ISSN 2250-396X

N.T.T.C.

BULLETIN

Volume: 19.2
September 2012

Theme of this Issue

Self Directed Learning in Graduate Medical Curriculum

Correspondence and Contributions to:
The Editor,
Bulletin of NTTC,
Department of Medical
Education, JIPMER,
Puducherry-605 006

Email: nttc.jipmer@gmail.com

Published by
Department of Medical Education
(NATIONAL TEACHER TRAINING CENTRE (NTTC))
Jawaharlal Institute of Postgraduate Medical Education and Research (JIPMER)
Puducherry, India-605 006.

Self Directed Learning in Graduate Medical Curriculum

Dr. Santosh Kumar,
Professor & Head of Departments of Urology & Medical Education and

Mr. Z. Zayapragassarazan,
Assistant Professor of Educational Technology,
JIPMER, Puducherry.

What is Self Directed Learning?

Education is a process the chief goal of which is to bring about desirable changes in the behaviour of the learner.[1] The educational process consists of defining learning objectives, selecting learning resources and learning methods and choosing assessment methods. Self directed learning is a process in which learners take responsibility for their learning. In self directed learning, learners are involved in selecting learning resources and learning methods and self assessment of learning outcomes with teachers acting as facilitators.[2] As per theory of self determination, giving greater responsibility to students for their own learning increases motivation. Learning methods have been classified as teacher-controlled or directed methods and learner-controlled or directed methods[3] (Table 1). Learner-directed methods promote self directed learning. Self directed learning is increasingly used in medical curricula as it is thought to promote life long learning in medicine.[4]

Table 1

Teacher-Controlled or Directed Learning Methods	Learner-Controlled or Directed Learning Methods
1. Lecture	1. Assignment
2. Demonstration	2. Project
3. Beside clinic	3. Problem-based learning

In assignment, learners perform an individual or group learning task which is chosen by teachers.[3] In project, learners perform an individual or group learning task which is chosen by learners.[3] In problem-based learning, learners tackle problems in small groups under supervision of a facilitator and problem-based learning is believed to foster self-directed learning skills.[5]

Why is Self Directed Learning Required?

Medical Council of India Regulations on Graduate Medical Education (1997)[6] only prescribed teaching hours for each subject and did not prescribe hours for different teaching-learning methods in each subject (Table 2).

Table 2

Teaching Hours for Preclinical Subjects (MCI-1997)

Subject	Hours
Anatomy	650
Physiology	480
Biochemistry	240
Community Medicine	60

However, the proposed Medical Council of India Regulations on Graduate Medical Education (2012)[7] not only prescribes teaching hours for each subject but also prescribes specific hours for different teaching-learning methods in each subject (Table 3).

Table 3

Teaching Hours for Preclinical Subjects (Proposed MCI-2012)

Subject	Lectures (Hours)	Small group teaching/ Practicals (Hours)	Self directed learning (Hours)	Total (Hours)
Anatomy	200	350	30	580
Physiology	170	235	25	430
Biochemistry	90	115	20	225
Community Medicine	20	27	5	52

Number of teaching hours earmarked for self directed learning in various phases of MBBS course in proposed MCI Regulations-2012 is given in Table 4.

Table 4

Teaching Hours for Self Directed Learning (Proposed MCI-2012)

Phase of MBBS Course	Total Teaching Hours	Teaching Hours for Self Directed Learning
Foundation	320	15
Phase I	1440	80
Phase II	1440	124
Phase III Part I	1680	66
Phase III Part II	1760	60
	6640	345

Thus 345 hours are available for self directed learning in the proposed MCI Regulations on Graduate Medical Education-2012. Hence, it becomes important to know some of the ways for utilizing self directed learning hours during MBBS curriculum.

How to Utilize Self Directed Learning in MBBS Curriculum?

The learner-controlled or directed methods given in Table 1 (assignment, project and problem-based learning) can be used for utilizing self directed learning hours in MBBS curriculum. These three methods serve different purposes. An assignment

can be used for learning of theoretical aspects. A research project can help in acquiring research planning and implementation skills. Problem-based learning can help in learning clinical problem solving skills.

