



N.T.T.C.

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Theme of this Issue
SIMULATION

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Simulation is an Essential Complementary to Clinical Experience for Skill Acquisition in MBBS Course.

Dr.Santosh Kumar, Director-Professor and Head, Departments of Urology and Medical Education, JIPMER, Puducherry.

I.WHAT IS A SKILL ?

The word skill means "the ability to do something well, expertise or dexterity." ¹ Skills along with knowledge and attitudes comprise the three objectives of learning.

II.WHAT ARE THE TYPES OF SKILLS ?

Skills can be classified into following three types.²

1.Intellectual Skills

Intellectual skills include the levels of recall of facts, interpretation of data and problem solving. Intellectual skills need an underlying component of knowledge.

2.Communication Skills

Communication skills include the levels of receptivity or attention, response and internalization. Communication skills have a strong underlying component of attitudes.

3.Practical or Psychomotor Skills

These practical or psychomotor skills have the levels of imitation, control and automatism. Psychomotor skills require underlying requisite knowledge and attitudes.

III.WHAT IS SIMULATION ?

The word simulate means "imitate or reproduce the appearance, character or condition of." ¹ The word simulation would mean imitating or reproducing the appearance, character or condition of something. Educationally, simulation means various ways in which a real situation is imitated or mimicked for educational purposes.

IV.WHAT ARE THE TYPES OF SIMULATIONS ?

Intellectual, communication and psychomotor skills need following types of simulations for skill acquisition.

1.Simulation for Intellectual Skills

Acquisition of problem solving skills requires simulated patient management problems or their modifications which can be presented in oral, written (or paper based) or computerized forms.

2.Simulation for Communication Skills

Simulated patients or trained professional actors are used for acquisition of history taking skills. ³ They can also be used for learning of physical examination skills. Role plays are used for learning doctor-patient and doctor-relative communication skills. ⁴

3.Simulation for Psychomotor Skills

Models are three-dimensional representations of reality and can be used to demonstrate structure. Simulators are functioning models that are used for teaching-learning of psychomotor skills. The word fidelity means " the degree of exactness with which something is copied or reproduced." ¹ Simulators can be classified into low fidelity, medium fidelity and high fidelity simulators.

A. Low-Fidelity Simulators

Low fidelity simulators copy reality to a low degree and they are low cost simulators. Examples include knot tying board and laparoscopy box trainer. ⁵

B. Medium-Fidelity Simulators

Medium fidelity simulators copy reality to a medium degree and they are medium cost simulators. Examples include Laerdal SimMan. ⁶

C. High-Fidelity Simulators

High fidelity simulators copy reality to a high degree and they are high cost simulators. These simulators also have the capability to facilitate acquisition of problem solving skills. Examples include METI Human Patient Simulator. ⁷

V.SIMULATION IS AN ESSENTIAL STEP IN SKILL ACQUISITION.

Skill acquisition process involves the following fundamental steps.

- 1.Understanding the skill and its theory, relevance, components or steps, uses, contraindications and complications.
- 2.Observing skill performance on video and on simulation.
- 3.Practising the skill on simulation.
 - A. Under supervision
 - B. Independently
- 4.Performing the skill on a real situation.
 - A. Under supervision
 - B. Independently

VI.SIMULATION ALLOWS REPEATED PRACTICE WITH CORRECTIVE FEEDBACK FOR MISTAKES.

Attainment of competence (proficiency and efficiency) in skill performance needs repeated practice and feedback for correcting mistakes. Simulation provides corrective feedback for mistakes until required competence is achieved by students.

VII.OMITTING SIMULATION IS RISKY (FIGURE.1).

If the use of simulation is omitted in the acquisition of emergency skills such as cardiopulmonary resuscitation and laryngeal intubation and invasive skills such as bladder catheterization and gaining intravenous access, repeated practice on patients for skill acquisition can be risky to them. Similarly, if the use of simulation is omitted in the acquisition of internal examination skills (rectal and vaginal examinations), repeated practice on patients for skill acquisition can be uncomfortable to them.

VIII.OMITTING CLINICAL EXPERIENCE IS UNACCEPTABLE BECAUSE SIMULATION IS NOT AN ALTERNATIVE TO CLINICAL EXPERIENCE (FIGURE.2).

Omitting clinical experience is unacceptable. Simulation is an essential step in skill acquisition but it is not an alternative to the clinical experience. Simulation is the means and not an end in skill acquisition.

IX.SIMULATION IS AN ESSENTIAL COMPLEMENTARY TO CLINICAL EXPERIENCE FOR SKILL ACQUISITION (FIGURE.3).

