



# N.T.T.C

## BULLETIN

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THEME OF THIS ISSUE  
**TEACHING — LEARNING METHODS**

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Sl. No.	Contents	Page No.
1	Project Report 1: Re-Engineering a "Good" Lecture .....Dr. V. V. Unnikrishnan	1
2	Project Report 2: Evaluating Seminar as a Teaching Tool ..... Dr. (Mrs.) H.K. Shah	3
3	Project Report 3: Teaching / Learning Anatomy a 'democratic' approach ..... Dr.K.K. Krishnamma and Dr.K.S. Subhadra	5
4	Letters to the editor: Problem Based Learning..... Dr. H.N. Madhavan  Medical Education System at USA ..... Dr. K. Sri Nageswari	7  8
5	Projects presented by the participants of 47th National Course	10

## PROJECT REPORT— 1

### RE-ENGINEERING A 'GOOD' LECTURE

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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, his jokes and anecdotes.

As teachers almost all of us are concerned about the quality of our lectures. No wonder, delivering a good lecture is something of a nightmare for many teachers. Some of the common anxieties are about

1. Overall effectiveness of the lecture
2. Presentation style
3. Overcoming the apparent lack of interest by students
4. Possibility of getting a poor feedback
5. Whether too much or too little has been covered
6. Deviation from topic, thereby losing time
7. Concern about being "Examination oriented" or "Subject oriented"
8. Going above or below the expected standards envisaged in the curriculum

#### 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

1. Disinterest
2. Subject too dull / boring
3. Teaching is monotonous
4. Too much being taught in an hour
5. Teacher is interested in 'finishing off' the topic at a stretch
6. Mismatch of teaching - learning strategies of teacher and student
7. Anxieties about facing the examinations
8. Anxieties about Profession
9. Personal problems

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? The charting out of a detailed Lecture Script is worth trying.

#### Lecture Script

It is a detailed action plan for a Lecture, comparable to the script of a movie in which, even the camera angles are specified. It includes four columns as shown. The outer ones [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. Utilizing about 6 minutes of the lecture time can thus convert a 'Good' lecture into a '**Memorable**' one.

Advantages of using the Lecture Script: It helps to

1. Keep track of time
2. Structure the topic
3. Check the deviations from the topic
4. Caters to learners with different learning modalities [auditory, visual and kinesthetic]
5. Affords time for relaxation - both for the teacher and for students.
6. Promotes student-student or student-teacher interaction
7. Allows flexibility
8. Caters to most of the student expectations
9. Minimizes tendency to get distracted

#### Disadvantages

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

**SAMPLE OF A LECTURE SCRIPT**

TIME ELAPSED [MIN]	STRATEGIES FOR IMPROVED TEACHING	SUBJECT POINT No.	TIME REMAINING [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		0
<i>WRITE TEACHER'S OWN ASSESSMENT OF THE LECTURE &amp; STRATEGIES FOR IMPROVEMENT</i>			

**From the Web: Changing Paradigms of Learning**

NEW	OLD
Knowing what you should know.	Knowing what you don't know and knowing how to find out.
Much learning "complete" at the end of formal training.	Learning from cradle to grave.
Uncertainty discouraged and ignorance avoided.	Legitimizing uncertainty, learning by questioning.
Learning by humiliation; name, shame, and blame.	Able to question received wisdom.
Sole methods: apprenticeship, learning from accepted wisdom.	Turning problems into questions and to find, appraise, store, and act on experience and evidence to solve them.
Fact and content based content-based learning.	Problem and process based learning.
Professionals on top.	Professionals on tap.

## From the Web: Seven Stages of a "Show How" Demonstration

**Stage 1: Introduction** - Introduce the session by stating the objective and describing the process.

**Stage 2: Positioning** - Position the learners by your side so that they see the demo from your perspective.

**Stage 3: First Demonstration** - Carry out the demonstration at normal speed and without speaking.

**Stage 4: Second Demonstration** - Carry out the demonstration with pauses to explain and emphasize key points.

**Stage 5: Third Demonstration** (for complex skills) - Carry out the demonstration in stages with full explanation of each and re-emphasizing key points.