How to Use Assignment Method for Learning Theory?

Assignment method can be used for learning of theory by identifying easier portions of theory topics and assigning them for self directed learning. As an example, the list of theory topics for MBBS students in JIPMER is given in Table 5 and topics given in bold can be assigned for self directed learning. To facilitate learning, learning objectives can also be given to learners for each topic assigned for self directed learning. As an example, retention of urine can have learning objectives for theoretical aspects as depicted in Table 6.

Table 5

Urology Theory Topics in MBBS in JIPMER with Self Directed Learning Topics in Bold

1. Oliguria, Anuria & Retention of Urine	8. Hydronephrosis
	9. Benign prostatic hyperplasia
2. Hematuria	10. Genitourinary tuberculosis
3. Renal tumor	11. Urinary tract infection
4. Bladder tumor	12. Upper urinary tract trauma
5. Prostate cancer	13. Lower urinary tract trauma
6. Penile cancer	14. Ureteric colic & Urolithiasis-I
7. Testicular tumor	15. Urolithiasis-II

Table 6

Learning Objectives for Theoretical Aspects of Retention of Urine

1. Define retention of urine.
2. Differentiate between acute retention and chronic retention of urine.
3. Describe causes, pathogenesis, clinical features and management of acute retention of urine in two genders.
4. Describe causes, pathogenesis, clinical features and management of chronic retention of urine in two genders.

Similarly in all subjects easier portions of theory can be assigned for self directed learning. A communication can be issued by the competent authority about the portions assigned for self directed learning. The portions of theory assigned for self directed learning need not be covered in theory classes but can be assessed.

How to Use Project Method for Self Directed Learning?

MBBS students can undergo an introductory course in Research Methodology including how to choose research topics, steps of research, literature search, study design and bias eliminating techniques, sample size calculation, choosing statistical tests, research ethics and how to write protocol. After attending this course, the students can plan and implement short (1 to 3 months) and simple (record reviews and descriptive studies) research projects under the supervision of teacher-guides. Complicated studies like case control, cohort and randomized trials may not be given to MBBS students because they may take longer time. Planning and implementing short and simple research projects will help students in acquiring research skills which will be useful to them in their postgraduate studies also.

How to Use Problem-Based Learning for Promoting Self Directed Learning?

Use of problem-based learning is another way of utilizing self directed learning. Problem-based learning can be used in first two years of traditional graduate curriculum to promote self directed learning and early clinical exposure. Introduction of problem-based learning in first two years of graduate curriculum needs collaboration with clinicians and resources for conducting small group learning. Problem-based learning can be used to utilize self directed learning hours in MBBS curriculum if resources are available.

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Blended Learning in Medical Education

Mr. Z. Zayapragassarazan
Assistant Professor of Educational Technology
Department of Medical Education and

Dr. Santosh Kumar
Professor & Head of
Departments of Urology & Medical Education,
JIPMER, Puducherry.

The goal of medical education is to have well-educated and competent physicians to address the healthcare issues facing today. Hence the teaching of medical students has gained the attention of academicians. Medical education faces lot of challenges with respect to pedagogical advancements in higher education and the changing learning needs of the medical students. This has stressed the need for newer teaching and learning strategies, resources and learning environment on the part of both the students and teachers.

The integration of technology into medical pedagogy has proved effective in many ways. This has made the medical education more flexible, learner centered, interactive and collaborative among teachers and learners[1]. Blended learning is one such strategy that has proved effective in all fields of higher education including medical education. Blended learning refers to the systematic integration of online and face-to-face engagement to support and enhance meaningful interaction between students, teachers and resources[2]. Using principles of adult education, blended learning allows for greater flexibility and responsiveness in the teaching and learning process[3].

It is also proved that the limitations of time and space, instructional media and methods can be met through integration of online instruction which is a component of blended learning[4]. In the present age of information revolution and penetration of technology and ICT in all fields of education where medical education is not an exception, it is to be taken care that technology or ICT should be not used indiscriminately or not to be used just for the sake of application because application of technology or ICT is highly context-dependent. If certain concepts can be delivered through traditional or face to face mode it is always better to follow the same for proven expected outcomes. Unless a technology assures for better learning outcomes it should not be considered as a strategy and again it depends on the experience and expertise of the concerned teacher in using a particular technology or a teaching technique.

