

A Simple Tool for the Improvement of Outcome in Medical Education Technology Workshops

Uttam Kumar Paul¹, Somenath Ghosh², Arup Bandyopadhyay³

¹Associate Professor, Department of Medicine, Medical Education Unit, MGM Medical College and Hospital, Kishanganj, Bihar, India,

²Assistant Professor, Department of Community Medicine, Medical Education Unit, MGM Medical College and Hospital, Kishanganj, Bihar, India, ³Professor, Department of Physiology, Medical Education Unit, MGM Medical College and Hospital, Kishanganj, Bihar, India

Abstract

Background: The Medical Council of India (MCI) has specifically indicated that every medical college should have a medical education unit to train teachers in Medical Education Technology (MET). They have also made it mandatory for all faculty members of all medical colleges to have a certified training on MET. Courses of MET workshops which are currently operating have been meticulously prepared under the supervision of MCI. However, like other branches of medicine, MET is also progressing day-by-day and, therefore, the relevant faculties and participants alike should brainstorm themselves and also some of them, if not all should devote themselves to bring newer tools, newer principles and newer methodologies for advancement of MET. In this study, our humble venture has been to try a new and simple tool for improvement in MET performance by the participants.

Materials and Methods: The participants of specially arranged MET courses for this study purpose in MGM Medical College, Kishanganj were divided into two groups: Group A and Group B. The first group (Group A) received and answered a questionnaire before the commencement of the course but the second group (Group B) did not. Both the groups, that is, all the participants received the same questionnaire and answered them at the end of the workshop. The scores of the two groups of the final test (post-test) were compared and analyzed statistically.

Results: Results showed that the average marks obtained by participants in the final examination (post-test) were 14.92 ± 1.90 in Group A (who received both pre-test and post-test) compared to 12.08 ± 2.0 in Group B (who received only post-test). The *P*-value was estimated to be 0.000.

Conclusion: In this study, the results show that when a pre-test is applied before the commencement of the MET the post-test scoring is significantly improved compared to the group of participants who did not receive the pre-test. However, further studies are needed in a larger scale and in a more elaborate and sophisticated way to vindicate the findings of this study.

Key words: Continuing education, In-service training, Medical education, Medical teaching, Tools in teaching

INTRODUCTION

In older days, the practicing physicians used to take “apprentices” to assist them in their practice and in return promised to teach them “the art and mystery of physique, surgery and pharmacy.” With the explosion of medical knowledge in the 20th century, this informal teaching gave way to formal syllabi based curricular development.

Until the mid - 20th century, it was thought that medical training conferred on doctors not only the art of healing but also the ability to teach medical students how to heal. With the free availability of every kind of information in the electronic age, new pedagogical philosophy of self-directed learning is redefining the teacher’s role. The teacher is no longer “The sage on the stage,” but “a guide by the side.”¹ Medical teachers need to embrace the new pedagogy so that their students will not just master current knowledge, but learn how to keep pace with new knowledge as it unfolds. Medical students must not only learn facts but learn professional behavior and procedural skills.

Famous scientist Edmund Teller wrote, “Confusion is no bad thing; it is the first step towards understanding.”²

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www.ijss-sn.com

Month of Submission : 08-2015
 Month of Peer Review : 09-2015
 Month of Acceptance : 10-2015
 Month of Publishing : 10-2015

Corresponding Author: Dr. Arup Bandyopadhyay, Department of Physiology, MGM Medical College and Hospital, Kishanganj - 855107, Bihar, India. E-mail: arupbanerjee1953@gmail.com

Newcomers to the field of medical education could be forgiven for being confused. Medical education is a busy, clamorous place, where a host of pedagogical practices, educational philosophies, and conceptual frameworks collide. It is a place where academic journals vie for attention, institutions, and professional bodies compete for political leverage, and the wheel of reformed and improvement revolves faster than an often independently of the cycle of evaluation and research; and it is a place of increasing accountability and regulation because of its those proximity to one of the prime sociopolitical concerns of government, that of the standard of teaching in medical colleges boiling down ultimately to the health of the country.³ Within the confines of this academic and political preserve lies the discipline of medical education.^{4,5}

