themes.

Results

Regarding the question, "What are the reasons for your decision to pursue a career in medicine?" preliminary themes were generated and 6 main themes were obtained. The main themes are: *1) affective / humanitarian response 2) thoughts about further pursuits 3) fulfilment 4) traits of the profession 5) ability to contribute to the society and 6) personal experiences.* The responses for other self-reflective questions related to professionalism were amalgamated into following 3 major themes: 1.*The responsibility of the doctor to serve the underserved 2. Responsibility of the role model physicians who provided uncompensated care and 3. Role of a doctor in social advocacy.*

For questions like, "What specific characteristics would you like to find in a doctor?" and "What specific characteristics would you not like to find in a doctor?" the responses were tabulated in the form of concept maps (Figures 1 and 2) and the summated responses were generated at the end of nominal group discussions.

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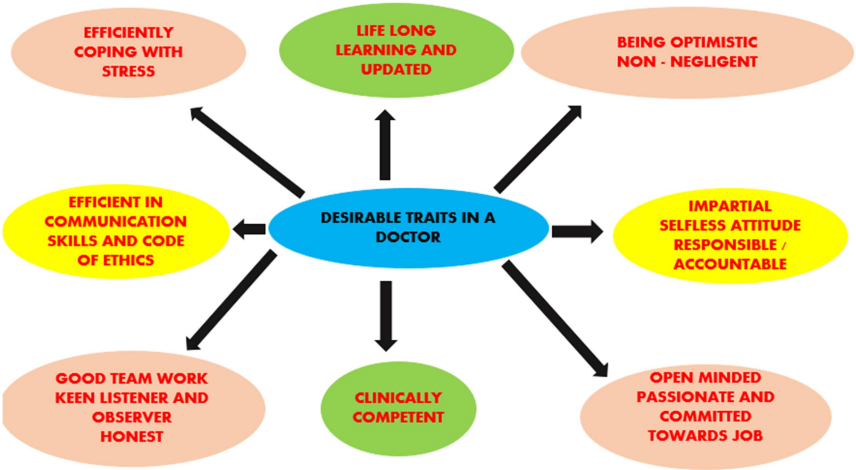
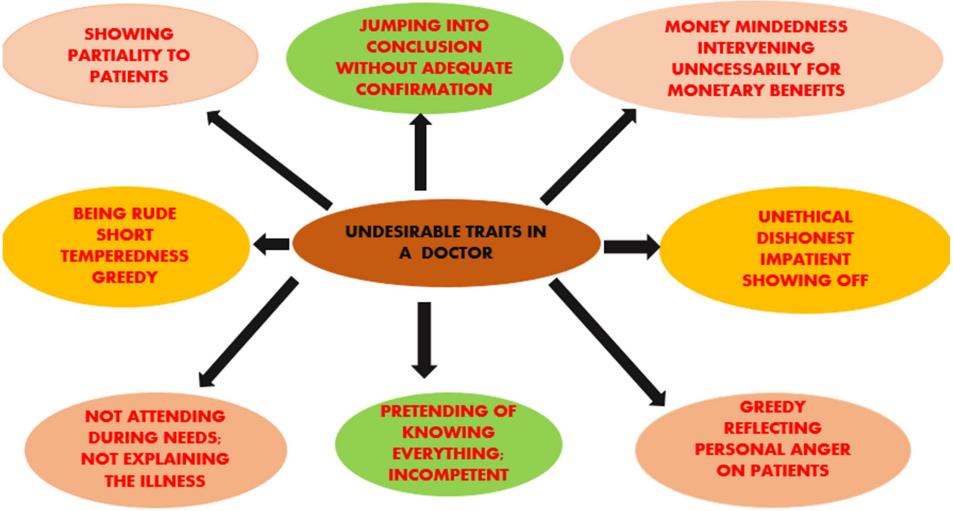
Figures: Concept maps accruing the desirable traits and undesirable traits, which students wish to find in a doctor





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Discussion

Exploring the ideas that medical students believe is crucial for developing a framework for professionalism. It has also been reported that the western framework of professionalism might not be appropriate in developing countries owing to the myriad socio-cultural contexts.[12] Student narratives can influence professional development, as debriefing allows individuals to analyse and synthesize information and emotional states and this helps them understand the informal and hidden curriculum. [13] Our aim was to provide a post-positivist view which, even though didn't give any meaningful or valuable information, might help the students understand and imbibe healthy professional identity formation. It also fell in line with *Mazrow's transformative learning theory* which helps the students become aware of their own assumptions and understand the context of their belief systems within social structures. The concept map obtained from the themes generated from the script can be clustered as *physician ability, patient-centred* and *professional* domains. Primary themes encompassed elements from can MEDS 'communicator' and 'collaborator' roles and tended to be aligned with the findings of *Martin S* [14], who proposed the concept of '3Cs' (communication, competence and care) that patients seek in a good doctor.

Conclusion

Even though, these themes expressed by the students can be viewed as being naïve and over idealistic, we can use them as a baseline based upon which the hidden curriculum can be nurtured. This study also highlights the interesting similarities and differences in perceptions regarding a good doctor and bad doctor. Our study is the first to document the perspectives of students on the 'good doctor' and we aimed at providing an insight into discourses on professionalism which are meaningful to students.

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Cadaver Ceremonies as a Foundation Step for Bioethics – A Phenomenological Study

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Introduction

A cadaver is the first "body" upon which students lay their hands. The ambiguous nature of the body, its possession of both personal and material qualities[(1)], is often difficult for us to resolve before the commencement of regular dissection course.[(2)] The affective domain of the students is not a static entity. It varies depending upon the response to situations which is largely mediated by individual experiences. The emotional learning can also be acquired. This calls for the "humanities" in medicine to be incorporated into the anatomy curriculum. In the West, the most common way of bestowing more personal qualities on the cadaver has been to regard it as the students' "first patient". [(3,4)] Medical schools in Thailand defy this view of "first patient" and treat cadaver much more like a social person and less like an object. [(5)] They confer the status of *"ajarn yai"* meaning 'great teacher' to the cadavers by two ceremonies, which seem to be a powerful means to define the atmosphere and an ethical framework for dissection courses: the dedication ceremony some days before the first course session and the cremation ceremony at the end of the course. [(5)]

Rizzolo LJ [(6)] had stated that, "The dissection experience serves naturally as a springboard for discussions of psychosocial issues that in turn help to broaden student perspective on patient care". When a student is getting exposed to stressors

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such as dissection, he / she experience early concern followed by detachment as a coping strategy by adopting an impersonal, scientific attitude, and this is finally followed by the re-emergence of concern during the clinical years.[7] Balancing between "detachment" and "concern" for cadavers, these ceremonies also aim at learner's reflections on mortality, respect, altruism, and personal growth depicted through various humanities modalities.[8]

The aim of the present study is to study the affective domain of the students during their first encounter with cadavers and to promulgate the above said humanities modalities by conducting didactic sessions and memorial services.

Methodology

Three initiatives were designed to promulgate humanistic attitude in first year medical students.

First Initiative: The "cadaver disrobing" ceremony aimed at documenting the affective domain of the students ("emotional impact") when they see the cadaver for the first time.

Second initiative: consisted of sessions on "humanities in medicine" namely "CURIOSITY FOR HUMAN BODY" which had three parts: global history of dissection, Indian history of dissection and role play to embark the value of cadaveric dissection.

Third initiative: "Gratitude ceremony for the first patient" which highlighted the the journey of the cadaver with the students, how it got progressively dismantled, how it got torn into pieces.

The primary research tenet which we had in our mind was "what would be the uninfluenced, purely psycho-social response of a student when he / she gets exposed to a cadaver for the first time in his / her life?" for which we had analysed the naïve presumptions of the participants using a phenomenological approach. Four common themes namely cognitive, affective, moral and behavioural were identified according to the "Triune brain model" proposed by *Mac Lean*.[9]

Results

The responses were generated as themes and generated in the form of a table. The excerpt of it is given below:

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Classification of responses	Comments
Affective	1. *"Emotionally disturbing"* 2. *"Feeling pity"* 3. *"I respect him because he is going to kick start all things in my career"*
Cognitive	1. *"Stitches in the right thigh- suggestive of injury / operation?" (n=5)* 2. *"Calluses and cuts in leg – what might be the reason?"(n=2)* 3. *"the skin outside is diseased somewhat"*
Behavioural	1. *"feeling excited" (n=4)* 2. *"feeling afraid to see an old male cadaver for the first time"(n=3)* 3. *"Feeling scary"(n=4)*
Moral	1. *"your sacrifice came to my mind when I first saw you"* 2. *"felt gratified to the person for donating his body for dissection"(n=3)* 3. *"empathy and compassion for the cadaver"(n=2)*

The reflections of the students during the gratitude ceremony was also documented and generated as phrases. Excerpts are given below:

- *"For me, right now, you are not 'the cadaver'. You are 'my cadaver' and I will always remember the things you have shown me"*
- *"When I am joining the college I had fear for cadavers but now I don't have it. On seeing the dissection of my cadaver I wanted to become a surgeon. My cadaver taught me to know my own feelings"*
- *"After death everyone wishes for dignified last respects. But the cadaver has sacrificed it to help us. By becoming good doctors, I am sure that we can pay the last respect to the cadaver"*

Discussion

According to *Bolton,*[10] emphasis of medical humanities should be on critical conceptualization and analysis, reflexivity and reflective capacity. Our primary aim was to document the pluralistic visualizations of the same subjective experience as it invokes new ways of thinking and interpretation. The differences in the perceptions can be explained by *Lief and Fox* model[7] of "detached concern". When he / she enters the clinical years, it is this would re-emerge as a compassionate concern. This is the ideology behind western medical schools

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advocating the students to consider cadaver as their "first patient". In our initiative also we conferred the same status to the cadaver. As per *Coser RL*[11], a medical student possibly have an "ambinormative expectations" by which he / she not only have to behave like a student while learning anatomy but also have to behave like a physician-to-be to treat the cadaver as a human with concern. Our initiative, by providing adequate scope for reflective writing, fulfils most criteria for a hidden curriculum and acts as foundation step for bioethics.

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“Specializing Anatomy” - Developing an Integrated Radiological Anatomy Module for the First Year Medical Students

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Introduction

The ongoing ‘‘anatomy debate’’ has polarized educationists between the so-called ‘‘traditionalists’’ who favour traditional cadaveric dissection and the ‘‘modernists’’ who favour newer teaching modalities. An integrated exposure of students to cadaveric specimens, radiographic images and clinical case scenarios improves the student’s understanding of anatomy, stimulates study and increases interest.[1, 2] On the other hand, radiology teaching in most universities is sporadic in nature. The lack of proper integration and variable teaching methodologies can only have a negative impact on the interpretation of radiological images which is mandatory for any undergraduate student. The ad-hoc teaching of radiological imaging by clinicians during various clinical postings seldom have documented objectives or goals for the students. This lacunae demands a committed framework for integrating radiology teaching in medical education. The need of the hour is a transparent vertical pathway that can be logically followed through the preclinical and clinical years of training.

The Royal College of Radiologists has made it clear that radiology image interpretation is central to ensure accurate patient management. Furthermore, it suggests that radiology images offer a powerful tool in supporting the learning process of anatomy and pathology, as well as in improving the understanding of disease and treatment response.[3, 4] The ‘eye of medicine’ is a resource with the potential to fill such gaps between basic sciences and clinical medicine. It can provide the future doctors with a succinct and true-to-life view of the normal as well as the disease processes in a non-invasive manner.[5, 6] *Rengier et al.,* had stated that “three-dimensional imaging and post processing helps to understand

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difficult anatomical structures and topographical relations in a better way".[7] The main emphasis we had placed while developing our teaching module is "visualization". Visualization, in the context of anatomy, can be defined as creating a mental picture of anatomical structures that is easily recalled. It is a powerful tool in learning anatomy since the complex spatial organization of the body across three dimensions is best represented visually.

Methodology

The integrated radiological anatomy module was designed to be delivered at the end of each session of regional anatomy. By this time, students would have acquired the orientation of viscera and bones from the dissection and lecture classes. It involves both teaching of sectional anatomy and correlating with radiological images. The schedule itself includes self-assessment exercises for students which helps them to ensure their understanding. Besides covering normal imaging and sectional anatomy, the module also include some pathological images, each shown within its clinical context. An excerpt of the module, depicting the integrated radiological anatomy module for the region of abdomen is shown below:

Abdomen and pelvis Part 2 (1 hour)	**Session 2** Basics of sectional anatomy, CT scan and difference in appearance of solid and luminous organs were explained. Triplet images at 5 different levels were displayed. It contains a. Unlabelled CT sectional image at a particular level (eg: L1) b. Unlabelled schematic illustration of section at that particular level c. Unlabelled image of cross section from atlas Following this, an interactive session challenging the students to	At the end of this session, the student should be able to: Identify disposition of viscera at different levels. Identify the level at which section is taken by analyzing the disposition of viscera. Identify the differences in the appearance of various viscera.

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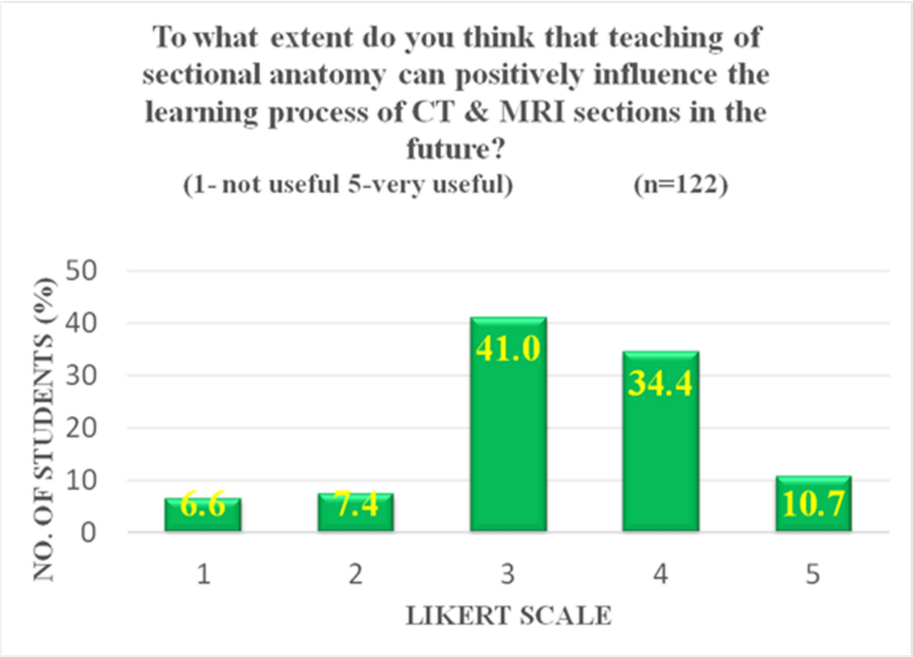
	identify the structures of the CT image shown first was conducted. This was repeated at 5 different levels.	

Results

At the end of the academic year, students were asked to grade the effectiveness of the imaging anatomy schedule. The responses (n=122) were recorded in an anonymous feedback. For questions which involves rating of the module, a five-point Likert scale (ranging from 1-strongly disagree to 5-strongly agree) was used to express the opinions of the students. According to the Kirkpatrick level 1 evaluation of teaching - learning methodology, the degree of acceptance was assessed.