**Stage 6: Learner Description** - Request the learners to describe what you should do and how you should do it as you carry out the task for a fourth time. This stage enables you to check learner understanding.

**Stage 7: Learner Attempt** - This final stage is for the learner to carry out the task. Observe them doing it so you can provide feedback and correct any errors.

Ref: Gabiriele Mallapaty - Plan and Deliver Effective Learning Opportunities. Unpublished - (March 1999)

### PROJECT REPORT— 2 EVALUATING SEMINAR AS A TEACHING TOOL

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The Medical teacher's job is challenging because the quality of teaching is reflected in the quality of patient care. Since the medical profession deals with human life, teachers have the responsibility of producing doctors with adequate training (1).

Over the years, along with the traditional lecture oriented training, many other teaching-learning methods have been introduced. The Medical Council of India has also recommended the use of other teaching methods like seminars, demonstrations, field visits, etc. spreading over 18 months of pre-clinical course for teaching community medicine (2,3).

For teaching to be effective, a thorough acquaintance with various teaching learning methods, their merits and demerits is vital, so that

suitable methods can be adopted to optimise learning outcome (1).

A Seminar / Symposium is one of the methods that concentrates on developing the cognitive abilities of a person and has been introduced as a teaching learning method in many colleges. Though in widespread use, this method needs to be evaluated with respect to its standard as it has been noted in the absence of proper guidance and monitoring this can be a time waster if its objection are not met.

#### **AIMS and OBJECTIVES:**

1. To assess presentation skills of the medical students.
2. To evaluate the quality of seminars.
3. To find out the utility of the seminar as a method teaching.

### **Methodology:**

The present study was conducted during the community posting of a batch 32 students who were divided into nine groups, each group having three / four speakers. A topic was allotted to each group leader, who was asked to discuss the sub topic with the members of their group. Each group was allotted a faculty as a guide. Objectives of the seminar were laid down and the group was asked to try to meet them. A time of five minutes was allotted to each speaker.

During the presentation, a senior teacher who was not a guide for any of the topics, (to avoid any bias), evaluated each speaker.

Evaluation was based on twenty parameters, which were devised to evaluate, the preparation, presentation skills and use of audio-visual aids.

Based on the number of 'YES' responses marked for the parameters, the individual presentation was graded as Excellent (15-20); Good (10-15); Average (5-10); Poor (0-5); to rate the group seminar, score of each group members was added and mean calculated. The same scale was then applied to mean score.

**TABLE I**

Grading	Scoring	Number of Groups
Excellent	15-20	02
Good	10-15	04
Average	05-10	03
Poor	00-05	00
Total		09

**TABLE II**

Grading	Scoring	No. of Groups
Excellent	15-20	09
Good	10-15	13
Average	05-10	07
Poor	00-05	02
Total		31

**TABLE III**

Sl. No	Parameter	Yes		No	
		Nu	%	Nu	%
1	Objectives were met	30	96.77	01	3.20
2	Topic was adequately covered	30	96.77	01	3.20
3	Content was very relevant	30	96.77	01	3.20
4	Doubts were cleared	29	93.54	02	6.40
5	Helped to understand the topics	29	93.54	02	6.40
6	Was confident in presentation	23	74.19	08	25.80
7	Generated interest in the topic	14	45.16	17	54.83
8	Proper use of OHP	15	48.36	16	51.60
9	Slide was well spaced (not crowded)	14	45.16	17	54.83
10	Spoke without too much reading from notes	14	45.16	17	54.83
11	Information not repeated	03	09.60	28	90.32
12	Voice soft (not audible)	23	74.19	08	25.80
13	Fluent in presentation	24	77.41	07	22.25
14	Illustrative	19	61.29	12	38.70
15	Completed in allotted time	08	25.80	23	74.19
16	Effective question handling	29	93.54	02	6.40
17	Good pace of delivery of words	23	74.19	08	25.80
18	Voice modulation present	17	54.83	14	45.16
19	Good reference work	25	80.64	06	19.30
20	Summarised effectively	12	38.70	19	61.29