'Blended learning' includes learning activities that involve a systematic combination of co-present (face-to-face) interactions and technologically mediated interactions between students, teachers and learning resources. Blended learning can be designed for a specific course or a content that has clear objectives by incorporating suitable teaching-learning activities.

The following face-to-face interactions and technology mediated interactions may be considered for effective blended learning:

Interactive lecture cum demonstration

A short lecture that starts with a brainstorming session could be delivered on the topic of the session. A demonstration on the topic if applicable may be incorporated suitably. Chalk board and other demonstration objects may suitably be used for this. After the demonstration a small group discussion moderated by the faculty can be organized. If necessary a buzz session on the topic can also be introduced to make the learners gather and reflect their ideas on the topic of discussion.

Multimedia presentations

Certain contexts of the topic could be covered by using videos and power point presentations.

Group discussions

Certain identified areas of the content can serve as topics for group discussion which will help learners in better understanding of the chosen content.

Quiz

A short quiz with limited questions from identified contents can be conducted by providing immediate feedback which will improve the learners' focused attention.

Expert address

A video call is now very much possible with the help of smart phones. With due appointment, an expert in the respective field may be asked to address the learners with some novel information about the topic by calling him/her over a smart phone. The speech can be projected to the whole class for listening.

Using laptops in the classroom

If lap tops are available with learners and the classroom has internet connectivity (possibly with wifi) important websites of respective subject can be suggested for the learners to browse and reflect on the topic in different views. This can also be done by the facilitator him/herself using an interactive board (smart board).

Collaborative learning

An online collaborative writing of assignment or a discussion may be mooted out with the help of online tools such as Google docs.

Peer to peer presentations

Blended learning can also be extended to the next session through different ways. One of the way is by using Peer to peer presentations. In this, learners will be required to present a ten-minute topic of their own in groups of 4 or 5 to their peers. They should be

encouraged to choose topics they felt had not been covered sufficiently in the classroom.

Glossary

Towards the end, based on the discussion held during the session, learners can be asked to prepare as many number of glossary of terms as possible with their meaning or explanation. If this can be digitally prepared using smart board or a iPad it can be immediately transmitted to all the learners via SMS.

There are also other methods such as problem based learning (PBL) which a facilitator can identify or synthesize on his own depending on the nature of the content and teaching-learning needs. Thus blended learning meets both 'individuation' and 'pluralisation'- where 'individuation' refers to presenting lessons in ways that are compatible with the learners ways of learning and giving the learner the opportunity to show what he/she has learned and understood and 'pluralisation' means presenting important content in a variety of ways, not just via lecture or reading. Pluralisation helps the facilitators reach more learners by making them to think in multiple ways.

Blended learning is context-dependent and it is challenging for it demands proper knowledge, attitude and skills on the part of facilitators with respect to teaching techniques and technologies. Thus, a successful implementation of blended learning in one domain does not necessarily mean that it will have value within another domain. Although blended learning makes use of computers and the internet, it should be remembered that the focus should not be on the technology. Rather, the educator must first determine the best way to teach a particular topic and then determine how technology might enhance the teaching[5]. However, cultural change in teaching practice is more important to bring in innovations in teaching medical and allied health sciences.

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Educational Projects Initiated during 65th National Course

The 65th National Course was held at JIPMER from 24th September to 3rd October 2012. The following project proposals presented by the participants were approved. We wish them speedy execution of the project proposals and look forward to receiving the final reports.