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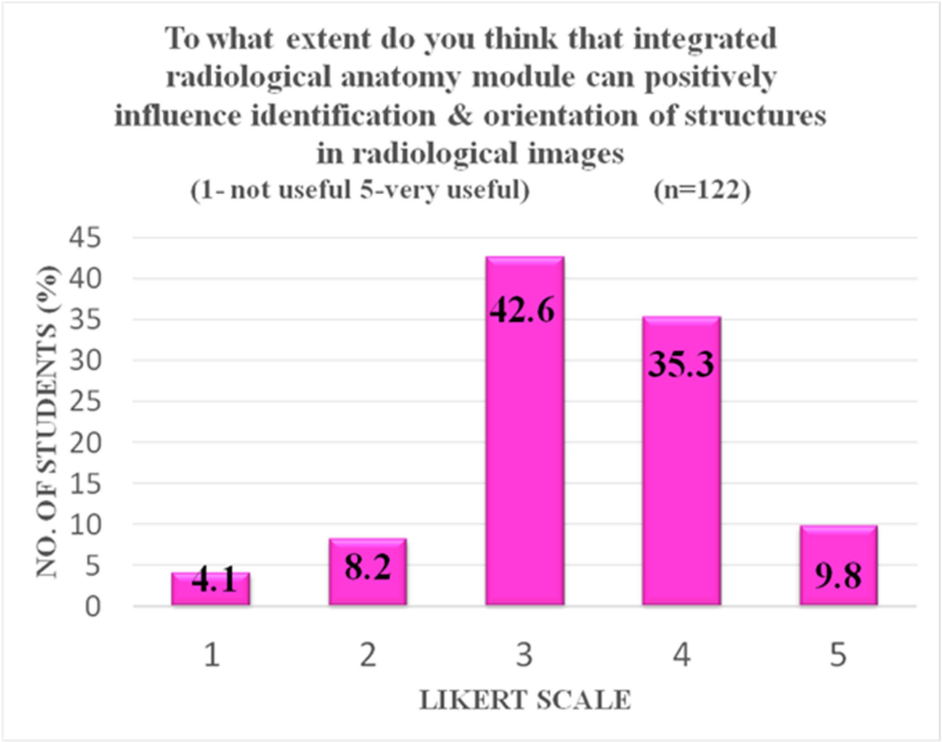

Discussion

Gross anatomy teaching which involves dissection involves learning in all three dimensions. Nevertheless, students often fail to appreciate arbitrary planes and structural relations in the course of such laboratory work.[8] *Mirsadraee et al.,*[9] conducted a study in which he sought review opinions of medical educationists from various specialities. 90.5% of the participants had agreed that radiology teaching should be taught in conjunction to anatomy dissection. 95.2% had suggested that radiology anatomy should be placed into undergraduate curriculum.

As said by *Schober et al.,* [10], "the transmission of information into long-term memory and the rapid recall in a clinical situation depend crucially on the conditions under which the information was learned". The above said statement was confirmed by a study by *Erkonen WE et al.,* [11] stating that, "this high level of long-term retention documents the effectiveness of integrating diagnostic radiologic images into normal gross anatomy instruction".[11] The module has been

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designed in concordance with *Elizondo-Omaña et al.,*[12] who has divided the clinical reasoning into five basic and three superior abilities. The basic skills includes identification, description, comparison and definition. In our module, the student needs to identify the region, describe the structures seen in a step-wise manner (eg: chest X-ray), compare normal images with pathological images and finally arrive at the morphologic diagnosis.

Conclusion

Our intention, by developing an integrated radiological anatomy module, is to inculcate the basic skills in interpreting radiological images, right from the first year of medical education. This could help the students to better understand the spatial relationships between anatomical structures and also the usage of different imaging modalities.

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Team Based Approach: Active Learning in Large Group Setting for Achieving Competent Health Workforce

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The context that required the initiation of the educational practice

Health care delivery has always been teamwork. The advent of 21st century embarks on equitable and ethical development of the global community. Developments during the last couple of decades have made many classrooms less conducive to student active learning and falling short of the acquisition of competencies. The number of colleges in India is over 355 with average intake of 45000 students per year. Lancet Commission Report 2010 states that Inter-professional education and health needs teamwork necessary for the transformation of health systems. This is in tune with the Second Revolution in Graduate Medical Education in structure and function globally perceived need for The years 2006 to 2015 will be the decade for research and development of Human Resources for Health (HRH). It is for the enterprising educators among us to rise to the challenge of meeting MDG through HRH. We have to address the same in Indian context through enterprising medical educators to assure our communities of competent work force.

Objectives of the educational practice

- To make undergraduate students aware of the relevance of their role in the community and health care delivery.
- The student is confident of "Must Know" topics in Community Medicine.
- Is able to actively acquire knowledge and apply the same.
- Be a team player.

The Educational Practice

It is conducted in two medical colleges of batches of 89 and 143 respectively in 2007 and 2010.

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The students were oriented regarding background and purpose alongside the process of working in teams and presentation their topic before their peers. Guidelines and ground rules laid upfront.
The students were divided into teams of 8-10 in first batch and 4-5 in second batch.

The key is in the selection of topics i.e in line with the background and objectives discussed above. They were guided to refer the learning material, the way of presentation and evaluation system. One week time allotted for the given topic. They were free to utilize reference text books, articles and internet facilities were accessed by the teams, all under the supervision of the facilitating faculty.

Their daily progress monitored, queries addressed. After one week they were made to make team presentations before their peers. Each team was given 15-20 minutes time and 5 minutes for discussion. All throughout since orientation the formal and non formal evaluation is done by the faculty against a checklist and evaluation tool.

Team	Topic
Team 1	Concept of Community Medicine – 1-5
Team 2	Socio – Cultural Aspects Impacting
Team 3	Health—6-10
Team 4	Medico Social Worker—11-15
Team 5	Demography—16-20
Team 6	Behavioral Sciences—21--25
Team 7	Social Psychology—26-30
Team 8	Dimensions of Health—31--35
Team 9	Medical Sociology –36 --40
Team 10	Difference between Society and
All teams	Community 41--45
	Under Graduate Etiquette—46--50
	UG Skillset to be aquired in PSM : 1--50

Results

Over 90% Students started were actively involved.
They came out with 9+28 topics in word documents and PowerPoint presentations
100% teams made power point presentations before their peers in teams.
60% teams made interesting and innovative concept maps as take home messages.
60-80% Constructive conscious discussions and inputs provided.

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100% self, peer, group and facilitator evaluation was provided in the evaluation tool provided.

Conclusions

Active involvement of over 90% students observed. Thoughtful interactions and constructive inputs provided during presentation. A turn around perspective shift noticed.

Outcome: Non formally over 50-60% Aware, confident, conscious team spirit observed.

Formal documentation of teams' works on the given topics was complied with initially 80-90% on all parameters, and 100% eventually, in the form of hard and soft copies of their work in MS word, Power point, job delegation amongst the team members, proactive gestures, taking ownership, responsibility was very evident. Complete documentation of the work is complied with for future peer reference, and their own evaluation.

Recommendations

Time tested. This approach can be emulated by sensitized committed faculty. Need of the hour.

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Attitudinal Study in Medical Teaching

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Introduction

The quality of medical teaching mostly depends on the positive attitude of the teacher which is reflected to a great extent in the quality of patients care ultimately by the future doctor. Since the medical profession deals with human life, so the teachers have a huge responsibility to the society to produce competent and compassionate doctors with adequate knowledge and skill. But unfortunately with increasing number of medical colleges in India, not only there is a shortage of medical teachers in quantity but also in quality, especially in smaller towns. Teaching is an art and the quality of teaching depends on the love, dedication and devotion of the teacher towards the subject. However, teacher with right attitude towards medical education can solve this problem to a great extent as positive attitude helps the teacher to be the role model for the future generation of students.

Aim

The aims and objective of the present study was an attempt to explore the attitude of medical teachers towards teaching medicine by conducting a random survey and recommending measures for any rectification in unfavorable attitude of the study group, so as to make teaching more effective.

Material and Methods

An attitudinal study was conducted in Rajah Muthiah Medical College & Hospital, Annamalai University to assess the attitude of 50 teachers ranking from Lecturers, Readers & professors, having a wide range of teaching experience from 3 to 30 years, in which 10 Lecturers, 15 Readers, 25 professors participated. The assessment was done by questionnaire format with Likert type scale with 20 different affirmative statements on various aspects of teaching like methodology, planning, student feedback, confidence and attitude, etc. Based on the scale of score ranging from 1-5 in order for strongly disagree, disagree, neutral, agree, and strongly agree with individual statement, the average score was calculated. More the score deviated on either side of 3, higher is the strength of attitude in that particular direction. To make the study a representative one, the faculty members

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from preclinical, paraclinical and clinical discipline were included in the present study.

Questionnaire Format

- Format training on teaching should be mandatory for all medical teachers.
- Medical teachers should frequently visit the library.
- Prior preparation is very much necessary for any class.
- Students learn better with use of audiovisual aids by the teachers.
- Feedback from the students is necessary to improve the teaching skill further.
- Microteaching is very much useful to improve the quality of teaching.
- Peer evaluation is an acceptable idea in teaching medicine.
- Factual details are not necessary in a net class.
- Humours and jokes facilitate learning during class.
- Short summer research projects for students are helpful to initiate questioning mindset.
- Private practice should not be allowed in the teaching profession.
- The proposed changes in the MCI(1997) guidelines on graduate medical education should be abandoned or suitably modified.
- Many teachers feel nervous and uncomfortable if students ask questions in the class.
- OSCE & OSPE are better methods for evaluation than the conventional method.
- There should be a blanket ban on opening of new medical colleges for the next 10 years.
- More emphasis should be given on PBL in medical education.
- There should be separate departments of Medical Education to promote modernisation of medical education.
- Academic audit should be introduced in all subjects.
- Students should participate in the evaluation of faculty teaching.
- Faculty should be involved in inter-disciplinary research efforts and spend more time in research.

Results

The mean attitude score for the group was 3.65 and the item wise score is given in the table. The maximum positive score (66%) was for the item No.2&3 and maximum negative attitude score (18%) was for the item No.11. The maximum neutral score was for item No.8(38%) followed by item No.16(36%) and item No.14 (32%). The highest average score was for the item No.2&3 (4.6) whereas

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the lowest average score (3.00) was for item No. 8&13, Not a single item in the whole group had a negative average score of below 3.00.

Table

Item No.	Individual Scores Percentage					Average Score
	Strongly Disagree	Disagree	Neutral	Agree	Strongly Agree	
1	2	12	10	32	44	4.04
2	0	0	2	30	66	4.06
3	0	2	2	30	66	4.60
4	0	12	12	30	46	4.10
5	0	4	12	30	54	4.34
6	0	8	18	40	34	4.00
7	2	6	10	62	20	3.92
8	4	24	38	26	28	3.00
9	0	8	14	50	28	3.98
10	2	8	18	46	26	3.94
11	18	16	20	24	22	3.16
12	10	2	18	28	18	3.05
13	12	22	22	40	4	3.00
14	6	4	32	44	12	3.50
15	12	12	24	22	30	3.80
16	0	0	36	34	20	3.80
17	0	0	10	40	25	4.40
18	0	4	14	44	34	3.90
19	0	6	14	50	26	3.90
20	4	4	6	28	40	4.20

Total Average Score: 3.65

Discussion

Attitude is a predisposition to respond in a persistent and characteristic manner in response to some situation which may be positive or negative. It is also defined as a learned proposition to act favorably or unfavorably towards a person or on object[(1)]. Attitude is the mental readiness which shapes the way we perceive which may influenced by knowledge, emotion, personality, situation & society etc. Attitude is not innate or unlearned like physiological motives but it is acquired by us. Many of our attitudes are the result of reflection and purposeful thinking or

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outcome of training and suggestions from others. What attitude we choose to adopt depends on our motivation, needs and personality pattern. Prejudices and biases may lead to negative attitude as a result of worry or false knowledge. Favourable attitude is indicated by ambition to do the task well, in conformity with the rules and maintaining a consistent pride in the profession with determination to grow professionally with cheerfulness and optimism. In the absence of favourable attitude, even good ideas do not get converted to practice in reality. Any intervention aiming at changing the method of imparting knowledge or curriculum should be aimed at changing the attitude of teacher.

It is worth nothing that not many studies are conducted in India to assess the attitudes in medical teaching. Most of our attitudes are acquired by as a result of pressure of peers or may be the outcome of some experience which has a tendency to persist or continue. With person to person interaction, the attitude of the trainee changes in the same direction as that of the trainer, who is seen as a role model.[(2)]

The aims and objective of the present study was an attempt to explore the attitude of medical teachers towards teaching medicine by conducting a random survey and recommending measures for any rectification in unfavourable attitude of the study group, so as to make teaching more effective. As per the observation in this study it was found that the mean attitude score for the group was 3.65 which is over all a positive score and comparable to some other similar studies in reputed Institutes like CMC (Ludhiana) and MGIMS (Sevagram) where the mean score was 3,51&3.80 respectively.[(3)] One of the important observation in this study was that though no negative attitude was found in any of the items individually in the mean score but a maximum of neutral score (38%) was found in item No.8 which perhaps indicates the unfamiliarity of the faculty in internet or computer based teaching methodology. Similarly, the neutral score in item No.14 (32%) and item No.16 (36%) was very significant to note which also indicates the unfamiliarity of OSCE & OSPE as a method of evaluation & problem based learning (PBL) in medical education. The maximum negative score in item No.11 indicates that the medical teachers deserves a better salary and teachers are not comfortable with the student's need of clarification which is found more in case of less experienced teachers. It is very encouraging to note that 40% of the study group strongly agree with the item No.20 that faculty should be involved in interdisciplinary research efforts and should spend more time in research but only 26% strongly agree with item No.19 that student should participate in the evaluation of teaching faculty. Similarly only 20% in the present study strongly agree with item No.7 about peer

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evaluation. The change in attitude can be brought about by group discussion and microteaching as a part of faculty development programme. In the process of microteaching, the teacher can be evaluated by the peer group for the drawbacks and students can give constructive feedback also which can help the teacher in achieving the desired attitudinal change.[4]

It is also interesting to note that 30% strongly agreed with item No.15 for a ban on opening new medical colleges for a decade and 34% with item No.18 for introducing academic audit for improving the quality of medical education. It is worthwhile to mention here that almost a hundred years before in 1910, Abraham Flexner had written in his famous report that the problem of medical education is the excessive number of schools and the situation can improve only as weaker and superfluous medical schools are extinguished.[5] "An education in medicine" wrote Flexner, "involves both learning and learning how, the student cannot effectively know, unless he knows how". There was a profound impact of Flexner's report on American medical education to such extent that by 1910, Americas 166 medical schools are reduced to 126, by 1915. It was further reduced to 96 and by 1930 there were only 76 schools in USA.[6,7]

Conclusion

In spite of difference of attitude and opinion on various issues involving medical education, there is a positive attitude in teaching which helps the teacher to be role model for the future generation of physicians. However development of the right attitude needs self-improvement in a lifelong process of pursuing teaching as a career and attitude, if positive, is contagious which is worth catching.

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Observe, record, tabulate, communicate. Use your five senses. Learn to see, learn to hear, learn to feel, learn to smell and know that by practice alone you can become an expert.

-William Osler

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Facilitating Learning in Low Achievers by Giving Assignment in Must Know Areas of Pharmacology

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Introduction

The additional batch students belonging to Vth semester seemed to lack the basic concepts of Pharmacology. Many measures have been taken during one-year to improve their performance, which included taking tutorials and revision classes. However, the students came to these classes without any preparation and they lacked self-involvement. Hence giving assignments in must know areas of selected topics in Pharmacology were considered as one of the measures to improve their performance in the exam.

Hypothesis

Assignments in must know areas will help low achievers to perform well in exams.

Objectives of the educational practices

To find out the role of assignment in improving the performance of low achievers.