### **REFERENCE**

1. Yeolekar M, "Teaching Learning Methodologies", The art of Teaching Medical Students, pg 8, 1996
2. Rotti SB, Soudarssanane et al, "Group discussion as a method of teaching Certain topics in Community Medicine for Pre clinical students, Ind J Med Edu, 30 (3):16-21, 1991
3. Gangadhar R, "Seminar Presentation by first Year Medical Students: A Peer Assessment" Bulletin of NTTC, Vol 8, No. 2 & Vol 9, No 1, pg 18-21

**Project Report — 3**  
**Teaching/Learning Anatomy**  
**a 'democratic' approach**

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## Introduction

The students enter the Medical Colleges in India through competitive examinations conducted at national and state levels by different organizations. The mushrooming entrance coaching centers often expose the students to a *spoon-feeding* type of *coaching*. When they enter the medical college after this strenuous academic exercise, they are exposed to a totally new scenario of teaching/learning process. They often face problems in adjusting to the new academic environment. To make the situation worse, the strained students-teacher relationship, a phenomenon due to generation – gap and inadequate sensitization of the students as well as the teachers, has affected the medical education also. The impending dangers are more in the beginning of the MBBS course especially while studying Anatomy which, according to the students, is the most difficult subject in the 1<sup>st</sup> year.

Medical Education all over the world is passing through revolutionary changes. Students are the consumers of the curriculum. As such, their views and input in the curriculum and methods of instruction, is being well recognized. But, our system of medical education is designed and introduced by eminent scholars in the respective field and there is no role to play by the students in molding the teaching/learning process. In this perspective it is a unique venture initiated by the AIMS College of Medical to conduct an Open Forum on Teaching/Learning Anatomy.

## Methodology

The participants were primarily 3<sup>d</sup> semester students (who passed Anatomy to facilitate frank input) from all the seven (at that time) Medical Colleges in Kerala. A team (consisting of two boys and two girls) was invited from each college. Their travel expenses, accommodation and local hospitality were met by AIMS College of Medicine (which at that time was waiting for the admission of the first batch)

## Conduct of the Open Forum:

After the initial inaugural formalities, they

were randomly grouped into four. Each group was assigned specific tasks as follows

- Group I. Gross Anatomy,
- Group II. Histology and Osteology
- Group III. Embryology, Neuroanatomy and Genetics and
- Group IV Applied and Clinical Anatomy, Surface and Radiological Anatomy

The specific areas of discussions for each group were didactic lectures, practical, integrated teaching, seminars, tutorials, assessment. After thorough discussion, they were instructed to recommend policy changes, skill development, student teacher interaction, evaluation procedures, difficulties in teaching/ learning etc. A team of 2 faculties from the Department of Anatomy of AIMS (with whom they did not have any academic interaction) guided each group.

## The Plenary Session

In the afternoon, the each group presented its report in the open plenary session, which was attended by faculties of different academic departments and administrators of AIMS Medical College. All efforts were made to facilitate open discussion.

## RECOMMENDATIONS

### Group I- Gross Anatomy

1. In lecture classes faculty may draw diagrams or use simple explanatory charts, rather than using OHP sheets alone which are previously drawn diagrams.
2. A copy of Anatomy atlas may be provided to each of the dissection table, for reference during dissection
3. Number of students per dissection table may be 8 to 10.
4. Co-ordination may be assured whereby theory classes are taken just prior to the dissection
5. Before each dissection, a small preview of about 15 to 30 minutes may be given
6. Spotting exam may be conducted as per the following guidelines
  - i) Number of spotters may be restricted to 25.

- ii) Mark allotment may be as follows:
    - Identification – 50%
    - Two sub questions – 50%
  - iii) Time for each spotter may be fixed as 1 - 1½ minutes.
  - iv) Diagram questions may be avoided for spotting exam.
7. Oral exam/viva  
Frequent formative assessment (theory, practical and oral) may be conducted, after dissecting each region. Exposure to repeated oral exams will definitely help in reducing the tension and nervousness regarding the exam.