Sl. No.	Submitted by	College	Title
1.	Dr. Rituparna Barooah, Assistant Professor of Physiology	NEIGRIHMS, Mawdiangdiang, Shillong-793018, Meghalaya.	Relevance of clinical exposure in teaching of physiology during 1st year of MBBS
2.	Dr. Penmetcha Uma, Professor of Microbiology,	NRI Medical College and Hospitals, Chinakakani, Mangalgiri, Guntur District-522503, Andhra Pradesh.	Facilitating higher achievement among demotivated high achievers
3.	Dr. Beri Udayakumar, Professor & Head of Dermatology	Venereology & Leprosy, Guntur Medical College, Guntur-522004, Andhra Pradesh.	Feed back evaluation on case demonstration to 6th semester MBBS students in Dermatology department
4.	Dr. B. Venkata Rao, Associate Professor of Microbiology	Guntur Medical College, Guntur-522004, Andhra Pradesh	Role of counselling in correcting the disruptive behaviour among II year MBBS Student's

5.	Dr. Bathula Bhargav Prasad, Assistant Professor of Respiratory Medicine	Konaseema Institute of Medical Sciences Chaitanya Nagar, NH 214, Amalapuram-533 201, E.G. Dist, Andhra Pradesh.	Impact of respiratory illhealth on Undergraduate Medical Students Education level - a prospective study in K.I.M.S. Medical College, Amalapuram
6.	Dr. Usha MG, Professor of Microbiology	JJM Medical College, Davangere-577004, Karnataka.	Self directed learning skills and academic performance in medical students
7.	Dr. K. Subrahmanya Bhat, Assistant Professor of Microbiology	KVG Medical College and Hospital, Kurunjibag-574327, Sullia (D.K), Karnataka.	Impact of Tutorials on academic performance of Second MBBS students
8.	Dr. Manohar Herle PN, Professor of Pharmacology	KVG Medical College and Hospital, Kurunjibag-574327, Sullia (D.K), Karnataka.	Effectiveness of weekly quiz on the academic performance in low achievers
9.	Dr. Ajay B, Associate Professor of Forensic Medicine	Amrita Institute of Medical Sciences, Amrita Vishwa Vidyapeetham, Elamakkara (P.O), Kochi-6, Kerala.	A Study of the Relationship between the Students Practical Skill and the Time Gap after Teaching Core Theory Portion and Practical Exercises
10.	Dr. Biju Urumese Palatty, Assistant Professor of Anatomy	Amrita Institute of Medical Sciences, Amrita Vishwa Vidyapeetham, Elamakkara (P.O), Kochi-6, Kerala.	Effectiveness of introducing problem based learning after dissection of lower limb in a group of 20 1st MBBS students
11.	Dr. Prasanna C, Assistant Professor of Orthopaedics	PSG Institute of Medical Sciences & Research, Post Box No. 1674, Peelamedu, Coimbatore-641004, Tamil Nadu.	Evaluation of Video Recordings as a Teaching-aid in Orthopaedic Clinical Demonstrations
12.	Dr. M. Kanmani Devi, Assistant Professor of Pathology	PSG Institute of Medical Sciences & Research, Post Box No. 1674, Peelamedu, Coimbatore-641004, Tamil Nadu.	Problem based learning sessions to improve skills of facilitation - a pilot study
13.	Dr. K. Sowmya, Associate Professor of Biochemistry	Sri Ramachandra Medical College & Research Institute, Porur, Chennai-600116, Tamil Nadu.	Concept Mapping as a tool to integrate clinical conditions to I MBBS students
14.	Dr. Leena Dennis Joseph, Professor of Pathology	Sri Ramachandra Medical College & Research Institute, Porur, Chennai-600116, Tamil Nadu.	Encourage the students with problems to perform better through motivation and proper guidance
15.	Dr. Rathod Sitalal Narayan, Professor of Forensic Medicine	Sri Lakshmi Narayana Institute of Medical Sciences, Osudu, Agaram Village, Villianur Commune, Kudapakkam Post, Puducherry-605 502.	Use of TABLET-PC in small group teaching to teach forensic medicine among MBBS students
16.	Dr. Asayas Bosco Chandrakumar, Assistant Professor of General Surgery	Sri Lakshmi Narayana Institute of Medical Sciences, Osudu, Agaram Village, Villianur Commune, Kudapakkam Post, Puducherry-605 502.	To identify causes of poor academic performance in the final year students and an intervention to improve performance among the final year MBBS students of SLIMS
17.	Dr. Partha Nandi, Associate Professor of Community Medicine	Mahatma Gandhi Medical College & Research Institute, Pillaiyarkuppam, Puducherry-607402.	Effect of monthly internal assessment test on chronic absenteeism and truancy among 6th semester MBBS students
18.	Dr. V. Shanmugapriya, Assistant Professor of Biochemistry	Vinayaka Mission's Medical College & Hospital, Keezhakasakudy Medu, Karaikal-606609.	Effect of tutorials and group discussion on Learning Biochemistry assessing academic performance of 1st Year MBBS Students of VMMC, Karaikal.
19.	Dr. Suman Lata, Assistant Professor of Anaesthesiology	JIPMER, Dhanvantari Nagar, Gorimedu, Puducherry-605006.	Assessment of Interns regarding knowledge of drugs, equipments & procedures done in Anaesthesia (OT)