Optimum outcomes are attained by combining simulation with the clinical experience for skill acquisition. This is borne out by the growing literature on the use of simulation in medical education worldwide.

X. LIST OF REQUIRED PRACTICAL AND MANIPULATIVE SKILLS FOR STUDENTS NEEDING SIMULATION (BASED ON MCI RECOMMENDATIONS)

A.Department of Anaesthesiology

- 1.Perform basic cardiopulmonary resuscitation in adults.
- 2.Perform advanced cardiopulmonary resuscitation in adults.
- 3.Do lumbar puncture.

B.Department of Surgery

- 1.Perform basic surgical skills (cutting, ligating, suturing and knot tying).
- 2.Do rectal examination including diagnostic proctoscopy.
- 3.Do male pelvic examination.
- 4.Catheterise urinary bladder in females including trocar cystostomy.
- 5.Catheterise urinary bladder in males including trocar cystostomy.
- 6.Do fine needle aspiration of external and superficial lesions.
- 7.Do needle biopsy of external or superficial lesions.
- 8.Give subcutaneous, intramuscular and intravenous injections.
- 9.Start intravenous infusion in adults.
- 10.Perform intercostal tube drainage.
- 11.Do breast examination.
- 12.Control surface bleeding.

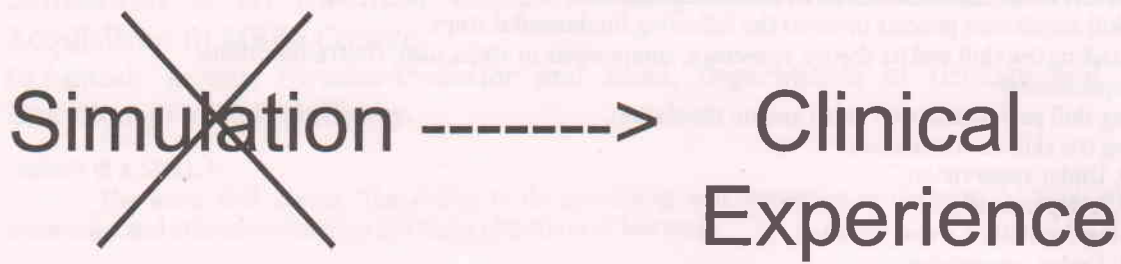


Figure 1. Omitting simulation is risky.

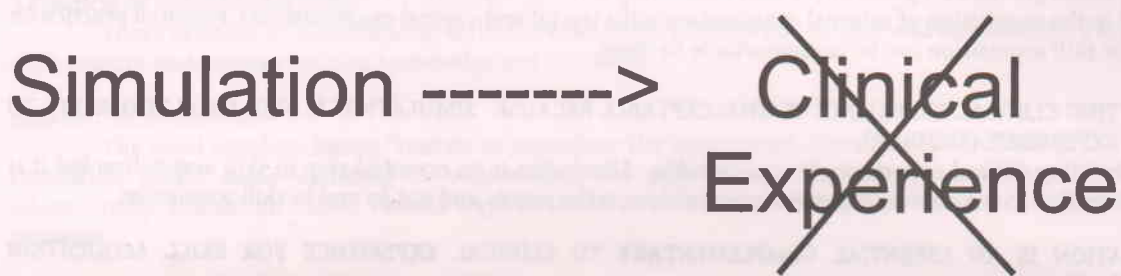


Figure 2. Omitting clinical experience is unacceptable because simulation is not an alternative to clinical experience.

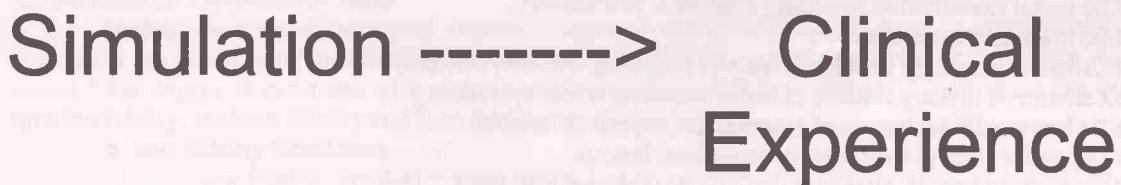


Figure 3. Simulation is an essential complementary to clinical experience for skill acquisition.

C.Department of Medicine

- 1.Do lung examination including auscultation.
- 2.Do heart examination including auscultation.
- 3.Pass stomach tube and perform stomach wash.
- 4.Do pleural aspiration.
- 5.Do peritoneal aspiration.
- 6.Do pericardial aspiration.
- 7.Do bone marrow aspiration.
- 8.Do liver abscess aspiration.