**Group 2. Osteology**

1. Osteology classes and dissection should match in time.
2. 20 students is ideal number for small group teaching like Osteology.
3. Relevant X-rays may also be shown along with Osteology classes.
4. Sufficient number of bones may be given to the students during Osteology tutorials.
5. Periodic revision classes may be given.

**Group 2. Histology**

1. CCTV may be used to illustrate the various features while teaching Histology.
2. Only 2-3 slides may be taught in one practical class.
3. More table help and personal attention may be provided in Histology practical classes.
4. At least 2 - 3 revisions may be given prior to Examination

**Group 3. Embryology**

1. Only basic (essential) knowledge may be expected
2. Models may be used to explain developing parts to preferably in small groups .
3. Guided museum tours may be arranged as part of the teaching.
4. Animation graphics may be incorporated as part of computer aided learning of Anatomy.
5. Separate tests in Embryology using “structured short questions” may be conducted.

**Group 4. Neuro anatomy**

1. More teaching aids may be used for better orientation of the students in this complex area.
2. Dissection must be preceded by prosection of the region concerned.
3. Only gross details may be taught

4. An atlas may be provided to each table for reference.
5. Clay models with detachable parts and computer generated models may be used to explain parts of brain and spinal cord.
6. Question-answer type tutorials may be conducted more frequently .
7. Clinical integration by showing real cases may be made to facilitate better learning.
8. More short questions are preferable in assessment.
9. Diagram based questions may be asked during viva.
10. Drawing Neuro-anatomy diagrams may be given as student assignment.

**Group 5. Genetics**

1. Clinical cases may be shown to explain anomalies.
2. Integrated sessions may be conducted along with Department of Biochemistry.
3. More clinical cases (either live or Computer aided) may be shown.
4. The current assessment system in Genetics ( ie, one short question in Paper I) can continue.

**Group 6:**

**A: Applied, surface and radiological Anatomy**

1. During theory and dissection classes and at the end of each regional dissection, relevant applied, clinical and surface anatomy may be discussed
2. Stress should be given to clinically important points during dissection and lectures.
3. Students may be involved in preparation of questions based on clinical cases.
4. Seminars may be conducted on surface anatomy alone.
5. Newer investigation modalities involving radiology and other clinical departments may be outlined to students.

**B. Integrated teaching**

1. Vertical integration may be implemented where faculty from Orthopedics, General Surgery, Medicine, Pediatrics, Neuro surgery etc may be involved to hold sessions.
2. Horizontal integration may be made involving Physiology and Biochemistry in study of regions such as brain and special senses.

### C. Seminars:

The following guidelines may be followed.

1. 25 students is the ideal number of students per seminar batch.
2. All students must come prepared in the topic provided.
3. Students may be selected randomly to present the topic.
4. Seminars may be immediately followed by small objective tests.

### D. Tutorials / Counseling:

1. 4-5 students may be allotted to a staff for holistic guidance.
2. Frequent meetings may be arranged with the staff concerned.

3. Sessions should be friendly and informal.

### Follow up

The outcome of the open forum was discussed in a meeting of the Anatomy faculty members of the different Medical Colleges of the state. Considering various factors issues, which were relevant and feasible were taken for immediate implementation. Others were brought to the attention of the Director of Medical Education, Kerala for appropriate action. Many of the recommendations of the students and faculty were implemented at AIMS (Kochi) from the first batch onwards.

**(Editor:** We welcome comments from other Anatomists. Mail to: [nttc@rediffmail.com](mailto:nttc@rediffmail.com))

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## LETTERS TO THE EDITOR

Dear Sir,

I received the NTTC. Bulletin of Volume 10, September 2002 and March 2003 issue. As former faculty of NTTC in its early days of development, I am induced to write this letter. The theme "problem-based learning" (PBL) in medical education has been of great interest to me. I was quite involved in development of problems based learning in the medical school at Penang, Malaysia for the first batch of students and the subsequent ones until I left. The program I understand is going on quite well.