The Medical Council of India (MCI) through its regulation for undergraduate medical education, 1997 has specifically indicated that every medical college has a medical education unit to train teachers in Medical Education Technology (MET). This has become even more important with changing curricula and newer trains in medical education. Subsequently, the MCI has made it mandatory that all faculty members in a medical college must have attended the MET certificate course and its workshop. However, in recent years with the enormous development of computer science and information technology, the MET workshops which have been meticulously prepared by the MCI and faculties of various regional authorities of medical education under MCI need to be revised and improved continuously to keep pace with the rapidly progressive realm of medical education. This is why passion and enthusiasm is expected of the medical teachers, particularly, the MET workshop faculties to keep brainstorming their minds and work on various ideas and projects so that newer and newer tools, techniques, and principles are evolved so as to improve progressively the outcomes of the MET workshops in different centers across the country and also outside.

This is, therefore, a simple tool designed by us to develop the new method in MET workshops.

MATERIALS AND METHODS

Two groups (A, B) of medical teachers were selected from MGM Medical College, Kishanganj, Bihar, for the study. Each group comprised of 25 medical teachers. The selection process was on a random basis. A topic was chosen from the course of MET workshop. 20 questions were prepared (10 multiple choice questions and 10 objective

type questions). Each questions carrying one mark. The questions were made to cover the basic terminology and concepts of the topic. The questions were peer reviewed. The participants were made to know beforehand about the purpose and method of the study. A verbal and informal consent from the participants were also obtained, and they were found to be interested in participation of the study. The trainer, a trained medical educator, was same for both of the groups (A, B). The group A was given prior questionnaire made beforehand as a pre-test. At the end of the training of 2 h with power-point presentation and interactive session, the same questionnaire was given as post-test. In case of training of Group B, only the same post-test questionnaire was given at the end of the training of 2 h with power-point presentation and interactive session.

RESULTS

The results of the participants' scorings of pre-test and post-test of Group A were analyzed by Student's *t*-test depicted in Tables 1 and 2 in the result section. The scorings of the post-tests of both the A and B Group were analyzed by independent unpaired *t*-test which is depicted in Table 3 in the results section. The graphic representation of the results are given as bar diagrams in Graph 1 and 2. The calculation was done by using IBM SPSS Statistics version 20.0.

DISCUSSION

The average marks obtained by participants in the final examination were 14.92 in Group A (who received both pre-test and post-test) and 12.08 in Group B (who received only post-test) which are statistically significant as analyzed by independent unpaired *t*-test by using IBM SPSS Statistics version 20.0. It is found that analysis of pre-test and post-test scorings of Group A is also statistically significant.

Thus, our results show that when a pre-test is applied before the commencement of the MET workshop the post-test scoring is significantly improved. No such study was done in on MET workshops in India or anywhere as revealed by net search. However, this study can compared with a

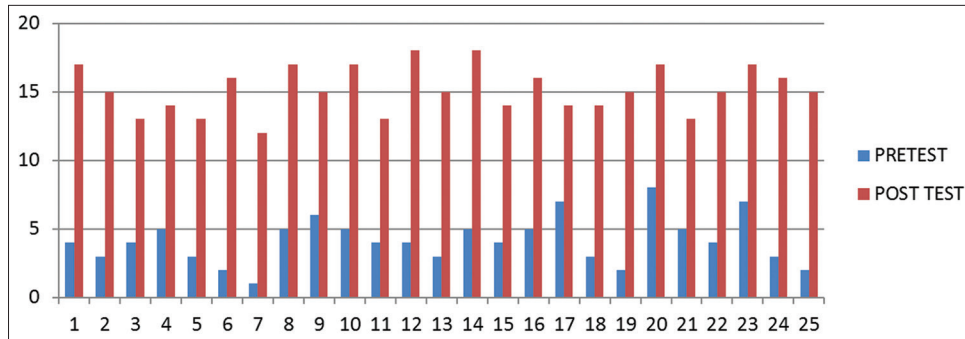
Table 1: Descriptive statistics Group A: Mean, minimum, and maximum of scores obtained in pre-test and post-test

Type of Test	<i>n</i>	Mean	Minimum	Maximum
Pre-test	25	4.1600	1.00	8.00
Post-test	25	14.9200	12.00	18.00