D.Department of Obstetrics and Gynaecology

- 1.Do vaginal examination including speculum examination.
- 2.Do female pelvic examination.
- 3.Conduct normal labour.
- 4.Perform episiotomy and its suturing.
- 5.Insert intrauterine contraceptive device.

E.Department of Paediatrics

- 1.Perform basic cardiopulmonary resuscitation in children.
- 2.Perform advanced cardiopulmonary resuscitation in children.
- 3.Start intravenous infusion in children.

F.Department of Orthopaedics

- 1.Transfer spinal injury cases.
- 2.Apply POP slabs/casts for common fractures.

G.Department of Ophthalmology

- 1.Perform eye examination including ophthalmoscopy.
- 2.Remove extraocular foreign body.

H.Department of Otorhinolaryngology

- 1.Perform ear examination including otoscopy.
- 2.Remove wax from ear by syringing.
- 3.Perform cricothyroidostomy.

REFERENCES

- 1.Concise Oxford English Dictionary. Eleventh Edition. Edited by C Soanes and A Stevenson. Oxford : Oxford University Press, 2004.
- 2.Guilbert J-J. Educational Handbook for Health Personnel. Revised Edition. Geneva : World Health Organization,1981.
- 3.Barrows H. An overview of the uses of standardized patients for teaching and evaluating clinical skills. Academic Medicine 1993;68:443-53.
- 4.Simpson M. How to use role-play in medical teaching. Medical Teacher 1985; 7:75-82.
- 5.Hruby GW, et al. The EZ Trainer : Validation of a portable and inexpensive simulator for training basic laparoscopic skills. Journal of Urology 2008;179:662-666.
- 6.Weller JM. Simulation in undergraduate medical education. Medical Education 2004;38: 32-38.
- 7.Issenberg SB, et al. Features and uses of high-fidelity medical simulations that lead to effective learning: A BEME systematic review. Medical Teacher 2005;27:10-28.

Project Report

Reinforcing 'must know' topics in problem learners through assignments facilitates academic performance.

Dr. M. Jayanthi, Senior resident, Dept. of Pharmacology, JIPMER, Puducherry

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.

Objective

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.

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 1. 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
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.	3 rd sessional marks (%)	4 th 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 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.

Acknowledgements

I wish to acknowledge the NTTC teaching faculty of JIPMER for their guidance in designing this study.

EDUCATIONAL PROJECTS INITIATED DURING 58TH NATIONAL COURSE

The 58th National Course was held at JIPMER, Puducherry from 18th February to 28th February 2009. The following projects were presented by the participants and approved. We wish them speedy execution of the projects and look forward to receiving the final reports.

1. Group Discussion as T/L Method in Problem learners

Dr.T.B.Ramakrishna,

Professor & HOD of ENT, SVS Medical College, Mahabub Nagar, Andhra Pradesh.

2. A comparative study of outcome of Teaching - Learning methods.

Dr.C.M.Pavan Kumar Reddy,

Professor in Psychiatry Mamata Medical college, Khammam, Andhra Pradesh.

3. Comparison of OHP and LCD as teaching learning media for biochemical experiments at undergraduate level

Miss.P.Srilakshmi,

Assistant Professor in Biochemistry Mamata Medical college, Khammam, Andhra Pradesh.

4. To incorporate OSCE during undergraduate clinical postings as method of teaching and evaluation

Dr.N.S.Gudi,

Professor of Orthopaedics Sri Devaraj Urs Medical College, TAMAKA, KOLAR.

5. Evaluation of effectiveness of lecture by pre-test & post-test analysis

Dr.Ashakiran.S.

Associate Professor of Biochemistry Sri Devaraj Urs Medical College, TAMAKA, KOLAR.

6. Implementation of Learning Modules for Undergraduate teaching -Surgery Dept

Dr.Kiran.M.

Assistant Professor of Surgery Sri Devaraj Urs Medical College, TAMAKA, KOLAR.

7. Use of Manikin to teach chest compressions for effective Cardio Pulmonary brain resuscitation in 8th term students

Dr.Vidya S.Tambake,

Professor of Anaesthesiology B.L.D.E.University Shri B.M Patil Medical College, Bijapur.

8. Validation of question paper of RGUHS, Bangalore in community medicine

Dr.Rekha Udgiri, Associate Professor of Community Medicine B.L.D.E.University Shri B.M Patil Medical College, Bijapur.