I wish to point out the few methods which had helped my colleagues and me in development of case studies (PBLs) based on which the students learned and subjects horizontally—I mean starting from the basic sciences to clinical and social medicine. All specialists concerned joined to prepare them.

I know all these might have been well know to you because of your vast experience and my suggestions are not anyway new or novel. But as a strong proponent of PBL in medical institutions, I am constrained to write the following to express my thought processes to help prepare case studies for the medical students.

A good medical records department is a must and I am sure we have one at JIPMER. Preparation of PBLs will be based on the records of the patients seen in the outpatient as well as in the emergency department of institution. This helps in learning the most common problems faced by a student in that given area. The records of these patients are used for the preparation of

the PBLs using the patients' complaints, clinical history, preliminary clinical diagnosis, investigations, management including the emergency management, follow up after discharge or if dead the autopsy findings. The complete details of an illness with all knowledge of the disease processes, skills needed for the student to learn the pathology, clinical diagnosis and management and likely disease process of the case during the follow up the patient are learnt during the group discussions at the specified sessions.

I personally prepared many PBLs, which were entirely based on the records of hospital attached to the medical school in Penang. This not only helps in the knowledge of the local problems but helps the students to perform the investigations required, the results analyzed and fairly are able to come to good conclusions on the problems. Many investigations may not have been done because of their non-availability. Discussions are always possible by including them in the case studies. Preparations of such PBLs are always difficult since many teachers are involved, but it should be made possible. I am sure JIPMER department of Medical Education has many, hopefully based on JIPMER case records, PBLs to help students to learn basic sciences, clinical sciences, the management of the cases, the epidemiology of the disease, methods of prevention and spread of the disease within the family and into the community. If at least 10-15 problem-based cases are prepared for each organ system (a separate communicable disease program should be available for countries like ours—since they are often multi-organ disease) it is possible to cover a large part of the learning process of a medical undergraduate. The teacher (facilitator) happens to be the role model for them to learn the attitude.



Personally, even now, Microbiology practical learning which I plan for my students are problem-based as diagnostic microbiology rather than systematic microbiology though it is not given up entirely because preliminary learning on them is necessary.

Hopefully I have given some food for thought

to improve ourselves in medical undergraduate learning.

Yours sincerely,  
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### **Medical Education System at USA**

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The essential difference between the American Medical Education and ours is that their teaching content is dynamic and autonomous. It gives flexibility to incorporate new discoveries with fast response times. Let us have a glimpse of medical education in USA.

**The Medical course** - The students in USA complete 4 years Bachelor of Science (BS degree) and then join medical colleges. The basic medical degree awarded is M.D. Medical education in USA consists of 2 semesters, fall and spring.

The lectures are taken in large lecture theatres, equipped with latest state of the art projection facilities. The LCD projector, the lighting, the slide projector can all be operated through a touch-screen at the podium.

The detailed handouts are given by the faculty members. The figures from various text books are scanned and incorporated into PowerPoint presentations. The salient points of the text material are projected and elaborated by the lecturer. Many of such presentations are in the form of customized slide shows with animation effects to generate interest among students. The teaching/learning material is also posted on the departmental website. The students have free access to internet facility and can gain access to the websites (where there are no security restrictions) and download the teaching/learning material available.

The teaching philosophy varies from interactive to formal. Successful teaching programs are supported by successful research programs. Students benefit from the knowledge of the faculty at the cutting edge of their discipline. Attendance system is not followed in USA and student ratings are given for overall impact of teaching.

Two of the medical students volunteer for taking down co-op notes of the lecture taught by the instructor. They get the notes corrected by the instructor and get the same typed and make multiple sets of the same for distribution to the

students. The students pay for the expenses.

The American medical student spends less time in practical training in basic subjects as compared to Indian medical student in the first year.