Method

The study was conducted for one month (March 2007) during lecture class and tutorials. Assignments were given to all 13 students belonging to Vth semester in must know areas of selected topics in Pharmacology. The lecture topics (each of one hour duration) included Anticholinergics, Respiratory system, Diuretics, Blood, Gastrointestinal system, Antimicrobials and Anticancer drugs. The tutorial topics (each of two hours duration) included Autacoids, Cardiovascular system, Endocrine system and Central nervous system. The assignments were given in the form of short notes and the students were asked to complete it in the classroom within the allotted time. The assignments were preceded and succeeded by pre and post-tests respectively from the same topics. Feedbacks were given to students at the end of each class. After a month, improvements in the performances of students were assessed by comparing their send up exam marks with IVth sessional marks.

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Study Plan

Duration: The study was conducted for one month, during March 2007.

Time allotted: 19 hours [number of theory classes - 9 (1 hr each); tutorial classes - 5 (2 hrs each)].

Assignments: were given in the form of short notes & problem based questions.

Pre & post - test: were given in the form of MCQs (both single responses & problem based questions)

Statistics

1. Pre - test and post - test performances were compared at the end of each class by using *paired t test*.
2. Performance of students in IVth sessional exam was compared to performance in send up exam by applying *paired t test*.

Graph Pad Instat version 3 was used for statistical analysis.

P value < 0.05 was considered as statistically significant.

Results

The performance of the students in pre & post tests as well as in IVth sessional and send up exams were compared by paired t test using graph Pad Instat. The results are given in the following tables.

Table: 1

Assessment of low achievers before and after giving assignment

S.no	Topics	Pre - test (mean ± SD	Post - test (mean ± SD)	P value
1	Anticholinergics	3.69 ± 2.89	5.46 ± 2.53	0.1
2	Respiratory system	3.76 ± 3	5.84 ± 3.41	**0.0039 ***
3	Diuretics	4.46 ± 2.6	6.84 ± 2.76	**0.0015***
4	Blood	6.23 ± 1.92	8.61 ± 1.85	**< 0.0001***
5	Chemotherapy	4.3 ± 3.27	4 ± 3.74	0.6
6	General Pharmacology	5.38 ± 2.32	7.15 ± 3.02	**0.01***
7	Autacoids	4.84 ± 2.11	6.46 ± 1.85	**0.004***
8	Cardiovascular	3.15 ± 2.79	5.07 ± 3.45	**0.0049***

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	system			
9	Endocrine system	3.46 ± 1.5	4.46 ± 2.5	0.11
10	Central nervous system	5.15 ± 3.23	4 ± 2.82	0.07

N=11 in each group; *= significant as P< 0.05;

Table: 2

Comparison of internal assessment marks before and after assignment in low achievers

Student No	**Total marks**			
	IV sessional		**Send up**	
	200	**%**	**200**	**%**
1	86	43	89	44.5
2	79.5	39.75	94	47
3	94	47	113	56.5
4	40	20	47	23.5
5	105	52.5	119	59.5
6	39	19.5	44	22
7	121.5	60.75	121	60.5
8	121.5	60.75	119	59.5
9	90.5	45.25	90	45
10	48.5	24.25	62	31
11	73	36.5	82	41
Mean ± SD	40.84 ± 14.75		44.54 ± 14.13*	

Mean ± SD was calculated after converting the marks for 100. *** p = 0.006**

Discussion

The additional batch students (January 2006 batch) belonging to Vth semester were lacking in the basic concepts of pharmacology. Measures like tutorials and revision classes were taken in the past one year to improve their performance. However, the students came to these classes without any preparation and they also lacked self-involvement. Hence giving assignments in must know areas of selected topics in Pharmacology was considered as teaching-learning method to involve them

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actively during classes and also improve their performance in the send up exam. All the 13 students belonging to additional batch were involved in this project. Permission was taken from Head of the department, Pharmacology to conduct all lecture and tutorial classes for the month of March 2007. Assignments were given in the form of short notes and problem based questions, taken from must know areas as per Medical Council of India (MCI) guidelines. To assess their active involvement while writing assignment, pre and posttest questions taken from the same portions were given before and after assignments.

In the present study, posttest performance was significantly improved in topics like respiratory system, diuretics, blood, general Pharmacology, autacoids and cardiovascular system. In topics like anticholinergics and endocrine system posttest performance was better than pretest marks, however, it was not statistically significant. (Table. 1)

Since two students were absent for IVth sessional exam their names were removed and only the performances of 11 students were included for comparison of marks. The marks obtained by the additional batch students in the send up exams conducted in April 2007 were higher and statistically significant compared to the IVth sessional exam conducted in February 2007. (Table 2)

Conclusion

Giving assignments in must know areas of selected topics helps low achievers to perform well in exams. In the present study though significant differences were seen between the send up and IV sessional exam marks, it was not of academic significance as only four students out of eleven got more than 50%. However, conducting such programmes from the beginning of the session may help low achievers to improve in the long run.

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Creating Academic Clubs for Slow Learners to Improve Learning Outcomes

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Introduction

This is a pilot program conducted for a period between Aug 2007 and Jul 2008. The fact remains that the selection and entry criteria for the students in most of the private medical colleges are not based on strong academic achievements when compared to government colleges and hence most of the students are academically weaker. Most of the students are slow learners and their knowledge in the "must know" areas of subjects is also relatively weaker and this is not desirable. Also their ability to prepare themselves for presenting the answers to the questions in the examination needs to be improved. This calls for some additional efficient methodologies apart from the standard class room teachings to spur their learning capabilities.

Objectives of the Educational Practices

- To create an Academic club to help slow learners improve their learning abilities.
- To help students learn subjects in an interactive way.
- To assess individual performance continuously.
- To handhold students in improving the learning ability.
- To encourage participatory learning.

Methods

Academic club: It is a type of teaching tool which complements the class room sessions but does not replace the class room sessions. It lays a platform for discussions in small groups in a non-classroom environment, facilitating the gathering of senior teachers, Junior teachers, skilled students and slow learners. In these sessions, the slow learners would observe the performance of skilled students. The main focus of these sessions will be ensuring the involvement and participation of slow learners which is critical.

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Composition: In the standard class room layout, the students are disbursed in certain order to begin with. But generally the students cluster together based on their preferences. It normally ends in a layout wher the academically strong students sit together and the weaker students cluster together with minimal interaction between the academically strong and weaker students. Since the focus of the Academic Club is on the slow learners, the first step is to identify the slow learners. The slow learners are identified based on the marks scored by them in the formative examinations. Once they are identified then the students were clustered into small groups. While this clustering is done, care should be taken to ensure that each small group consists of equal distribution of bright students and slow learners. This type of grouping will encourage much higher interaction of slow learners with bright students. Each group was assigned to a teacher and a couple of observers who are senior professors.

Pre-Test: To help properly measure the outcome of the exercise it was decided to test the students before and after the exposure to this pilot program. Hence a pre-test was conducted for all the students. The key aspects of the pretest were:

- Mycology which is a branch of Microbiology was chosen as the subject.
- This topic was already taught in the regular class room session for all the students.
- All the students were asked to prepare their own questions in this topic and the answers before the Academic Club session.
- Students were given the option to present their topics in any form of their choice like Essays, Short Questions, Multiple Choice Questions etc.

Academic Club Sessions: After the pre-test the Academic Club sessions were conducted. The duration of the session was two hours. During that time, a teacher and two observers moderated the group of 25 students.

- Students were asked to present in random order.
- They were asked to focus on topics which are "must know".
- Open discussions by the participating students were encouraged during the session.
- The presentation method corrections were given by the teacher'
- The observers reviewed the entire process and they also gave the suggestions to the students.

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During this session, the teacher and the observers focused on assessing the following as the outcomes.

- Individual performance of each student.
- Self-learning ability.
- Communication skills.
- Ability to share knowledge with other students.
- Listening ability.

Results of the pilot program

After the Academic Club sessions, one more test was conducted to compare the results of the same students against the pre-test results. There was a significant improvement in the results of the slow learners. Apart from the improvement in the scores, there was a good improvement in the approach, confidence level, involvement and commitment. This approach gave a good opportunity for the slow learners to watch the bright students which was a good motivation to them. Also the informal environment encouraged the students to come out in the open and make good presentations.

The marks scored by the students in general in the pre-test clearly showed that the overall level of the students is poor as illustrated below (Table 1).

Table 1

Marks Scored out of 100	Very slow learners (14 additional students)	Regular students (132)
Zero	2 out of 14	25 out of 132
1 to 39	11 out of 14	59 out of 132
40 to 69	Zero out of 14	l6 out of 132
70 and more	Zero out of 14	13 out of 132
Absent	1 out of 14	19 out of 132

There was a considerable improvement in the overall performance of the students in the test conducted after the Academic Club sessions. Some of the highlights of the results comparison are:

- The number of students who scored zero came down to nil as against the 25 students who scored zero in the pre-test.
- The number of students who scored less than 40 came down to 6 as against 59 in the pre-test.
- The number of students who scored between 40 and 69 went up to 82 as against 16 in the pre-test.

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- The number of students who scored more than 70 went up to 41 as against 13 in the pre-test.

The comparison of marks scored in the pre-test and post program test clearly indicates there is a dramatic improvement in the skill levels of the students (Table 2).

Table 2

Marks	Number of students	
	Pre Test	Post test
Zero	25	0
1 to 39	59	6
40 to 69	16	82
>70	13	41
Absent	16	3

Discussion

The whole program is a deviation from regular class room environment. Students can learn it an informal situation and informal interactions with each other. Academic club will provide a platform for slow learners to observe the performance of the skilled students, and they could change their attitude and improve their self-learning ability. But appropriate planning is very important. Also the teachers should reorient and work whole heartedly to make the Academic Club a success.

Conclusions

Academic club has produced considerable improvements in the motivation level of the slow learners. The informal interactions with the faculty members encouraged students to learn better from the faculty members. Students learn the novel concepts with ease. This approach will ensure that show learners are no more lazy. This will encourage collaborative thinking and improve communication skills.

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المنارة للاستشارات

Use of Group Discussion as a Teaching Learning Method to Introduce Pharmacotherapeutics and Rational Drug Use

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Introduction

Medical students in the 3rd and 5th semesters mostly do not take the trouble of correlating text book learning to clinical problems, due to which Pharmacology learning has become largely theoretical. Also the knowledge gained by a student during clinical postings is not shared with the rest of the batch mates. Therefore it was thought that group discussion can be effectively used to address these issues. The objective of the study was:

- To utilize group discussion as a teaching-learning method to introduce the concepts of rational drug use and pharmacotherapeutics among undergraduates.

Methods

The study was conducted in the department of Pharmacology of Amala Institute of Medical Sciences for a period of 3 weeks during the practical hours of the MBBS students. The students had completed most of the regular theory and practical portions and were towards the completion of the 5th semester.

Each batch of 33 students was subdivided into 4 groups of about 8 students each. One student from each group, who had been previously asked to record the history, physical findings, investigations and treatment schedule of a pre-identified case, presented the case to the group. The students had group discussion on the rationale of the use of these drugs, which in turn led to discussion on the action, mechanism of action, rationale for use, adverse effects, drug interactions etc of each of the drug prescribed. Each group then presented their point of view to the entire batch in the presence of the faculty member.

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All the students got an opportunity and took turns in presenting cases in the subsequent classes. The cases discussed included coronary artery disease, diabetes mellitus, chronic obstructive pulmonary disease and cirrhosis of liver.

Results

A written feedback on this teaching- learning method was obtained from the students. 77% of the students found this method very effective and reported that it takes learning from the knowledge level to the application level. 23% students did not find the method that useful, especially with the impending final internal assessment examination.

Discussion

The following were the limitations of the study:

- Discussion could not be limited to the stipulated time for the sake of completion of case discussion
- Peer faculty evaluation could not be done.

Majority of the students were in favour of having group discussion as an effective teaching-learning method to understand the concepts of pharmacotherapeutics and rational drug use. Like other active learning methods this method also promoted reflection among the learners on the subject content and the teaching learning process. Students felt that their learning and retention was facilitated effectively. Hence this method can be continued for the ensuing batches of students after devising strategies to overcome the drawbacks and incorporating suggestions for improvement from the peer staff and students.

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Group Discussion as Teaching-Learning Method among Problem Learners

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Introduction

It is a common experience to all teachers that the level of understanding differs widely from student to student. Generally 8 to 10% of students in a regular batch of admissions fare poorly. There are several reasons like language problems, lack of motivation, to mention a few. They form a group of 'slow learners or problem learners'. A teacher can take up these problem learners as a special group, evaluate their needs and help them out to face not only the examinations but build confidence to practice the profession. This requires attention to develop their communication skills along with analytical thinking.

Group discussion as teaching-learning method is a known method that addresses the problems of communication and cognitive skills. A small group of 2-6 students can interact well rather than a large group. This teaching-learning method theoretically appears to be an approach for problem learners. Hence a study is undertaken where group discussion as a teaching-learning method is applied among the problem learners and its efficacy was evaluated.

Methods

A batch of 30 students of VI semester who identified as 'problem learners' based on their last semester achievements and current internal assessment marks were taken as a group for the study. The group was taught subjects covering ear disorders by lecture method (15 sessions) for a period of 8 weeks. At the end of sessions the group was evaluated by a knowledge test with 60 MCQs. Nose and para nasal sinus disorders were taught using group discussion method. A total of 14 classes were taken for a period of 8 weeks and evaluation was conducted at the end of sessions using 60 MCQs. Each group discussion contained clinical problems given as handouts. Each clinical situation is either related to pathology or diagnosis, or management. Some clinical situations were presented by way of power point slides. Students' feedback was obtained at the end of every group discussion session. The students were asked to write their comments on the content, handouts, power point slides and any difficulties faced during the session.

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Out of 30 students, two were absent in both examinations and two were absent in the second assessment only. Thus only 26 students participated in both evaluations. The results were analyzed by comparing the percentage scores obtained at the end of lecture sessions and group discussions. Feedback comments from the students in each session constituted their attendance and it varied from session to session.

Results

Percentage scores of each student obtained after I and II examinations were compared. There were 13 students who did not succeed (less than 50% score) in the first test (Group A). Those who scored more than 50% were labeled 'Group B'. There were no failures in the second test (Table I). A 30% gain in the scores is arbitrarily taken as "significant" (The lowest scorer has 18% in the first test) to evaluate whether group discussion as teaching-learning method has any benefit over the standard lecture method. The students were divided (based on the scores in the first test) into three groups - one with scores 0-30%, 31-49% and 50-70%(Table II). The upper limit of 70% was taken into account as 30% gain is not feasible for high scorers.

The feedback scores on group discussion out of 14 sessions with variable attendance were obtained on the content, handouts, power point slides and other tools (radiographs, audiograms and skull bones). The total feedback forms obtained were 366. Content was found to be useful by 95.6% handouts were found to be useful by 94.2% power point slides were found useful by 93.1% and other tools were found to be useful by 95%.

Table I:

	No. of students with 0-49 % Score	No. of students 50 o/o and above
I test	13 (Group A)	13(Group B)
II test	0	26

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Table II:

Gain of 30% score among the groups (score less than 30%, 37-49%, 50% and above in the I Examination)

I test performance	No. of students N:26	No. of students who gained 300/o over the previous scores
0-30% scores	5	5
31-49% scores	8	7
50% to 70%	11 (13)*	2

*Two were not considered as their scores were >70%

Discussion

Face to face interaction between members of a small group (5 to 10 persons) is termed "group discussion". The main ingredient of the group discussion is activity on the part of the learner and it is democratic. The more the modalities of learning challenges presented, the more the activity of the learner, that results in a greater experience and insight. Active learning involves some kind of experience and some kind of dialogue. The two main kinds of dialogue are "dialogue with self" and "dialogue with others". Both are achieved in the group discussion as teaching-learning method.