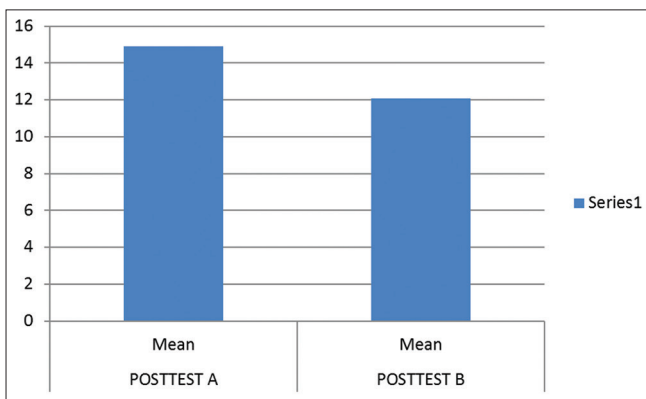
Table 2: Comparison between post-tests between GroupA and GroupB

Name of Groups	Paired differences					t	df	Significant (two-tailed)
	Mean	SD	SEM	95% CI of the difference				
				Lower	Upper			
Pair 1 VAR00001-VAR00002	-10.76000	1.94251	0.38850	-11.56183	-9.95817	-27.696	24	0.000

SD: Standard deviation, SEM: Standard of error mean, CI: Confidence interval



Graph 1: Pre-test and post-test scorings of Group A



Graph 2: Post-test scorings of Group A and Group B

similar study done on the beneficial effect of a pre-test on post-test in basic science lecture classes.⁶

Literature study reveals various tools and strategies which are described in detail in two kinds of literature.^{7,8} Of course, teaching should always be maximally fruitful, as Doyle says “Teaching in the absence of learning is just talking.”⁹ The literature on teaching is full of various ways that teachers can present contents and skills that will be enhanced the opportunity for the learners to learn.

It is equally filled with suggestions of what not to do in the teaching - learning session. However, there is no rulebook on which teaching methods match up the base to which skills, analytical tools and/or contents that are being taught. Students often have a little exercise in knowing, if the methods selected by an individual instructor was the best teaching methods or “Just a method” or simply the

method with which the teacher was most comfortable.¹⁰ There are consistently high correlations between learners’ scorings in the course and overall ratings of the learners on the teachers and the course.^{11,12}

Most universities while trying to understand the teachers’ efficacies embrace a process whereby students provide anonymous feedback at the end of each course they complete. These ratings of instructors’ effectiveness created a big hue and cry when they were first introduced,¹³ and they create an enormous challenge for nearly every institution that uses them. Over the years, student evaluation has changed significantly especially in the areas of purpose and methodology. They have transformed from being primarily used to assist students to helping faculty members further developed and improve their teaching skills to assisting administrators with respect to various decisions.¹⁴ Today students’ ratings are widely used for the purpose of making personnel recruitment and promotion decisions and faculty development recommendations.¹⁵ The informations derived from these ratings help in making both summative and formative judgments.^{16,17} Brascamp suggests that instructors use the data formatively to develop and improve their teaching skills. However, with our experience it can be inferred that each faculty and also participants should consciously and continually develop newer ideas and concepts and put them to challenges so that continuous inputs of newer methods of medical teaching evolve in a sustained manner. There is much debate within the higher education community on how teaching effectiveness may be defined.¹⁸ For instance, Centra defines effective teaching

Table 3: Caption: Comparison of post-test scores between Group A and Group B

Type of Test	Mean	SD	Degree of freedom	Significance Test
Post-test A	14.92	1.9	48	0.000
Post-test B	12.08	2.0	48	0.000

SD: Standard deviation

as that “which produces beneficial or purposeful student learning through the use of appropriate procedure.”¹⁹ It has been told that among the factors improving students’ attention and learning, apart from physical environment, bodily condition, students’ individual mood, length of lecture, and teacher’s personal appeal, one more important factor of immediate benefit is provision of a pre-test before the commencement of teaching session.²⁰ Our study has actually provided research evidence and hence reinforcement to this hypothesis.

CONCLUSION

Our results show that when a pre-test is applied before the commencement of MET workshop the post-test scoring is significantly improved compared to the group of participants who did not receive the pre-test. However, further studies are needed on a larger scale and in a more elaborate and sophisticated way to vindicate the findings of our study.

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How to cite this article: Paul UK, Ghosh S, Bandyopadhyay A. A Simple Tool for the Improvement of Outcome in Medical Education Technology Workshops. *Int J Sci Stud* 2015;3(7):141-144.

Source of Support: Nil, **Conflict of Interest:** None declared.