

## Training first year undergraduate medical students for better performance in physiology examinations

Reem Rachel Abraham<sup>1</sup>, K. Ramnarayan<sup>2</sup>, Marina Thomas<sup>3</sup>, Vivek A Saoji<sup>4</sup>

### Background

Melaka Manipal Medical College (MMMC) (Manipal Campus), India offers a Bachelor of Medicine and Bachelor of Surgery (MBBS) program, which is of five years duration. The first two and a half years are spent in Manipal, India and the remaining in Melaka, Malaysia. The first year curriculum is divided into four blocks as follows:

- Block 1: basic concepts, blood and nerve-muscle physiology
- Block 2: cardiovascular, respiratory, and gastrointestinal physiology
- Block 3: endocrine, reproductive, and renal physiology
- Block 4: central nervous system and special senses

### Need for the study

When clinically oriented questions were asked during physiology examinations, it was observed that students' performance was unsatisfactory. It was felt by the faculty that the students' performance was poor as they were not trained to answer clinically oriented questions during the regular teaching and learning activities. It was also felt by the faculty that a deep approach towards learning should be promoted in the students which will enable them to become lifelong self directed learners.

### Objectives

The present study intended to train first year medical undergraduates at MMMC to perform better in physiology examinations consisting of clinically oriented questions.

### Methodology

Clinically Oriented Physiology Teaching (COPT) was implemented in the first year for one batch of students (experimental group; (n=122), during the third and fourth blocks (teaching units) of physiology curriculum. One batch of students served as the control group (n=122) to whom COPT was not implemented.

COPT was implemented for the experimental group during regular didactic lectures in a large group setting. It consisted of two components: a) clinical case studies b) Critical Thinking Questions (CTQ) (questions which asked the physiological basis for some physiological concepts). After introducing the basic concepts in each system, case studies followed by a series of questions and CTQ were given as student assignments. The answers were discussed in the subsequent classes. This was continued till the end of the block. During the block examination, case studies and CTQ were included. A total of twenty five COPT sessions were held.

The learning approaches of the experimental group of students before and after the implementation of COPT was determined using Short Inventory of Approaches to Learning (SIAL) and the pre and post-COPT SIAL scores were compared. Performance of the experimental group of students in the third and fourth block examinations were compared with that of the performance of the students in the control group.

<sup>1</sup>Department of Physiology

<sup>2</sup>Department of Pathology

Melaka Manipal Medical College (Manipal Campus), Manipal, Karnataka, India.

<sup>3</sup>Department of Microbiology, PSG Institute of Medical Sciences and Research, Coimbatore, Tamil Nadu, India.

<sup>4</sup>Dean and Principal, Bharati Vidyapeeth University Medical College, Pune, India.

## **Results**

Deep and strategic approaches were found to be predominant in the experimental group when compared to the control group. It was also observed that the performance of the experimental group of students was significantly better ( $p < 0.001$ ) when compared to the control group.

## **Conclusion**

The study revealed the importance of teaching pattern falling in line with the assessment pattern as demonstrated by the improved performance of the experimental group of students when compared to the control group. COPT was also successful in developing a deep approach which is the most successful and desirable learning approach.

## Time-travel: Journey into the future

Thomas V Chacko

### Background

Soon after the inception of PSG Institute of Medical Sciences & Research, the department of Medical Education has been functioning since 1988 much before it was mandated for all Medical Colleges in India by the Medical Council of India. It started by having an annual two day "Training of Trainers" program mainly functioning as an orientation program for new faculty to expose them to basic pedagogical principles. Soon it evolved as a 3 day Workshop on "Teaching-Learning & Evaluation" after a formal department of Medical Education Technology was set-up. Since then, basic elements of teacher training are included in this orientation programme for new faculty joining the institution. The training programme is periodically reviewed and new elements added periodically including a programme to improve teaching clinical skills.

### The need for innovation

Most of the contents of the faculty development programmes being conducted in the institution were not changing much and had become a "routine" affair. With improvements in technology, their increasing ubiquitous usages as well as the changing ways in which students learn, it was felt that there was a need to re-look into what competencies a teacher of the future must have to facilitate student learning.

### The innovation

There are many ways of curriculum planning and many of them draw on past experiences. Hence, during a "Medical Education Alumni meet" we used the

"Appreciative Inquiry" approach on the Faculty who were alumni of the past teacher training programmes in the institution to short-list those strategies which worked best for them in the past. Since these were doable and evolved indigenously despite usual constraints of faculty time and resources it was felt that these approaches should get included in the faculty development programmes of the future.

However, we also realized that this approach of curriculum review was not enough since according to Gilmore & Shea (1997) "accessing the past leads to conservative dynamism which prevents people from seeing new realities" and so the answer was "discovering the future in the present". According to them, "vivid histories of the future enables people to construct rich narratives, to look at imagined actions – mistakes, successes, moves, countermoves – in the context of threats and opportunities in the wider environment". Hence we used a new approach to identify faculty development needs to make them competent to meet the needs of the future. During the Alumni meet, we involved the faculty in "Crystal-ball gazing" for a journey into the future, 10 years from now, to visualize how the students were learning and were being evaluated, identified teaching behaviour which helped the students learn effectively and for which they were appreciating their teachers, the problems faced by teachers and how they were overcome. After this exercise, among other things, they could identify popular usage of IT in education with interactive self-learning modules, learner's blogs and other student developed products and learning portfolios on the internet, videotaped lectures for revision at student's free time and pace, use of simulators for learning skills etc. This exercise was undertaken through group-work in small groups and the group presentations helped in visualizing the expected teacher competencies in the future for which there is a need for

---

<sup>1</sup> Dr. Thomas Chacko  
Department of Medical Education  
PSG Institute of Medical Sciences & Research  
Coimbatore, TN India 641004  
e-mail: drthomasvchacko@gmail.com

developing a tailor made faculty development programme in the institution.  
Outcome of the innovation

Through this exercise of Time-travel, the faculty has recognized their own faculty development needs as they have realized that they are currently ill-equipped to meet the needs of the future. They also enjoyed the experience of crystal-ball gazing and time travel into the future and are now more confident of facing the needs and challenges of the future since they have already "been there" doing what the students need, the challenges they faced and overcome in their minds eye. They are now more open to learn about using modern technology as indicated by a large number of them volunteering to join an

"On-line Interactive Teaching Training" programme that is being started in the institution. For this they have joined the e-learning group, the discussions and experience sharing in this group is expected to encourage collaborative learning and build a close knit community of medical educators within the institution.

The usage of appreciative inquiry and time travel exercise has led to a short listing of training needs of faculty that will be helpful in framing a revised faculty development program in the institution which will make the faculty competent to facilitate student learning in the future.