In the present study, the problem learners who could not fare well in the first test were 13 (50%). The remaining students fared well in both the examinations. When a gain of 30% score is taken as significant improvement in the performance of a student, the group with poorer scores (less than 30%) showed tremendous improvement. The overall improvement was found in 12 out 13 students. However, in Group B (50% and above) did not benefit much from the group discussion. Only 2 out of 11 could achieve a gain of 30% score. It appears that group discussion as teaching-learning method is a reliable method for low achievers or problem learners.

The feedback assessment scores clearly showed that active processes like various tools, handouts along with problem oriented learning will enhance the efficacy of group discussion as teaching-learning method. In our study, there was a

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good turnout for the group discussion sessions as the attendance was doubled. Group discussion involved the students in heated debates. It also helped the group to respect the other's view point. It also made clear that everyone in the room may not share their beliefs.

Some of the students asked for frequent shuffling of groups. Regrouping periodically makes an inactive group suddenly becoming active. Teacher should always consider how to maintain the group dynamics. The study has not evaluated the communication skill improvement. Most of the examinations on clinical subjects incorporate case presentations and viva. It would be interesting to study whether group discussion as teaching-learning method makes the learners any better in their communication skills.

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Evaluation of Effectiveness of Lecture by Pre-test and Post-test Analysis

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Introduction

In the subject of Biochemistry, a 1st year M.B.B.S. student attends about 120 hours of didactic lectures, in which the theory syllabus prescribed by the university is covered. Of late, teaching media used for lecture classes have been shifted from traditional blackboard teaching to the use of 'Over Head Projector' and 'Power-Point presentations, solely or in combination. A teacher must know the proper use of such media for effective learning. Also, the effectiveness of their use in lecture classes needs to be assessed and learn to improve upon their use as teaching tool more valuably. The objectives of the study were:

- To evaluate the effectiveness of lecture and attentiveness of students at the end of lecture class by assessing whether the learner has followed the contents taken in a lecture class by means of Pre-test and Post-test scores and
- To evaluate the overall effectiveness of a series of lecture classes by using a feedback questionnaire.

Methods

The study was conducted on the students of 1st M.B.B.S. (2008-2009 Batch) attending didactic lecture classes at Sri Devaraj Urs Medical College, Kolar. A series of 10 lecture classes was used for the study. A set of 10 Multiple Choice Questions (MCQs) having four choices as Pre-test were provided at the beginning of respective lecture class in the first 10 minutes and the students were instructed to mark the best response. After collecting the Pre-test sheets, topic was presented by using both power-point and blackboard in the same lecture. In the last 10 minutes, the same set of 10 MCQs were given as Post-test to all the students. MCQs were designed based on specific learning objectives of the topic taken in the lecture class. At the end of the study, a questionnaire (set of 10 questions) was given to all students and feedback was taken to evaluate the effectiveness of these lectures.

The Pre-test and Post-test MCQs were evaluated and the scores were compiled for each lecture. Statistical analysis was carried out between the Pre-test and Post-test scores of each lecture by using paired 't' test.

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Results

Table depicts the average scores of Pre-test and Post-test of each of the 10 lecture classes. There is a clear increase in the mean score of Post- test compared to Pre-test in all the 10 lectures.

Table: Profile of Pre-test and Post-test Scores

Lecture	No. of Subjects	Mean ± SD	
		Pre-test	Post-test
1	121	2.9 ± 1.524	9.6 ± 0.941*
2	131	3.5 ± 1.248	9.2 ± 1.261*
3	137	5.0 ± 1.534	9 3 ± 1.141*
4	141	3.6 ± 1 .623	8.8 ± l.582*
5	142	3.3 ± 1.445	8.9 ± 1.496*
6	146	3.2 ±1.502	8.7 ± 1.559*
7	141	4.4 ± 1.730	8.8 ± 1.224*
8	144	4.4 ± 1.520	8.6 ± 1.578*
9	138	5.1 ± 1.686	9.0 ± 1.740*
10	83	3.4 ± 1.659	8.7 ± 1.802*

*$p < 0.001$

In the overall ratings of lecture class on a 5-point scale from excellent to worse, 90% of students agreed that the lecture classes were 'Good-Excellent' category.

The use of AV aids was found to be appropriate by 97% of students. The background for slides was found to be appropriate by 88% of students and font and letter size were deemed to be appropriate by 94% of students. The total number of slides per lecture were thought to be adequate by 94% of students and explanation of each slide was felt to be adequate by 82% of students. 18% of students felt that some more explanation was required. 90% of students said that there was no overcrowding of slides and 97% of students commented that there were no distracting animations. Audibility of lecture was found to be good by 96% of students. 97% of students felt that equal attention was paid to all students and 98% of students found that testing of knowledge improvement was useful.

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Discussion

It is a general observation that the didactic lectures taken by use of single yet popular media namely blackboard is hard to concentrate for the entire hour from the student perspective and also it is difficult from teacher perspective to concentrate on students and keep them attentive for the entire hour. Proper use of newer media like power point presentation along with blackboard can make the lecture more interesting and also helps in keeping them attentive.

This study suggests the lecture classes by using such media were effective and also the use of media was appropriate to cover the portions in the didactic lectures. Improvement in Post-test scores in each lecture class was highly significant with $p < 0.001$. Also 90% of students agreed that these lecture classes were in 'Good-Excellent' category. 98% of students said that the tool used for testing of knowledge was useful. Also the feedback clearly reveals the adequate use of number of slides per lecture, with proper use of fonts, letter size and animations. Focus of slides and audibility of lecture with attention paid to the students was very well appreciated. However, since 18% of students responded that some of the slides needed more explanations, which is one of the areas that need to be focused upon for improvement.

MCQs designed as an assessment tool in the present study served three purposes:

- ‘Set induction’ to the lecture
- Keeping the students alert by orienting them to the topic as a whole.
- 'Summary' at the end of the lecture.

Positive feedback given by the students regarding the entire set of lectures was highly encouraging and such feedback creates interest among teachers to improve and also towards more interactive and effective teaching- learning sessions.

Conclusion

Orienting a student towards the topic taken for didactic lecture along with the proper use of media not only creates interest in the learner but also makes them attentive and keeps them alert to learn better. Pre-test and Post-test MCQs can be used as one of the means of evaluating the effectiveness of lecture. Feedback from students can not only evaluate the lecture effectiveness, but also bridge the gap by teacher- student interaction and help the teacher to improve.

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Validation of Question Papers in Community Medicine Set by RGUHS, Bangalore

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Introduction

Majority of the times the question papers are not structured properly with relation to its content, objective and form of questions which makes it difficult for students to understand them. Many times the question paper will not test all three domains viz cognitive, affective and psychomotor. To overcome this problem the present study was undertaken to validate whether the question paper structuring is effective or not by the students and staff by using checklist. The objectives of the study were to

- Validate Community Medicine question paper by undergraduates and staff members and
- To analyze the responses between these two groups.

Methods

The participants involved in the study were 6th term and 8th term students and staff of community Medicine Department in B.L.D.E.A's. University Shri. B.M. Patil Medical College, Bijapur.

A total of 30 students were selected by simple random technique, 15 students each were selected from 6th and 8th term.

Question papers from the previous five years i.e. 2004-2008 were selected. Each year has 2 examinations and each examination has two question papers. So a total of 20 question papers were validated. The validation of question paper was done by using the following checklist which consists of 10 questions.

1. Has the paper covered the syllabus?
2. Does the paper test full range of abilities?
3. Has the weightage to different topics/forms of questions/ objectives been adhered to?
4. Are the questions neither too easy nor too difficult to average students?

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5. Does the question paper has comparability of options in terms of objective, content, form and difficulty?
6. Are the questions precise and unambiguous?
7. Is there any excessive overlap between questions?
8. Can the paper be satisfactorily answered in the time allotted?
9. Is the question paper comparable in standard with those of previous years?
10. Does the paper avoid repetition of questions which appeared in previous year?

Apart from the checklist, open ended questions were asked–to give their opinion regarding the question papers. Statistical analysis was done by using percentage proportion and Chi-square test.

Results

Table – I
Responses of 6th and 8th term students

	6th Term Students	8th Term Students	Total	%
1	43	66	109	15.37
2	41	64	105	14.80
3	73	55	128	18.05
4	20	30	50	7.05
5	45	50	95	13.39
6	21	9	30	4.23
7	23	20	43	6.06
8	62	70	132	18.61
9	2	9	11	1.55
10	2	4	6	0.85
Total	332	377	709	100.00
Pooled X^2 :	26.13			P<0.001

The Table I shows that 18.61% of students were of opinion that time allotted was not sufficient and 18.05% of students thought that weightage of different topics, form of question and objective was not proper.

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The statistical significance was found between 6th and 8th term students at P<0.001. This could be due to the fact that 6th term students though had completed the syllabus were not thorough as they were yet to appear for exam in 7th term, whereas 8th term students had passed in the subject.

Table. II
Response of Teaching Staff

Checklist No.	Staff	%
1	13	17.56
2	5	6.75
3	1	1.35
4	7	9.45
5	10	13.51
6	8	10.81
7	5	6.75
8	6	8.10
9	5	6.75
10	14	18.91
Total	74	100.00

The Table II shows that 18.91%f the staff said that repetition of questions was maximum and 17.56% of them noticed that question paper has not covered the syllabus.

Apart from the checklist there were other findings in question papers like spelling mistakes, same questions being asked for short essay and short answer question, some questions which were asked the answers of which were not given in new editions of books, break up of marks distribution was not proper, too lengthy answer for 3 marks questions and too short answer for 5 marks questions.

Discussion

From the study it is obvious that there is need to improve the standard of question paper setting in relation to objective, content and form of questions, marks distribution according to questions, uniform coverage of the entire subject and avoiding repetition of questions.

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Reinforcing "Must Know" Topics in Problem Learners through Assignments Facilitate Academic Performance

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Introduction

Learning capability differs from one student to another. For an educational process to be effective, the teacher needs to be aware of these differences. Slow learners or problem learners comprise about 8-10% in any class of students. Slow learners either lack motivation, have language or curricular problems. As a result they do not actively participate in the group discussions and score poor marks in the formative examinations. The teacher can help these students understand what they must know to pass the examination at the same time build confidence in them to learn.

A batch of 75 students enter 3rd semester. The average failure rate in each batch is about 5%. But the problem learners comprise about 10-15%. The problem learners lack motivation, are unaware of the must know areas, have difficulty in remembering important facts or are disinterested. When their peers answer well in the class and score good marks, the problem learners feel inhibited and do not come forward with their doubts. Some teaching-learning activities like group discussions and tutorials are being conducted regularly, but they have not done much to improve the pass percentage in the intermediate examinations. Therefore, it was thought that individual attention through assignments and appropriate feedback would help the problem learners develop interest in pharmacology and score better marks.

Objectives of the Educational Practices:

To find out the role of assignments and individual attention with feedback in improving academic performance in pharmacology among the problem learners of second MBBS.

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Methodology

The study was conducted for a period of 3 months during non-lecture hours in the department of pharmacology. Based on the 3rd sessional examination marks, 15 students who scored the least marks were chosen. The reason for their poor performance was assessed by conducting discussions with them. "Must know" topics were identified in endocrinology and chemotherapy. Short answer type questions were prepared every week and the students were instructed to answer them in a separate notebook and submit within a week. Answers were evaluated and feedback given to each student individually to improve further. To develop interest among the students and to evaluate the effect of the assignments, MCQs were given before and after each assignment period (same MCQs). The MCQs were evaluated and answers to them were explained to the students.

Pre and post assignment MCQs, the marks in the pre study (3rd) and that in the post study sessional examinations (4th) were evaluated using paired t test. Graphpad Instat version 3 was used for statistical analysis. A p value less than 0.05 was considered statistically significant.

Results

The performances of the students in pre and post assignment MCQ tests are as shown in table 2. There was a significant increase in the mean post assignment MCQ mark while compared to the mean pre assignment MCQ mark.

Table 1: Comparison of pre and post assignment MCQ test results in endocrinology and chemotherapy

Student No.	Pre assignment MCQ marks (Maximum marks = 10)	Post assignment MCQ marks (Maximum marks = 10)
1	7.00	8.33
2	5.66	8.00
3	4.00	6.00
4	4.50	8.25
5	5.50	8.00
6	4.00	6.33

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7	3.00	6.33
8	7.00	9.00
Mean ± SD	5.08±1.5	7.53±1.1*

*P<0.0001, 95% C.I. – 3.1 to -1.8

The performances of the students in the 3rd and 4th sessional examination are given in table 2, The mean mark in the 4th sessional examination is significantly higher than that in 3rd.

Table 2: Comparison of internal assessment before and after assignments in the problem learners

Student No.	3rd sessional marks (%)	4th sessional marks (%)
1	49	65
2	49	59
3	31	49
4	40	54
5	47	68
6	35	30
7	47	49
8	54	61
Mean ± SD	44±7.9	54.38±12.1*

*P=0.01, 95% C.I. -17.677 to -3.073

Discussion

Students who had problems in learning pharmacology were identified in the 2nd MBBS batch. Though fifteen were motivated, only eight were regular to attend the assignment sessions. One of them had language problem, four non motivated and three had difficulty in remembering facts. Questions were framed from must know areas as recommended by Medical Council of India guidelines in the topics of endocrinology and chemotherapy. The students were interactive, came up with their doubts freely and were interested. They submitted their assignment notebooks regularly.

The post assignment MCQ test marks were significantly higher than the pre assignment MCQ marks. This indicates that writing assignments and clarification of doubts has definitely improved their knowledge in the subject. Moreover, they

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scored higher marks in the subsequent formative examination which was statistically significant while compared to the previous formative examination. However three students failed as they scored below 50%. One among these three students had the language problem and had difficulty in understanding the text books. Helping students who have difficulty in understanding English is very difficult unless the student takes extra initiative to improve the language. In the final examinations in pharmacology, this student with language problem failed whereas the rest passed (marks not shown). Discussion with the students revealed that the assignments were helpful to understand the subject better and they appeared for the 4th sessional examination with more confidence. Following their advice, some students in the next batch have approached asking to conduct similar assignments.

Conclusion

Giving assignments and individual attention with adequate feedback helps the problem learners to score better in the examinations. However the consistency in response of the students over a longer duration of time needs to be evaluated.

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المنارة للاستشارات

Assessment of Lecture Using Feedback from Undergraduate Students

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Introduction

In our Institution, generally feedback from the students after the lecture class is not taken. The success or failure of a lecture and involvement of students along with the lecture is never known. Therefore it was thought that a questionnaire for feedback from the students be prepared and the assessment of the lecture be done. The objectives of the study were

- To assess the lecture class by using a feedback questionnaire from 1st year undergraduate students.
- To collect the feedback from 1st year passed out students also.

Methods

The study was conducted on the students of 1st year MBBS (2009-2010 batch) attending didactic lecture classes at Dr. B. R. Ambedkar Medical College, Bengaluru.

A series of 20 lecture classes was used for the study. A questionnaire was prepared by asking whether they understood the lecture, comments on the speed of teaching, handwriting, usage of blackboard, etc. The questionnaire was distributed at the end of the class and students were asked to give their feedback.

As I teach anatomy for 1st year students, assuming the feedback from them may be unnecessarily positive due to fear, I have also taken feedback from 1st year passed out students(ie,2008-2009 batch, 2007-2008 batch, 2006-2007 batch, 2005-2006 batch)

Results

In overall ratings of lecture class, 98% of students agreed that the lecture class was "Good-Excellent" category. 98% of students felt the usage of blackboard was excellent with appropriate colorful diagrams. 97% of students appreciated the audibility of lecture and good handwriting. However 2-3% of students felt

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overhead projector and powerpoint should have been used. Further 2-3% of students felt the lecture was very fast.