9. Teaching the WHO patient safety solutions, to the Interns/House surgeons by using OSCEs,during orientation programme

Dr.Yelikar Balasaheb Ramling,

Professor & Head, Pathology B.L.D.E.University Shri B.M Patil Medical College, Bijapur.

10. Self learning in Anatomy

Dr.Prakesh.B.S.

Associate Professor of Anatomy Dr. B.R.Ambedkar medical college, Bangalore.

11. Use of Tutorial as a teaching method for assisting students of supplementary batch

Dr.Bindu.C.B.

Assistant Professor of Physiology Amala Institute of Medical Sciences, Thrissur.

12. Use of group discussion as a teaching learning method to introduce pharmacotherapeutics and rational drug use

Dr.Padmaja G.Nair,

Associate Professor of Pharmacology Amala Institute of Medical Sciences, Thrissur.

13. Use of **symposium as a teaching learning method in physiology for BSc Nursing students.** Dr.Y.Dhanalakshmi,
Assistant Professor of Physiology Perunthalaivar Kamaraj Medical College & Research Institute,Puducherry.

14. The use of **Microbiology laboratory reports as the teaching/ learning tool in a small group discussion.**

Dr.Nandita Banaji,
Associate Professor of Microbiology Perunthalaivar Kamaraj Medical College & Research Institute,Puducherry .

15. Use of **Computer Based SPMPs in Pharmacology Curriculum to Improve Prescribing Skills of Medical Graduates**

Dr.Ratinder Jhaj,
Associate Professor of Pharmacology Perunthalaivar Kamaraj Medical College & Research Institute,Puducherry.

16. **Effect of Post lecture MCQ's on U.G. learning**

Dr.Tiroumourougane Serane.V.
Assistant Professor of Paediatrics Sri Lakshmi Narayana Institute of Medical Sciences,Puducherry.

17. **Comparative Evaluation of Effectiveness of Lecture delivery using Black board and Over head projector (OHP)**

Dr.Rakhi Biswas,
Assistant Professor of Microbiology Sri Lakshmi Narayana Institute of Medical Sciences,Puducherry.

18. **Improving sexual history taking skills of undergraduates by using effective Teaching / Learning methods**

Dr.Roshini Menon,
Assistant Professor of Dermatology Sri Lakshmi Narayana Institute of Medical Sciences,Puducherry.

19. **Insertion of Intercostal drainage tube by interns in posttraumatic patients**

Dr.Vithalkumar.M.Betigeri,
Assistant Professor, Dept.of CTS JIPMER.

20. **Effectiveness of an instructional video compared to traditional direct demonstration method in accomplishing proficiency in a clinical skill based activity: A randomized controlled trial.**

Dr.MS Gopalakrishnan,
Assistant Professor of Neurosurgery JIPMER.

21. **Intubation by interns - manikins**

Dr.M.V.S.Satya Prakash,
Senior Resident,Dept.of Anaesthesiology JIPMER.

22. **To evaluate the effectiveness of lectures integrated with case scenarios**

Dr.R.Rathi Sharmila,
Senior Resident, Dept. of Paediatrics JIPMER.

23. **Evaluation of under graduate clinical teaching in the Department of Chest Medicine by pre & post OSCE**

Dr.Y.N.Chaubey,
Senior Resident, Dept. of TB & CD JIPMER.

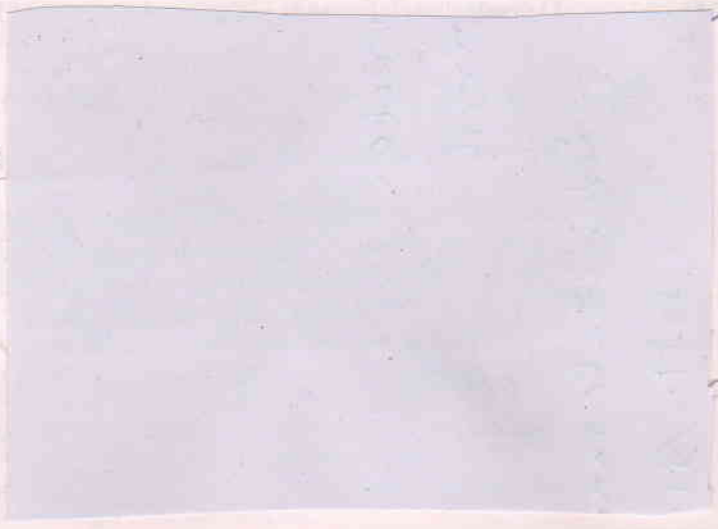
24. **Reasons for migration among medical students from India**

Dr.Atul Garg,
Senior Resident, Dept. of Microbiology JIPMER.

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