20.	Dr. Mukta Wyawahare, Assistant Professor of Medicine	JIPMER, Dhanvantari Nagar, Gorimedu, Puducherry	Attitude of undergraduate MBBS students towards communication with patients in the local language at a teaching hospital in Pondicherry
21.	Dr. M. Vadivelan, Assistant Professor of Medicine	JIPMER, Dhanvantari Nagar, Gorimedu, Puducherry	Clinical Examination Skills and Academic Performance of Final Semester MBBS Students Attending the Medical Wards of JIPMER
22.	Dr. Sasirekha R, Assistant Professor of Obstetrics & Gynaecology	JIPMER, Dhanvantari Nagar, Gorimedu, Puducherry	Problem Based Learning and Didactic Lecture in Learning Gynaecological malignancies
23.	Dr. Dinesh Kumar S, Assistant Professor of Plastic Surgery	JIPMER, Dhanvantari Nagar, Gorimedu, Puducherry	Acceptability of Freestyle Learning in Medical Education by the current Undergraduate Students in JIPMER
24.	Dr. Vikas Menon, Assistant Professor of Psychiatry	JIPMER, Dhanvantari Nagar, Gorimedu, Puducherry	Attitudes towards Psychiatry as a career option: A survey among students entering medical school
25.	Dr. R. Manju, Assistant Professor of Pulmonary Medicine	JIPMER, Dhanvantari Nagar, Gorimedu, Puducherry	Knowledge, attitude of medical undergraduates on medical research in JIPMER, Pondicherry
26.	Dr. Suresh Kumar S, Assistant Professor of Surgery	JIPMER, Dhanvantari Nagar, Gorimedu, Puducherry	Factors hindering learning process – feedback from the problem learners in the final MBBS students of JIPMER

ANNOUNCEMENTS

For Kind Attention of PAST PARTICIPANTS of National Courses

All medical teachers and allied health professional teachers who have attended the National Course on Educational Science for Teachers of Health Professionals of National Teacher Training Centre, JIPMER, Puducherry are requested to send the following information to **nttc.jipmer@gmail.com** to enable us to send the Bulletin of NTTC and facilitate communication.

1. Name, designation and full postal address
2. E-mail address

Medical Education – Principles and Practice

Medical Education – Principles and Practice – a reference book published by JIPMER NTTC Alumni Association and popular among the Medical Teachers is available for sale. Interested medical teachers and institutions may send a crossed DD for Rs.325/- (including postal charges) in favour of Alumni Association of NTTC, JIPMER, payable at SBI, Puducherry, towards the cost of a single book to Secretary, JIPMER NTTC Alumni Association, C/o. Dept. of Medical Education, JIPMER, Puducherry-605 006.

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DEPARTMENT OF MEDICAL EDUCATION
(NATIONAL TEACHER TRAINING CENTRE),
JIPMER, PUDUCHERRY-605 006

CONTRIBUTORS TO THIS ISSUE

1. Dr. Santosh Kumar, Professor & Head, Departments of Urology and Medical Education, JIPMER, Puducherry.

2. Mr. Z. Zayapragassarazan, Assistant Professor of Educational Technology, Department of Medical Education, JIPMER, Puducherry.