Discussion

98% of the students felt usage of blackboard as an excellent teaching media and said they were also given an opportunity to draw the diagrams along with the teacher which would have been an impossible task with powerpoint. In the 1st year, usually anatomy is found to be interesting and it needs plenty of diagrams which the students are expected to draw to pass in their exams and to score more marks. So the majority of students felt they were able to understand the subject better as they also draw the diagrams along with the teacher and that's how studying and learning anatomy can be made simplified.

However 2-3% of the students felt in addition to blackboard, some videos also should be shown at the end of the class. The positive feedback given by students was highly encouraging and such feedbacks will help to improve the method of teaching.

Conclusion

By taking feedback from students, the lecture can be evaluated, and definitely there is always a scope for improvement. The strengths and weaknesses of a teacher will be known.

Acknowledgements

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المنارة للاستشارات

Objective Structured Clinical Examination (OSCE) as a Method of Formative Evaluation in Ophthalmology

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Introduction

The regular format in a Ward leaving test in Ophthalmology is a clinical case presentation (25 marks) and viva voce (25marks). The viva is evaluated by the consultants where students are assessed on any topic arbitrarily and this tests mostly the lower levels of cognitive domain. The uniformity in terms of difficulty level of the questions and allocation of marks is not maintained. This discrepancy can be rectified to a major extent by OSCE[(1)]. Moreover, most of the psychomotor skills required in ophthalmology which the student 'must know' can be assessed by this method. Such skills developed would later come handy during their career as a clinician in any field.

Objectives of the educational practice

To introduce and evaluate OSCE as a method of conducting Ward leaving test for students posted in Ophthalmology Clinics.

Methods

The study was conducted on the students of 6th semester (Batch of 2006) attending the second clinical posting in ophthalmology at JIPMER, Puducherry.

Every clinical batch of 16/17 students were evaluated by OSCE instead of the regular viva voce. A total of 4 such batches were tested.

The OSCE consisted of 8 stations with each station being allotted time duration of 3 minutes. There were 4 procedural stations to assess the skills such as pupillary reactions, extraocular movements, visual acuity, lid eversion, perception of light, digital tension and corneal sensation amongst others. The other 4 response stations consisted of identifying an instrument, fundus or slit lamp photographs and identifying the type of the trial lens.

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The observers were present for the procedural stations only and included consultants, residents and interns who were provided with a check list for every skill tested. Strict discipline was observed. The questions were changed for each clinical batch to avoid repetition and boredom.

At the end of OSCE, a feedback form was requested to be filled up by the students and returned.

The feedback was in the form of a questionnaire and the students were given the choice of keeping their names anonymous.

Results

A total of 65 students took the OSCE. The maximum mark awarded was 25. The percentage of students who passed the test (>50% marks) was 86%. The various percentage of marks scored by the students are given in Table 1

% marks	No. of students	% students
<50%	9	14
51-60%	8	12
61-75%	27	41
>75%	21	33

The replies to the feedback questionnaire were as follows: Table 2

S.No.	Question	Yes	No	50/50	Others
1	Were the questions relevant?	63	1	1	
2	Were the questions in the 'must know' curriculum?	61	1	3	
3	Were the questions ambiguous?	10	53		2-No answer
4	The questions were they easy or difficult?	23-easy	11-difficult	21	
5	If difficult, what was the difficulty level?	24-mild			
6	Did the evaluation test the full range of	50	8	7	

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	abilities?				
7	Was the test objective?	54	11		
8	Did the test reduce bias?	57	6		2-no idea
9	Did the test cover a large range of subject areas?	51	11	1	2-No answer
10	Did the test facilitate learning?	60	5		
11	Were you relaxed or tensed?	42-tensed	23-relaxed		
12	Was there any time limitation?	17	47		1-No answer
13	Was the test fairly conducted?	63	1		1-No answer
14	Was the test helpful on the whole?	61	2		2-No answer

Discussion

The pass percentage amongst the students with the method of evaluation by OSCE was 86%. About 74% of students scored above 60% marks. Only 9 students scored less than 50%.The above study clearly demonstrated the high scoring rate of the candidates with OSCE. Not only did this better their internal assessment, it made the examination interesting and helped students learn a few examination techniques if not all.

More than 80% of the students gave a positive reply to most of the questions of the feedback questionnaire. 42 students felt tensed at the time of OSCE but that is always there before any examination and it is a known fact that some tension is required to perform well. Eleven students felt that the stations were tough nuts to crack but that is probably due to the poor preparation. Overall it facilitated learning in more than 90% of students as per the feedback.

Preparatory work for the OSCE like setting up and selecting the questions, preparation of checklists to be provided to the observers, arrangement of the stations and selection of observers and cooperative patients was cumbersome and quite demanding. But the above average performance of the students and the positive feedback received vividly demonstrated the usefulness of this method of evaluation.

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A discussion of the mistakes made by the candidates and explanation of the right technique and answers was not possible due to lack of time. This was a drawback of the study. As the stations were close to each other with no partition between them it was easy for the candidates to observe what and how their counterparts were performing. This was another limitation.

Conclusion

OSCE proved to be a better method of evaluation of students in the formative examinations in ophthalmology.

Acknowledgement

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المنارة للاستشارات

The Effect of Problem-Based Learning on Education and Recall of 1st year MBBS Students in Comparison with Lecture-Based Learning

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Introduction

In our Institute, LBL (Lecture based learning), unilateral lecturing is the method that has been used for teaching the 1st year MBBS students. How far it is effective that is not known because it is never compared with other methods of learning. Undergraduate medical education, as with any other educational programme, needs ongoing improvements to meet the changing demands of medical practice. Medical education should be given the same emphasis as research and patient care.

PROBLEM-BASED LEARNING (PBL) has gained much attention and implementation in medical education. It is a student-centered method of teaching, which is considered one of the most significant educational innovations. Several studies have shown that PBL has at least five advantages over Lecture based learning (LBL) in areas like Structuring of knowledge, Development of an effective clinical reasoning process, Better retention of information, Development of self-directed learning skills, Increasing motivation for learning etc. So we decided to compare both types of teaching learning processes (PBL and LBL) in our Institute and compare the outcomes.

Objectives of the Educational Practices

Was to compare the effect of problem-based learning on education and recall with the conventional mode of teaching.

Methods

To perform the study the 1st year MBBS students (2010-2011 batch) were randomly divided into two groups (A & B).The topic chosen was Fat soluble Vitamins. Two separate two hours sessions were conducted.

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In the first session two vitamins were taught to group-A using modified PBL method and the same thing was taught to group-B using Lecture based learning. In the second session another two vitamins were taught to group-B using modified PBL method and group-A using the LBL method so that all the students were exposed to both types of teaching. In PBL the students were given five modified problem type questions which they discussed among themselves and at the end of the session the concerned topic was discussed.

At the beginning of each session, pre-test exams & at the end of the session post –test exams were taken from the students to evaluate their educational level. The pre-test and post-test were taken in the form of 15 MCQs from the concerned topic.

Four weeks after each session another exam consisting of 4 short essay questions each carrying 5 marks was conducted to evaluate the students recall level.

After collecting all the data statistical analysis was done using Microsoft excel.

Table-1

The Results of Pre and Post –Test Exams of PBL And LBL Groups in Session One

	Pre-test Average	**Post-test Average**
LBL (n=55)	6.47	9.28
PBL (n=41)	5.82	10.26
P value	P=0.102	P<0.005

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Table-2

The Results of Pre and Post –Test Exams of PBL and LBL Groups in Session Two

	Pre-test Average	**Post-test Average**
LBL (n = 41)	6.25	9.55
PBL (n = 54)	6.27	11.83
P value	P=0.96	P<0.0001

Table-3

The Results of Recall –Tests of PBL and LBL Groups in Session One and Two

	Session-1 Average		**Session-2 Average**
LBL (n = 54)	8.69	**LBL (n = 41)**	8.91
PBL (n = 41)	9.75	**PBL (n = 52)**	9.68
P Value	P=0.022	**P Value**	P=0.025

Result

This study was performed on 1st year MBBS students of Arupadai Veedu Medical College. In the first session 55 and 41 students attended for LBL and PBL classes. The average score of Pre-test of LBL and PBL groups were 6.47 and 5.82 (out of 15) respectively. This difference was statistically not significant (p=0.107).

The average post test score of LBL group for session-1 was 9.28 and of PBL group was 10.26 respectively. This difference was statistically significant (p <0.005) as shown in table-1. The average score of recall exam of LBL group for session-1 was 8.69 and of PBL group was 9.75 (out of 20) with a p value equals to 0.022.(shown in table-3)

In the second session 41 and 54 students attended for LBL and PBL classes. The average score of Pre-test of LBL and PBL groups were 6.25 and 6.27 (out of 15) respectively which was not statistically significant (p=0.96).

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The average post test score of LBL group for session-2 was 9.55 and of PBL group was 11.83 respectively. This difference was highly significant ($p < 0.0001$). The average score of recall exam of LBL group for session-2 was 8.91 and of PBL group was 9.68 (out of 20) respectively ($p < 0.05$).This was also significant. (Shown in table-1 and table-3)

Discussion and Conclusion

The result of this study showed that the students are more successful in learning and recalling when PBL was used as the educational method. The students were randomly divided into two groups and in the second session they were exchanged for the methods of teaching so the effect of personal differences of the students was eliminated**.** The pre-test scores of these groups showed no statistical difference, so difference of the post-test scores could be due to the effect of educational method.

In our study it was confirmed that PBL is definitely better than LBL for selected topics.

But further studies should be taken on different topics before applying PBL as the method of teaching in this institute.

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المنارة للاستشارات

Low Achievers – Are They Really Slow Learners?

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Introduction

The university result in preclinical examination in our college with an intake of 150 students is between 70 to 88%. There are failures in spite of completion of syllabus and regular teaching schedule. Poor results forced us to make an attempt in knowing the exact cause of poor performance.

Students who had failed in their internal assessment tests conducted as part of their formative assessment attributed various reasons for their poor performance other than coping with academic stress. Medical educators have identified extra curricular causes like language, parental and peer pressure, personal, medical and domestic problems to have a significant impact on learning. So we perceived the necessity to devise a tool to identify the cause for poor performance and intervene accordingly.

Objectives of the Educational Practice

- To design a questionnaire to identify the cause of poor performance in low achievers.
- To develop a remedial program to help slow learners in improving academic performance

Methodology

All the students scoring below 50 % in theory and practicals of his / her 1st Internal Assessment (IA) scores were considered as low achievers. A questionnaire (Table 1) was designed which contained 20 statements regarding curricular (statements 9, 10, 16, 17, 18, 19, 20) and extra curricular (statements 1, 2, 3, 4, 5, 6, 7, 8, 11, 12, 13, 14, 15) causes and administered to the students. After analyzing the responses, one to one interview was conducted to know the problem in detail.

Intervention planned was having a remedial program consisting of counseling, conducting enrichment classes to assist in learning and having study skill sessions. Periodic assessment was conducted and faculty feedback was obtained.

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Table 1. Questionnaire to identify cause of poor performance

1.	I have problem in understanding the language	Yes/No
2.	I have no interest in doing Medicine	Yes/No
3.	I have come here as my parents forced me	Yes/No
4.	I am anxious	Yes/ No
5.	I am not accustomed to the food that is provided	Yes/No
6.	I have problems due to my seniors	Yes/No
7.	I am afraid of failing in the exams	Yes/No
8.	I have problems with my classmates/room mates	Yes/No
9.	I don't understand what is taught in class	Yes/No
10.	I am not able to take notes	Yes/No
11.	I don't find the environment conducive to study	Yes/No
12.	I feel sick often	Yes/No
13.	I feel unhappy	Yes/No
14.	I feel threatened	Yes/No
15.	I feel that I don't belong to the group	Yes/No
16.	I am not able to study on my own	Yes/No
17.	I need additional help in learning	Yes/No
18.	I am not confident regarding the subject	Yes/No
19.	I don't understand what is read	Yes/No
20.	I feel frustrated as I can't study	Yes/No

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Results

45 low achievers were identified after the 1st internal assessment. After analyzing the responses of the questionnaires, poor performance was due to non-curricular causes in 23 students and curricular causes in 22 students.

In addition to identifying the cause, motivating, providing emotional support and non threatening learning ambience, giving confident feedback, encouraging team learning to promote peer acceptance were part of the remedial program planned. All the students were counseled and additional assignments and study skill sessions were conducted.

After 2nd Internal assessment, 20 improved and scored more than 50%. The faculty opined that these students submitted their assignments on time and showed interest during the tutorials. For the remaining 24 low achievers, extensive one to one coaching was adopted for those with poor learning techniques and counseling and motivation for the rest. After 3rd and final Internal assessment, 13 students remained low achievers with less than 50%. Enrichment and counseling were continued for these students.

Conclusion

Non-curricular causes like lack of motivation, language and food preferences appear to have a significant impact on the academic performance of students. A well designed questionnaire will serve as an important tool in identifying the cause of poor performance and then intervene accordingly.

The questionnaire that was developed for this NTTC project has now become the mainstay of remedial and mentorship program to help the poor performers in our department.

Remedial program for slow learners include identification of cause, counseling by faculty, enrichment classes, assignments, small group discussions and constant feedback.

Orientation programs for fresh entrants with sessions on study skills, mind mapping, making notes and time management and coping stress (delivered by a psychiatrist) are also being conducted to facilitate learning at the beginning of the course.

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Future directions

The questionnaire will be revised to include responses on a 5 point Likert scale to test validity and internal consistency.

To extend the remedial program to para clinical and clinical phases.

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The Seekers and the Sought: a Novel Teaching-Learning concept

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It is a commonplace experience during ones studentship in a medical school, that one hears the existence of a great teacher somewhere in the institution, but won't be able to experience him because the teacher is in a different unit, or is in a situation normally inaccessible if one is in a different semester [eg. in Anatomy or Anaesthesiology dept.]. Their 'great' classes were lost horizons for the rest of us.

Even though we all tend to accept the situation as such, the fact remains that such a teacher is rightfully a 'property' of all the students at that point of time. How to make a good teacher accessible to a cross section of students in a medical school? This was the question which led us to formulate this unconventional TL concept.

The prime question was about how to find out the 'Good Teachers' in the Undergraduate student's point of view. This was a delicate area, because a number of egos might get rubbed in the wrong way at every stage of the process.

We solved this by asking Thrissur Medical College Alumni Association to conduct an informal, quadri-centric survey. The Debate and Quiz Club of the Students Union, 'Prateeksha', the Charity wing of Medical Students, different Tutorial Groups, and an informal group consisting of students with good academic track records, were asked to simply rank the 'Good Teachers' in different departments. They were permitted to use 'sms' as a method of participating in the survey. Anonymity was ensured at every stage.

The data was analyzed, and the teachers were divided into four groups, according to whether their names appeared in one, two, three or all lists. The teachers whose names appeared in the 3 and 4 groups were [ie, those whose names were present in 3 out of 4 lists and all the 4 lists] were approached by the Alumni Association members and requested to present a session on a topic of their choice before a cross section of students, in the Alumni Association Auditorium on any Tuesday or Thursday after class hours. Duration and choice of TL Method were left to the teacher. However the Teacher was encouraged to stick on to the theme of the program, "Simplify It!".

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Students were informed of the sessions one day before each session through the SMS Communication Network, an initiative by the TMC Students Union 2011. PGs and other faculty members were also informed through sms networks from the Dean's office. Attendance was not compulsory, but they were encouraged to come to the venue by about 4.30pm, sufficiently relaxed.

The program, christened as 'TMCAA-DQ Mastermind Program' commenced on 7th April 2011. The response was enthusiastic and highly encouraging. A cross section of students of different semesters varying from 35 to 200 attended each session. Obviously, some sessions were 'crowd pullers'. Many PG students and other faculty members also came over to attend sessions. After 12 sessions, feedback was taken from the teachers and students on what they felt about the concept.