**Examination system** - Examinations are objective -MCQ- type and the system is fully internal. There are sectional and final exams. The sectionals are held after completing each system and final exams are conducted at the completion of each semester. The question papers are designed by the faculty but examinations are administered and analysed by Department of Medical Education (DME).

The pass index for each question and the taxonomy level are to be indicated by the teacher setting the paper for the examination. The pass level for the individual examination is set based on the pass indices for various questions. There is a pool of questions maintained by the DME and a set percentage of new questions are added each time.

There is a feed back form for the students attached to the booklet containing the multiple choice questions, wherein the students comment upon each of the questions. The DME collects and analyses the student feedback. The pass level is lowered on the basis of feed back from the students and their performance. Frequency distribution curves for the performance of the students (based on quintile values) for each question are plotted and the difficult questions are dropped. For e.g. if only 20% of the top quintile could respond correctly to a particular question, the question is considered difficult.

The performance of students for a particular course for the previous years is also compared while analysing the results of the current examination. Special committees consisting of faculty drawn from the DME, Course Director, faculty from concerned department and the instructor for the course have meetings to evaluate student performance after an



5. Dr. O. Geetha,	Medical College, Thiruvananthapuram	Training the interns in preparing a proper wound certificate
6. Dr. Y. Annapurna	Medical College, Thiruvananthapuram	Guidelines for answering multiple-choice questions to undergraduate students
7. Dr. C. Ravindran	Medical College, Thirussur	Application of simulated patient management projects for teaching and assessment in emergency posting
8. Dr. Nileena Koshy	Medical College, Thirussur	Introduction of group discussions / sessions instead of lecture classes
9. Dr. K. Manimekalai	Jubilee Mission Medical College, Thirussur	Clinical case based on T.L. in Pharmacology
10. Dr. G. Jayalakshmi	Stanley Medical College, Chennai	To set up an MCQ bank for formative evaluation in General Microbiology
11. Dr. A. Vijayalakshmi	Stanley Medical College, Chennai	Preparation of model lesson plan in Biochemistry for first MBBS students
12. Dr. Sriram Rajagopal	Railway Hospital, Chennai	Study of the effect of the use of Lesson Planning and T.L. aids on review presentation by Postgraduate students
13. Dr. Anna Tharyan	Christian Medical College., Vellore	Methods of evaluating communication skills among medical students and interns
14. Dr. Anna Mathew	Christian Medical College., Vellore	Enabling students to develop self-learning skills.
15. Dr. V.K. Deshpande	J.N. Medical College, Wardha	Formulation and use of OSPE for formative evaluation of MBBS students for the practical examination at JNMC, Wardha
16. Dr. S.K. Diwan	J.N. Medical College, Wardha	To prepare structural clinical evaluation in the department of Medicine
17. Dr. S.Kumaravel	Pondicherry Instt. of Medical Sciences, Pondicherry	Development and use of Simulated Patient Management Problem for training and formative evaluation in the management of trauma.
18. Dr. Jothimalar	Pondicherry Instt. of Medical Sciences, Pondicherry	To prepare the SLO for the first MBBS Biochemistry
19. Dr. S.S. Rajasekar	M.G.M.C.&R.I., Pondicherry	Teaching Methods in Transactional Anatomy—A basis for imaging technology
20. Dr. Seetesh Ghose	M.G.M.C.&R.I., Pondicherry	Evaluation of history taking skill of medical students following their clinical posting in the department of Obst. & Gyn.
21. Dr. G. Shrikanthan	M.G.M.C.&R.I., Pondicherry	Implementation of an apt T.L. method for proper documentation of an injury
22. Dr. Reena	JIPMER, Pondicherry	Evaluation of final year medical students by OSCE
23. Dr. N.R. Vishnu Prasad	JIPMER, Pondicherry	Attempt to find out effectiveness of lecture using 4 to 6 MCQs
24. Dr. (Mrs.) Pravati Pal	JIPMER, Pondicherry	Improvement of performance of slow learners in Physiology by small group discussion

BOOK-POST - PRINTED MATTER

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