What the Students liked about the concept

- Teachers were chosen by the students; hence the sessions were eagerly awaited for.
- No compulsions.
- Felt relaxed [especially the timings, and absence of compulsions on attendance]
- Topics were relevant.
- Liked the teachers & their ways of teaching
- Came across different personalities and styles among the faculty
- Felt informal.

What the Teachers liked about the concept

- Felt wanted
- Felt recognized
- Could get an audience who came specifically to hear them
- Could select their own 'favourite' topics.
- Could select their own T-L method
- Flexibility of timings.
- Overall freedom.

What the Organizers felt about the Program

The concept of 'Evening Classes' by teachers is nothing new. From the point of view of organizers, the most important features, which we felt made the difference, are:

- Informal, relaxed settings
- Total lack of compulsions on teachers and students

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- Flexibility in timings
- Flexibility in choice of topics
- Creates intimacy among Teachers and students, and among students themselves.
- Virtually a 'Zero-expenditure' program.
- A fertile area for involvement of Alumni Associations in academic programs.
- sms may be utilized as a tool for educational surveys and feedback
- Extra-curricular themes could be incorporated.

Adverse comments from different quarters

- Too informal
- The number of participants in a session could not be predicted, and often sessions were crowded.
- More interactions should be encouraged
- Faculty members felt that they were arbitrarily divided into 'Good' or otherwise, by questionable methods.
- Their research initiatives were not duly recognized.

Rejoinder

All the adverse comments are valid. However, as teachers we ought to accept that the undergraduate students' perception of goodness of a teacher is not necessarily that of senior members of the fraternity. Ultimately the goodness of a cake is decided by the eaters, and not the cooks! As a student moves up the hierarchy, they tend to recognize the importance of other faculties, and assign the value due to them.

Future plans

We are periodically taking feedbacks from the faculty and students on choice of faculty, topics and on how to improve the program. It is being monitored by the Medical Education Unit of the institution as a novel TL Intervention. A proposal to conduct a get-together of the faculty and honouring them is also on the anvil.

Sustainability of such a program needs the active, creative and consistent inputs from the faculty and the students. Hence we are now thinking on the ways we can achieve this, by forming a core team, which will be self-renewable in character.

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Attitude of Undergraduate Medical Students towards Powerpoint, Overhead Projector and Chalkboard Teaching. Does It Matter?

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Abstract

Obtaining knowledge of the learner and his/her preference is a vastly underutilized approach to improve classroom instruction. The purpose of this study was to assess the attitude of undergraduate medical students towards PowerPoint, overhead projector and chalkboard teaching and to compare the perceived efficacy of each of the three teaching aids used during lectures. This cross sectional descriptive study was carried out in a medical college in Puducherry during January – February 2012. A self-administered questionnaire in English was given to all undergraduate medical students. The perceived efficacy of the different teaching methods was assessed using 5 point Likert scale, while their preference and views on the use of these tools was collected using open ended questions. Response rate in this study was 98.3% (361/367). Combination of PowerPoint and blackboard was the preferred method of teaching in 85% of the subjects, while PowerPoint alone was preferred in 9%. PowerPoint method was preferred for the information content, visual enhancement, organized nature and overall delivery of the topics. Blackboard was perceived as a better tool for making the lectures understandable, for a better grasp and retention, resulting in better impact. Transparencies were considered 'outdated, unclear, unattractive, boring and not useful' by majority of the students, and illustrations and graphics are preferred for better retention. Less than 2% of students suggested that 'transparencies may be used to summarise important points or to break the monotony of PowerPoints in all sessions'. Though PowerPoint method was found suitable for the visual content and presentation style, students preferred a combination of PowerPoint and blackboard for lecture delivery, while use of transparencies was not a preferred method. These findings suggest need for changes in the current practise to facilitate overall improvement of teaching learning experience.

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Introduction

Lectures have been the most common form of teaching and learning.[1] Teaching learning media are the means of communicating educational information. Chalkboard (CB), overhead projector (OHP) and teaching through Microsoft PowerPoint (PPT) are the three commonly used teaching learning media in lectures. A chalkboard is uniquely effective as a medium of classroom instruction and has been used commonly in lectures, while the use of transparencies with an OHP has also been popular.[2] Recently the use of electronic presentations has become common and PPT is now the most popular package used out of all electronic presentations.[3] Each of these media has their own benefits and limitations. Over the last decade teachers seem to increasingly prefer PPT to the other media.

Obtaining knowledge of the learner and his/her preference is a vastly underutilized approach to improve classroom instruction.[4] Few studies have been conducted to assess the effectiveness of lectures using PPT or other such media in comparison to lectures using CB, or the use of OHP with varying results. Hence this study was proposed to assess the attitude of undergraduate medical students towards PPT, overhead projector and chalkboard teaching and to compare the perceived efficacy of each of the three teaching aids used during lectures.

Methods

This cross sectional descriptive study was carried out in JIPMER, Puducherry. A self-administered questionnaire in English was given to all undergraduate medical students who consented to participate in the study. The perceived efficacy of three different teaching methods namely PPT, OHP and CB teaching was assessed using a 5-point Likert scale, i.e., 5 (agree strongly), 4 (agree), 3 (no opinion), 2 (disagree) and 1(disagree strongly). For each of the three methods, the students were asked to rank the following parameters on a five-point scale:

- Lecture contents were informative
- Lectures were clear and understandable
- Lectures were well organized
- Helped grasp concepts better
- Lecture aroused interest in the topic
- Lecture visually enhanced &better perceived
- Increased impact of the lecture delivered
- Helped retain concepts longer
- Improved overall delivery of the topic

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- Helped maintain concentration throughout lecture
- Better for self-study later on
- Lectures were overloaded with information

Preferences and views on the use of these tools were collected using open ended questions. The overall students preference towards the different lecture delivery methods was calculated. Data was analysed using SPSS version 16. $P<0.05$ was considered as statistically significant.

Results

Response rate in this study was 98.3% (361/367). Age of the responders ranged from 18-25 years, 76.2% were in the age group of 20-25 years and 23.8% were less than 20 years of age. Among the respondents, 50.4%were males and 49.6% were females. The number of lectures attended in a day was 2 to 3 per day on average by the majority of responders (82%). Students were equally distributed amongst the different years of study.

Combination of PPT and CB was the preferred method of teaching in 85% of the subjects, while PPT alone was preferred in 9%. CB alone was preferred in 3.9% and a combination of all three media was preferred in 2.8% of respondents.

PPT method was felt superior for the information content, visual enhancement, organized nature and overall delivery of the topics. Blackboard was perceived as a better tool for making the lectures understandable, for a better grasp and retention, resulting in better impact. Both these tools were rated as interesting by similar proportion of the subjects.

Transparencies were considered 'outdated, unclear, unattractive, boring and not useful' by majority of the students, and illustrations and graphics are preferred for better retention. Less than 2% of students suggested that 'transparencies may be used to summarise important points or to break the monotony of PPTs in all sessions'.

Discussion

Over the last two decades teachers seem to increasingly prefer the use of PPT when compared to other methods to deliver lectures. But what do the students really want? Various studies have been conducted to assess the effectiveness of lectures using PPT or other such media in comparison to lectures using chalkboard, or the

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use of OHP, but with varying results. This study has shown that majority (85%) of the students preferred a combination of PPT and CB followed by PPT or CB used in isolation. They felt that the theoretical aspect of a topic could be discussed on CB and pictures / videos relating to the lecture topic could be shown on PPT. According to one study, traditional classes with CB presentation were the most favoured by students from biomedicine and medicine courses[5] while another study observed that most students preferred PPT presentations over traditional presentations (eg, chalk and talk).[6]

In this study, students perceived CB as a better tool for making the lectures understandable, interesting, enabling better grasp and retention, resulting in better impact. A chalkboard is uniquely effective as a medium of classroom instruction and has been used commonly in lectures, while the use of transparencies with an OHP is also popular.[2] During a lecture, both the visual and auditory senses are used to absorb information and here assistance in the form of a visual aid is useful.[7]

In this study, students perceived PPT method as superior for the information content, visual enhancement, interesting flow, organised nature and overall delivery of the topics. One study showed that majority of the medical students preferred PPT presentations because of better quality of texts and diagrams, graphs, animations and videos. It was considered ideal for fast revision and quick overview of the subject.[8]

Recently the use of electronic presentations has become common and Microsoft PPT is now the most popular package used out of all electronic presentations.[3] However, educationists are divided on the superiority of PPT with respect to the traditional chalk and talk method.[9] Though students in today's world are broadly influenced by technology, they are cautious about the overuse or misuse of it. One study noted that students preferred PPT over the use of OHP, but that in some instances the content of the PPT presentation distracted students.[10] It is stated that the student becomes a passive observer rather than an active participant in PPT teaching[11] and it reduces the interactive discussion between the teacher and the students. In a survey among students it was found that they disliked both OHP and PPT slides for the monotony of the classes and the lack of interest it generates among both the students and teachers. The tendency to go fast is common because of the ease of delivery of the material.[13] In one study students opined that a judicious use of animations and sufficient time to take down notes.[8]

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Joint way of teaching with CB and PPT with animations was considered the ideal way to teach.[12] A CB may be more student centered while PPT more teacher-centred.[13] Use of exciting and innovative animation based learning using PPT and board teaching can be used together to bring about maximum pedagogical benefits to the students.[13]

In this study, transparencies were considered 'outdated, unclear, unattractive, boring and not useful' by majority of the students, and illustrations and graphics are preferred for better retention. Less than 2% of students suggested that 'transparencies may be used to summarise important points or to break the monotony of PPT in all sessions. This issue has been addressed by a few studies. OHP expands the potential of blackboard teaching by enabling combinations of text, tables and diagrams.[4]

Students learn best when they are engaged by material that is presented in variety of ways and formats.[14] Insight into the specific preference of individual classes would help instructors tailor their presentation for each individual class.[4] Findings of this study can facilitate appropriate utilisation of teaching learning media for quality learning experience. Faculty should take advantage of this knowledge so as to maintain interest and enthusiasm among the students.

Conclusion

Though PPT method was found suitable for the visual content and presentation style, students preferred a combination of PPT and CB for lecture delivery, while use of transparencies through OHP was not a preferred method. These findings suggest need for changes in the current practice to facilitate overall improvement of teaching learning experience.

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Training PSM Students in Clinico Social Case Discussion through Semi Structured Small Group Technique

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Abstract
The difference between Clinico-social and Medico-social disciplines is that the Medico-social discipline envisages treating the patients on one-to-one basis in a clinical setting while the Clinico-social discipline envisages preventing the diseases from occurring in a community and keeping the entire community healthy. The Community Medicine Professionals should establish community contact, interpersonal interaction, elicit the probable causes, and have hands-on observation of the physical environment. The objective of this paper is to record the outcomes of Small Group Teaching Methodology in training the undergraduate medical students in clinico-social case taking and discussion alongside the field visits. 120 students who are in the seventh semester were taken up for the study and the observations made are taken up for analysis. It was found that this student centered technique facilitated better understanding of the concept among the medical students.

Introduction
The Government of India as well as the state governments do realize community medicine's role in maintaining the community health and welfare; but implementation of it to ensure its proper reach to meet the public health delivery needs to be improved by making proper channels to ensure community contact, interpersonal interaction, proper machinery to elicit probable causes/reasons for the onslaught of diseases and hands-on observation of the physical environment that is not conducive to public health delivery systems.

It is observed that the students' performance in regard to understanding of the Clinico-social and Medico-social topics in the university examinations is far from satisfactory, most of the times. This is the conclusion I had arrived at after collecting the data (observed and chronicled) of the final practical examinations from various medical colleges of Andhra Pradesh and Karnataka from 2007 to 2011 (10 colleges x 100+ students over a period of five years). In this exercise, it

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was noticed that the undergraduates could establish the web of causation, apply the desired levels of prevention, and discuss the problems with reference to the related community with community medicine perspective. They also could develop management strategy applying the primary health care principles and relevant national health programs.

Methods

About 120 seventh semester students taking the final university examinations in February 2012 were observed, employing Small Group Technique (SGT) Methodology, for training in Clinico-social case taking and discussion alongside the field visits. They were organized into groups of 25-30 each and four such batches were studied for 4 weeks. They were thoroughly briefed about clinico-social case taking methodology and its importance. They were sufficiently oriented on standard documentation formats and the absolute essentiality of their submission on the set dates.

Each group was sub-divided, consisting of 5-6 members each, and made to sit in circles. A team leader and a co-team leader were identified to oversee the behavior of each group and ensure that the objectives of the 8 Clinico-social Case Studies (CSCs) and 10 field visits were satisfactorily met.

This process was done from October 2011 till January 2012, during the PSM morning postings from 9.00am to 12.00noon throughout their seventh semester postings – 4 weeks x 6 days x 3 hours = 72 contact hours per individual: four such batches ending January 2012.

Postgraduates were nominated to monitor, one for each group. They were allowed to bring reference material and textbooks. Highly intense brainstorming with active involvement was arranged.

The group members could review each other's work and the groups could also review other group's work, make comments and sign with date for authentication. The postgraduates also reviewed and finally, the work was submitted to the overseeing facilitator (ie the author).

Results and Discussion

- Performance of 120 students was closely monitored and objectively assessed by peers, Postgraduates and finally by the Facilitator.

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- A well-documented feedback from the 24 groups was obtained and submitted to the facilitator.
- The work by the 120 students was submitted in the form of Records.
- All the 120 students were actively involved. Supervision Reports of 24 group leaders, 24 co-group leaders, Postgraduates were submitted in the prescribed formats.
- Their conception and perception of community medicine was documented and found to be satisfactory conforming to the expectations.
- The performance was 'excellent' for 6 (5%) students, 'very good' for 78 (65%) students, 'good' for 24 (20%) students and 'must improve' for 12 (10%) students.

Conclusion

The objective of active learning through student-centered method was found to have produced expected results. It infused confidence in the students, invoked the spirit of cooperation amongst themselves and the importance of involvement and implementation of the public-health programs enunciated for the good of the mankind. All the participants have unanimously expressed the imperativeness of making the Community Medicine as an imperative medicine of public importance.

This may be recommended to be emulated for all the upcoming batches by the faculty across the board for ensuring the health needs of the community to be better understood—a desired curriculum implementation approach! The record is a portfolio; concept map is a part of each case and the field visits that they had, accounting for 18 concept maps in each record, SGD, review, peer review, active learning, documentation – systematizing documentation concept, i.e. the 'Record'—that would serve as a ready reckoner for providing ethical and compassionate health care.

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Using Post-exam Revision Classes as a Learning Strategy in ENT Undergraduate Curriculum

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The context that required the initiation of the educational practice

Generally, revision exams are conducted towards the end of the semester, just before the University exams. After the revision exam, usually there will not be any further academic interaction. Authors of this study felt that interactive classes after the assessment exam will expose the students to additional information and application skills apart from the basic knowledge acquired while preparing for the revision exam session. We regularly conduct interactive classes after the assessment, and we share our experiences here.

Objectives of the educational practice

The objective of the educational practice is to enhance the teaching learning process for undergraduate medical students in ENT by posttest revision classes

The Educational Practice

Hypothesis behind conducting the revision class after the exam

When the students prepare for the assessment, it's the time they actually put their individual best effort to open their text books and read and revise for the exam. That's the time they bring together all their learning efforts heart and soul for assessment. They holistically try to bring their efforts to put the bits and pieces

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together to assemble for a bigger picture. It's the assessment which is driving their preparation. In that process, they may attend to the minor details in their curricular learning, they may find association between various concepts, have doubts attended, prepare themselves for a better presentation in the assessment process, make their own algorithms in making the judgments for management or diagnosis, attain a focused learning on their own and review most of the contents so that a bigger picture of the entire curriculum is achieved.

Many of the above said features may happen at different strata among different students based on their personal efforts and goals. It's most likely that many students are left at that point of their mental stratification after the exams, after which they may have doubts still lingering their mind about concepts, missing links of association in the curriculum, deficiency in their reasoning aspects, struggling for an advanced reasoning and so on leaving behind some weakness in the learning process. So then was the time, when a group of students came back and requested for feedback regarding their exam performance, idea was developed by the authors to conduct a revision class in a posttest setting which gives a bird view for the students and to re-emphasize the missed out important clinical pearls and abstracts. Post exam revision class will also expose the student to additional information and application skills apart from the basic bench knowledge acquired during preparing for the exam session. It means that post exam revision class will open new gateway for improved understanding and application skills as the student would have prepared for the exam. Preparation for the exam would have really primed the students' mentality for further reception of advanced concepts. Reinforcement of existing concepts, better clarity of doubtful areas promotes them for asking the doubts that would have been in mind while preparing for the exam. All these put together are expected to alter the whole understanding of the preexisting knowledge, promote the student from further learning in the same subject. All these benefits described above could be attributed to post session test, because it was observed from author's own experience that preparation for formative assessment makes the students mind receptive for knowledge, understanding and application skills which has to be tapped in the form of posttest revision classes to promote better education.

Obstacles faced if any and strategies adopted to overcome them

Proper planning will make these revision classes appear in the initial teaching schedule itself, so that all the students and facilitators are uniformly informed and accordingly prepared.

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Evidence of the effectiveness of the educational practice

Our practice in our department:

In our department, we conduct four revision classes three after every session test, one after their final send up examination penultimate before their university examinations. We have found a good level I reaction among all the participants because of the posttest revision classes.

Nearly 70-75% of the students responded positively for the feedback questions: "My preparation for the exam has helped me to understand the subject matter taught to me in this revision class; Attending this post exam revision class would improve my achievement in the final exam; Attending this session after the exam has helped me to understand the concepts explained in this revision class in a better manner; I have better learned and understood the subject materials due to this revision class; I had opportunity to apply the concepts I learnt for exam in this revision class; I achieved broader perspective of the subject after the post exam revision; My interest in the subject has increased as a consequence of this revision class; This post exam revision class helped me to organize the learning materials & experiences in larger units."

Nearly 65-70% of the students responded "New learning had taken place during (as a result of) the post exam revision; The revision class was intellectually challenging and stimulating; This post exam revision class helped me to organize the learning materials & experiences in larger units; This post exam revision class revealed weaknesses in the teaching-learning process." Students feedback in their own terms were as : "Could identify mistakes made in session test and this will help me to write the answers better in final exam; Made the concepts in rhinology clear; Reading for exam made the understanding better; Doubts while reading the textbook was clarified in the post test revision class; The process of recollection during posttest revision class improved the memory; Reinforced the learnt concepts; After exam I am familiar with the subjects and it is easier to receive additional information; Develops interest in the subject and stimulates self-learning; Gives me a feedback of how much I understood the topic, motivating me to read further"

Resources required

The same as conducting an interactive lecture class

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Assessment of Knowledge Base to Answer Essays and Short Answer Type Questions using E-mail among Cardiaothoracic Surgery Residents

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Introduction

Cardiothoracic surgery resident training is considered as tedious due to long working hours. Further residents come for mainly skill training and use a mentor mentee relationship with the teaching faculties.[1] The teaching faculty try to train residents to safe and competent practice in operating rooms. There is a belief among cardiac surgery teachers that theoretical knowledge is a non technical component and is 'self learned'.[1,2] However in India assessment of candidates on completion of 3 years training is more about their knowledge than surgical competency.[3] Present generation residents are more tech savvy and able to search for the knowledge using their fingertips[4] and much learning is superficial. This is likely to worsen as we move towards competence based curriculum where workplace based assessment is made with minimal workplace based teaching. It is well agreed that staying current with current knowledge base is essential for every medical career. (Blasberg).Innovative methods have to be adapted to induce enthusiasm among residents. Interest in theory learning can be developed by introducing problem solving questions using e-mail and answering such questions over a week time. Residents can read the topic or use open book method to answer the questions. Feedback provided by consultants can improve the quality of resident training. We examine the use of such technique among 3 year MCh residents in our institution

Materials and Methods

Problem based Short answer and essay type questions with theory component , analytical elements and current management guidelines were developed and e-mailed at the start of the week for 6 cardiac surgical trainees (SR) and 5 faculty for consecutive 8 weeks from 15March 2015. Answers were expected over the weekend. Initially hand written answers were used, later was changed to replies by email. Feedback was expected to be given upon receiving the answer by the faculty.

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Results

There were 2 SR in each year of training .Quality of questions were rated 3.8/5 by residents. Final year SR were more enthusiastic and kept the momentum of answering till last week. 65% of the answers were in time (at the end of the week). 1 final year candidate wrote all the answers in paper and submitted. Cut and paste was used for 46% of answers by others. Only 2/5 consultants participated in giving the feedback. 78% of the candidates answered correctly, Quality of answers and no of SR responding improved with time attaining maximum (100%) answers in week5 and 6. Congenital cardio surgery questions elicited more response and more correct answers. 73%of candidates referred only one text for their answers .Even though recent guidelines formed a part of questions only one candidate referred recent Journals. Later this was identified as due to lack of availability of literature among 5 candidates

Discussion

Theoretical questions form main part of the summative assessment and is a mandatory component of final exams. Using E mail as a mode of assessment of theory questions has its own limitations. Even the most tech savvy are not enthusiastic in typing out answers. Answers have to be written in old fashioned way as reply by e mail can result in superficial knowledge as many used cut and paste method. Enthusiasm for study seem to be associated with those who are closer to exams. Further it was difficult to elicit enthusiasm among faculty to give feedback.

Conclusion

E mailing questions is able to stimulate interest among students for search for theoretical knowledge. Answers and assessment is better done in traditional way

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Master table 1 resident wise response

SR Name	Year of training	% Answers completed in time	% Correct answer %	% Answers written in paper	% answers typed	% cut and paste answers	referred only texts for answers	referred current knowledge, journals, guidelines
Y3A	3	100	75	100	0	0	40	60
Y3B	3	90	80	40	30	30	90	10
Y2A	2	50	70	40	20	40	90	10
Y2B	2	60	90	40	20	40	70	30
Y1A	1	70	90	20	30	50	60	40
Y1B	1	60	70	0	30	70	90	10

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Master table 2 Week wise response

	Subject covered	completion of response in time out of 6	No response out of 6	consultant feedback out of 5	enthusiasm of SR out of 6	Quality of questions in grade 1 to 5
week1	Adult cardiac	5	0	3	6	4
week2	Adult cardiac and thoracic	5	0	2	6	5
week3	Adult cardiac and thoracic	4	2	2	4	4
week4	Vascular, Thoracic	3	2	2	4	4
week5	Congenital	6	0	2	6	5
week6	Congenital	6	0	2	6	4
week7	Thoracic	3	3	2	3	3
week8	Adult cardiac and thoracic	2	4	2	2	2

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Postgraduate Nursing Students' Perception on using Google Classroom for Teaching and Learning of Nursing Education Concepts

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Introduction

Google Classroom is an application provided by Google Inc. which is used as an online educational platform. Google Classroom is a learning management system which is very easy to set up allows teachers to create classes, distribute assignments, post announcements, send feedback and upload course materials for students to view. It is a free tool and allows access to other Google tools such as Google Forms, Docs, Slides, Sheets, and so on.[1] It allows students to submit assignments, view documents and multimedia resources, post their comments on their learning, etc.[2,3] It also allows teachers to give feedback on the performance of their students. Google Classroom can be used for any course and can be easily managed.[4] In the present pilot study an attempt was made to understand the post graduate nursing students' perception in using Google Classroom as a teaching-learning tool for teaching and learning of concepts in nursing education.

Objectives

- To ascertain the postgraduate nursing (MSc) students perception towards using Google Classroom as a technological tool in learning nursing education concepts.

Method

All the first year students of MSc. (Nursing) numbering about 24 were included in the blended learning programme for the subject Nursing Education that lasted for a period of three weeks. The topics identified for the blended learning session are listed below:

- Introduction to nursing education
- Meaning and scope of education
- Psycho-social and technological factors influencing nursing education

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- Educational theories
- Standardized tools in nursing education

Google Classroom which is a Learning Management System from Google Inc. was used a technological tool for this blended learning programme. Google Classroom allows access to other Google tools such as Google Forms, Docs, Slides, Sheets, and so on. It allows students to submit assignments, view documents and multimedia resources and post their comments on their learning. All the above listed topics were delivered by combining face-to-face meeting and online learning facilitated by Google Classroom. Classes were created and all the students were enrolled in the Google Classroom. Learning activities were designed in such a way students were given opportunity to watch YouTube videos (through links) and post their comments, answer open-ended questions, read documents and post their comments and give online test made from Google Forms. Assignments topics were given with deadline for submission. After submission the assignments were graded and returned with teacher feedback. An electronic survey on a 5 point Likert scale reflecting the following opinions: (1) strongly agree, (2) agree, (3) neither agree nor disagree, (4) disagree, and (5) strongly disagree along with a provision for students comments and suggestions was created and administered using Google Forms for collecting the students responses with regard to their learning experience and their perception about Google Classroom. The questionnaire was developed to seek information on the three major domains: perceived usefulness of Google Classroom in teaching and learning, convenience in using Google Classroom application and intention for future use.

Results

Table 1 showing the frequency distribution of responses from the students (N=24) with percentage

S.No.	Statement	Strongly agree		Agree		Neither agree nor disagree		Disagree		Strongly disagree	
		N	%	N	%	N	%	N	%	N	%
1.	Google Classroom enhanced my learning	18	75	4	17	2	8				
2.	Google Classroom enabled me to accomplish my learning	14	58	4	17	4	17	2	8		

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	tasks more quickly.										
3.	Google Classroom saved my time	12	50	5	21	6	25	1	4		
4.	Google Classroom can very well used for nursing education	19	79	5	21						
5.	Google Classroom is user (student) friendly	16	67	6	25	2	8				
6.	The attached course materials were easy to access on Google Classroom	18	75	4	17	2	8				
7.	Google Classroom enhances my learning productivity.	13	54	6	25	3	13	1	4	1	4
8.	Assignment submission was easy through Google Classroom	12	50	6	25	4	17	2	8		
9.	Google Classroom was convenient with regard to keeping track of my learning	17	71	4	17	2	8	1	4		
10.	Reading the course materials at home through Google Classroom helped me to be well prepared for direct classroom discussions.	16	67	4	17	2	8	2	8		
11.	Google Classroom does not require any special training	9	38	11	46	2	8			2	8
12.	I intend to increase my use of the Google Classroom	20	83	3	13	1	4				
13.	I prefer using Google Classroom for my future courses	20	83	3	13	1	4				
14.	My teachers communicated well in Google Classroom.	14	58	4	17	4	17	2	8		

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15.	Google Classroom can very well be complemented with face to face teaching	17	71	5	21	2	8		
16.	Google Classroom improved my overall performance	16	67	5	21	2	8	1	4
17.	I will recommend Google Classroom for other students	19	79	4	17	1	4		

Other specific comments from the students

The specific comments to the open-ended question on "other comments and suggestions" are furnished verbatim below:

"Learning of concepts made easy and aroused interest. Entertaining, exciting and got an opportunity to use my computer skills".

"Initially it was difficult to understand the Google Classroom operation techniques. Later became familiar with its use".

"I find difficult to download attachments and documents due to poor internet connection at home".

"My comments in the 'Class Comments' section are not visible to my other friends. Good e-learning experience. Helped me to prepare for my next real-time class. I also learn to interpret the contents of my real-time class".

"It is not very student friendly like Android apps".

"Thanks to my teacher moderator who introduced me to this useful software. Need to be more user-friendly".

"Improved my learning and retention. Grading of e- assignments was a new thing for me".

"Online exam was interesting and it is the first time for me to experience this online for classroom learning".

"Flexible and relaxed learning through Google Classroom".

"Useful tool and good learning experience".

"Some activities were not clear and need more variety in Google Classroom".

Discussion and Conclusion

The use of Google Classroom and the other tools from the Google Inc. was generally very well received by majority of the students. On an average more than 70% of the students had a very favourable perception towards Google Classroom application and they have also expressed its usefulness. Similarly more than 70%

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of the students have expressed that they would continue to use Google Classroom for their future courses. In the qualitative section of the survey, students identified several aspects that they felt were instrumental to the successful use of the platform as well their difficulties in using the application. There were also comments that they enjoyed flexible and relaxed learning. Some students also used Google Classroom creatively and expressively rather than in the real class. At the same time there were also comments expressing their technical difficulties in getting familiarised with the application and some of the students felt it is not very user friendly. The overall impression from this pilot study is that Google Classroom can be used as an effective tool for engaging the learners productively. However, more research in this area will help the educators to generalize the effectiveness of Google Classroom for teaching, learning and assessment activities.

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Re-Engineering a 'Good' Lecture

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Introduction

Lectures continue to be an important teaching method in medical education. Very often students assess the quality of a teacher by his lectures. Most of us remember a favorite teacher by the way he used to discuss a topic in the lecture hall or clinics, with the insights shared, along with the contents, supplemented by jokes and anecdotes. As teachers almost all of us are concerned about the quality of our lectures. Delivering a good lecture is often a nightmare for many teachers. Some of the common anxieties are about

- Overall effectiveness of the lecture
- Presentation style
- Overcoming the apparent lack of interest by students
- Possibility of getting a poor feedback
- Whether too much or too little of the subject has been covered
- Deviation from topic [thereby losing time]
- Whether one need to be "Examination oriented" or "Subject oriented"
- Going above or below the expected standards envisaged in the curriculum

In this article, some of these apprehensions are dealt with.

Dealing with Distraction

Students expect the lecturer to hold their attention consistently throughout the course of lecture. Losing interest in the class, thereby getting distracted, is a bane for students and teachers alike. Common causes of distraction for the students are

- Disinterest
- Subject too dull / boring
- Teaching is monotonous
- Too much content being taught
- Teacher is interested in 'finishing off' the topic at a stretch
- Mismatch of teaching – learning strategies of teacher and student
- Anxieties about facing the examinations
- Short attention span
- Anxieties about Profession
- Personal problems

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The present day medical student no longer views the future as rosy. He is aware of the competitive nature of the professional life. Hence it is not uncommon to find them demoralized and tense while attending lectures. “Too much effort for too little result” is a common complaint of undergraduate medicos. When the numbers of such students are on the increase, it is imperative that our teaching strategy should also include active intervention to alleviate the negative attitudes.

What can be done to overcome distraction in a 60-minute lecture? Charting out a detailed Lecture Script is worth trying.

The Lecture Script [LS]

LS is a detailed action plan for a Lecture, comparable to the screenplay of a movie in which, the position, costume, lighting *vis-s-vis* time of the day, and even the camera angles are specified. A lecture Script can be prepared in these lines. [Fig-1]. It includes four columns as shown. The outermost columns [1 & 4] depict respectively the time elapsed and time remaining for the Lecture. These help the teacher to precisely time his content. In Column 2 ‘positioning’ of the added teaching strategies are given, against the corresponding time segments. Column 3 is the detailed point-by-point split up of the topic to be covered. This is to avoid possible deviation from the topic or miss out on vital points. Since the attention span is around 6-12 minutes, there are 12 rows of 5-minute teaching-learning segments. Spacing of each row can be individualized. Supplementing the subject material with suitable inputs from column 3 will prop up the dwindling attention levels. ***Resilience Gaps*** can be provided to buffer the time elapsed for explanation, utilizing about 6 minutes of the lecture time. This technique can help convert a **‘**Good**’** lecture into a *‘**Memorable**’* one.

Advantages of using the Lecture Script: It helps to

- Keep track of time
- Structure the topic
- Check the deviations from the topic
- Caters to learners with different learning modalities [auditory, visual and kinesthetic]
- Affords time for relaxation – both for the teacher and for students.
- Promotes student-student or student-teacher interaction
- Allows flexibility

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- Caters to most of the student expectations
- Minimizes tendency to get distracted
- Helps the Teacher to Plan & Prepare the process

Disadvantages

- Makes the lecture too 'mechanical'. [This can be overcome by practice]
- Teacher may become dependent on his 'Script'

[Fig-1] SAMPLE OF A LECTURE SCRIPT

1	2	3	4
TIME ELAPSED [MIN]	STRATEGIES FOR IMPROVED TEACHING	SUBJECT POINT No.	TIME RE-MAINING [MIN]
0	REVIEW OF PREVIOUS CLASS/	1	60
5	PROJECT OR DRAW DIAGRAM -1	2	55
10		3	50
15	QUOTE / A RELEVANT ANECDOTE [APPROX 1 MIN]	4	45
20		5	40
25	ANTI ANXIETY TIP [APPROX 1 MIN]	6	35
30	2-MIN BREAK TO FACILITATE STRETCHING /	7	30
35	PROJECT OR DRAW DIAGRAM -2	8	25
40		9	20
45	QUESTION –ANSWER SESSION [APPROX 3 MIN]	10	15
50		11	10
55	PROFESSIONAL / LEARNING TIP [APPROX 1 MIN]	12	5
60	SUMMARY OF PRESENT CLASS / PREVIEW OF NEXT CLASS *Write teacher's own assessment of the lecture & strategies for improvement here*		0

[20 years down the lane, the author is presently Dean [Academic] of Kerala University of Health Sciences, Thrissur.]

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Behavioral Strategies for Medical Students - Phase II

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Report of Workshop on Behavioral Strategies for Medical Students Phase II

The Department of Physiology, Govt. Medical College, Thrissur, Kerala, conducted the Second Phase of Behavioral Strategies for 3rd Semester Medical Students on 04.07.2002 at the Medical College Auditorium.

This was designed afresh, taking into account the feedback and suggestions obtained from the observers and delegates of Behavioral Strategies for Medical Students – Phase-I, conducted for the First Semester MBBS students earlier. The program was designed based on Transactional Analysis.

Aim of the programme was to create awareness in the 3rd Semester Medical Students about the behavioral modifications which can be adopted to benefit in their personal, academic, professional and interpersonal activities.

82 students attended the program. The Vice Principal inaugurated the programme. A Pre Test was conducted and a Pre-Programme Egogram was taken. The programme consisting the lectures, role-plays, group discussions and buzz sessions followed this. The basic principles of Transactional Analysis were discussed along with some practical applications. Film clippings were used to highlight relevant points. A session on Relaxation was also included. This was followed by interactive session, Post-programme Egogram, feedback and evaluation. Lunch and refreshments were provided.

It is practically difficult to evaluate the success of a programme on behavioral modification objectively by any single test, since behavioral modifications are to happen over a period of time which may vary with persons and circumstances..

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However, this was overcome to some extent by evaluating whether there was a change in the "Adult" ego state of the individual as determined by the score in the pre and post programme Egograms.

A positive change (an improvement in the 'Adult' score) was noted in 91% of participants. The score was unchanged in 8% and a decrease was noted in 1%. However, the latter two groups showed improvement in the 'Nurturing Parent" ego state, which is considered a good quality for a practicing Doctor. The feedback obtained about the programme from the participants is tabulated below.

Parameter	Excellent	Very good	Acceptable	Poor	Total No. of Responses
Content	45	46	9	0	100
Clarity of Concepts	36	47	17	0	100
Teaching Methodology	39	49	12	0	100
AV Aids	58	35	7	0	100
Relevance			Yes 99%	No 1%	
Attainment of objectives			Yes 99%	No 1%	

Statement of Conflict of Interest

There are no Conflicts of Interest. The Organizers thank the Principal for permission, the PTA for sponsoring and the Thrissur Medical College Alumni Association for providing technical and logistic support.

[20 years down the lane, the author is presently Dean [Academic] of Kerala University of Health Sciences, Thrissur.]

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A Study of Small Group Discussion as a Teaching Learning Method in Community Medicine

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Objectives of the educational practice

- To get the students involved in active learning process.
- To give the students scope for interaction and improve their communication skills
- To develop rapport between students and teacher
- To develop students self-confidence

Materials and Methods

The study was taken up on a batch of 19 students. First the students were subjected to learning preference inventory to understand their learning preferences towards teacher centered teaching, self-directed learning and group discussion and the following findings were obtained.

- 60% of them showed preference for concrete concepts and teacher structured teaching learning methods
- 40% of them was for self -directed learning while
- 53.87% preferred group discussion

As a second step the students were oriented to the theory and practice of small group discussion.

30 lecture hours were utilized for this method and were conducted between 2 pm to 4 pm and a total of 15 sessions were held.

The group was made to sit in a circle to discuss on a predetermined topic and a designated department faculty acted as a facilitator. The following norms were explained clearly to the group:

- Each group had a problem to solve
- A decision to take
- And to propose a plan of action
- Analyze various aspects of the topic

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As third step, after the 2 hour group discussion session the group dispersed with a list of self-evolved questions and returned for further discussion on the next week.

The topics so discussed were: Identify common medical, social and economic problems leading to ill health, Environmental health, ESI Act, Anti-malaria control programme, Air pollution

Results

The students' responses are tabulated below:

Response	Total No. of students n = 19	Percentage
Active / lively/ meaningful	18	95%
Communication skills	15	79%
Increased rapport with teachers	13	68%
Interactive & involvement of students	13	68%
Waste of time	6	32%
Slow process	15	79%
Increased self-confidence	12	63%

- 6 students (31.6%) felt it was a waste of time as they could not participated due to domination by others
- 15 students (78.94%) felt it was a slow process but helped them think and free to give their views
- 12 students (63.15%) felt that the whole course should be of similar type as it increased their confidence in the area of their learning.

Problems noted by teachers

Time Consuming
Difficult to ensure equal participation by all students
At times feeding them with information is short-circuiting the learning process

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Discussion

Most adults learn more efficiently and retain longer when they engage in active learning.

The teacher here acts as a facilitator: hence the teacher should be good at group process than the content.

It is better to keep the dominating students in front and silent spectator on your side for a more effective group discussion.

A similar study by Kieffner &Dadlin (1997) found that students increased their self-esteem and developed more positive attitude towards learning

To sum up, this exercise brought about self-learning abilities, increased confidence in the subject and incidentally, the whole batch passed all the three subject i.e. ENT, Ophthalmology and Community Medicine in their first attempt.

(This paper has been presented by the author at the 28th National Conference of Indian Association of Social and Preventive Medicine (IAPSM) held at Hyderabad during February 9 -11, 2002)

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Item Analysis for Formative Evaluation in Pathology

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The context that required the initiation of the educational practice

Objectivising evaluation is becoming increasingly important in the field of education, both for summative and formative purpose, as has been again and again emphasized by guidelines published by several universities. One method of achieving this purpose is the widespread use of objective written items, much the most popular form of which is the multiple choice question (MCQ). With greater usage of multiple choice items for this purpose, the importance of item analysis for question banking has emerged and at present item analysis is largely used for creating a viable question bank of MCQs. In addition, many teachers use multiple choice items to assess class performance as a part of formative evaluation.

Objectives of the educational practice

- To find out the lacunae in teaching and to suggest appropriate methods to improve teaching.
- To prepare an MCQ question bank (Item cards) of International standards.
- To objectivise evaluation.

Materials and Methods

- To avoid guessing, an optimum time of 40 seconds for single best response type, 50 seconds for multiple completion type, 45 seconds for multiple match type was given.
- All questions were made compulsory by allotting equal marks to wrong answer and unattempted questions.
- A pre-validation of the question paper was done by 3 senior staff of pathology department.
- A post-validation was done by dividing the students into 3 groups based on their ranks into: High achievers- I Group, Low achievers - II Group, Middle lever achievers - III Group

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- A table for each item was prepared as follows:

Item No. Key (Correct response:)

Options	No. selecting the options against	
	High achievers	Low achievers
A		
B		
C		
D		
E		
No response		
Total M		

Each question was analyzed and the response of the high achievers and low achievers was compared. The items that showed areas which required emphasis, reinforcement or alteration in teaching methodology using other learning aids were noted. The discrimination index, difficulty level and distractor effectiveness were calculated as per the formula given below. The distractors which attracted less than 5% of the learners were removed and were substituted by functional distractors.

(i) Difficulty index (facility value) (P): $P = \frac{H + L}{N} \times 100$

H = No. of students answering the item Correctly in the high achievers group.
L = Similar number of in the low achievers Group or the poor students.
N = Total No. of students in the two groups (Including non-responders)

It is clear that the facility value is merely the pre-portion of total students in the two groups who have answered the item correctly. If, it is 40% it means that 40% of the students belonging to both high achievers group and low achievers group have answered correctly.

(ii) Discrimination index (d): was calculated for formula:

$$d = \frac{H - L}{N} \times 2$$

where the symbols H, L and N represent same values as before mentioned.

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It is a measure of the ability of the item to discriminate between good students and not so good students, an important consideration when items are used for selection of students as in an entrance examination.

(iii) The distractor effectiveness for functionality:

Any of the distractor in the item which has not attracted even 5% of the total response is said to be a non-functional distractor.

No fixation of pass level was done as the objective in this test was to find out lacunae in teaching and preparation of an MCQ bank of known discrimination and difficulty levels.

The items cards showing difficulty level and discrimination index etc., were prepared and filed. An MCQ bank of 70 MCQs of international standards was created.

With a difficulty index (p) 30-70% are acceptable, 50-60% are ideal, more than 70% are very easy, less than 30% are very difficult.

With discrimination index (d) 0.25 to 0.35 are good. More than 0.35 are excellent. Less than 0.2 are poor discriminatory.

Discussion

Administration of an objective test and use of item analysis at the end of the period of instruction, sometimes even as small as a single lecture, has great advantages to the teacher. It enables him to get an active feedback from the students and determine areas which require emphasis, reinforcement or an alteration in teaching methodology perhaps using other learning aids.

Although every aspect of an instructional exercise cannot be reduced to multiple choice item, use of item frequently during class room teaching especially in area of problematic learning is indicated by previous exercise considerably helps the teacher in improving him and his student's performance.

Although teachers use MCQs frequently to assess overall class performance, the total score of the candidate on the paper rarely gives the teacher a good feedback regarding individual learning difficulties. Item analysis can overcome this

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problem. This information can be used to improve teaching methods or resort to alternative methods, introduce audiovisual aids or use them more effectively or determine areas requiring emphasis and reinforcement. Item analysis also pinpoints the question on which good students are confused and which students did not attempt. Teachers consequently can examine the amount of time allocated to those areas and / or clarity of teaching.

Conclusions

Frequent resort to administration of objective tests and performance of an item analysis routinely helps tremendously to achieve better teaching, better learning and in the long term better tests, while it must be admitted that this process will require a lot more effort on the part of the teachers, they will learn a great deal more about their teaching than anticipated and can also improve their MCQ items.

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Pharmacology – Gamified!

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The context that required the initiation of the educational practice

Drugs are the corner stone of modern therapeutics, yet it is a widely accepted notion among medical students that studying Pharmacology is most boring as they have to remember hundreds of drug names, uses and their adverse effects. It is also a challenge for teachers to keep up the students' motivation, engagement and concentration in a lecture class.(1) The need of the hour is to reform the teaching of pharmacology using methods that are more student-centered and engaging. Active learning methods have proved to have made the teaching and learning of pharmacology more interesting and has yielded the desired learning outcomes.(2) Keeping in mind the strong idea that 'A picture is worth a thousand words', a game based learning method was designed through Kahoot! a game-based learning platform for assessing the MBBS students learning of pharmacological concepts during the COVID-19 lock-down period.

Objectives of the educational practice

- To encourage MBBS students to use their smart phones for learning pharmacological concepts.
- To employ Kahoot! which is a game-based learning platform for assessing the MBBS students in learning pharmacological concepts

The Educational Practice

Technology enabled learning and assessment is a novel pedagogical approach in medical education and the main aim is to drive learning and to inculcate interest among students.(3) Kahoot is a free, real-time, game based, learning platform where a synchronous type of interaction between teacher and students happen with the use of smartphones, tablets or laptop(4) Colour, the most important visual

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experience functions as a powerful information channel to the human cognitive system and has been found to play a significant role in enhancing memory and performance.[5] With the very same idea and to make the more complex facts to be remembered easily, game activities using Kahoot! With colours as the theme, titled as COLOUR OF THE DAY game, with attractively subtitled as BLUETIFUL, Are you REDii?, BLACKNIFICENT, GO GREEN, YELLOW FELLOW and POSITIVE PURPLE etc.,

The picture quiz was framed as such to include all aspects from sources of drugs to recent advances and each activity was limited to only ten questions, to keep it short and sweet. For example the questions on blue were about blue colour cylinders storing Nitrous oxide, antidepressant causing bluish discoloration of urine, sildenafil causing blue vision etc. For red colour the questions on Hemorrhagic cystitis and mesna, contact lens staining by Rifampicin, Red form for reporting adverse reactions etc. were some. For black color ergot induced Gangrene, Black box warning by FDA, Latanoprost induced hypertrichosis, belladonna plant- source of atropine were included and so on.

Every Monday the Kahoot activity for the day will be posted with a start time and end time and students even during the lockdown period can participate from their own place during that stipulated time. Each question is allotted a time of 20 to 30 seconds to answer. The settings were done in such a way that the student has to answer that before proceeding and the correct answer will be displayed at once with a background music that gives a sense of enthusiasm and excitement. Final scores will be displayed on the podium automatically by Kahoot! and the individual responses can be viewed as a summary both by the facilitator and student at the end.

Obstacles faced and strategies adopted to overcome them

Kahoot! is a user friendly, game option that requires minimum technical expertise. Apart from dedication of extra time and a good internet accessibility, no major obstacles were encountered. Sharing of individual Kahoots among faculty actually eased the work and also provided us with a good Kahoot! collection. We had to ensure that students enter their original names as so many have nick named themselves as Corona, Ebola etc and the option of excluding them instantly sorted this out. As the free version of Kahoot! allows only 50 participants at a time, we made duplicates of the same activity and shared them with the remaining students and for those who wished to repeat again. We advised the students to screenshot

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their answers for their revision. Explanation of answers for the puzzle could not be discussed through Kahoot for which we used google class room activity and power point presentation.

Evidence of the effectiveness of the educational practice

Kahoot is an enjoyable fun way of learning for today's students who are well versed in technology.

Attendance: In most of the Kahoot game activities , the attendance was almost 100 percent which clearly showed their interest and curiosity to learn through this fun way method.

Feedback: The feedback questionnaire with a set of framed questions collected through google forms showed that Kahoot enhanced their learning experience and that they loved the fun. Almost all have expressed that these innovative methods of teaching augments their memory and they are able to recall effortlessly. The result showed that Kahoot! definitely has a positive impact on students motivation, concentration and learning experience.

Resources required

A smartphone /Tab / laptop / desktop with uninterrupted internet connection and an interest to create and participate in Kahoot! is essentially needed .

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The first principle of true teaching is that nothing can be taught. The teacher is not an instructor or taskmaster, he is a helper and a guide.

-Sri Aurobindo

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