Original article

Effectiveness of "Teacher's Training on Helping Students Learn" on Health Professionals

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Background: The main purpose of this article is to assess the effectiveness of teacher's training workshop through comparing pretest and posttest.

Methods: A written 4-point Likert Scale questionnaires was administered to seventy six faculty teachers before and at the end of the teacher's training. The data were collected and analyzed. A descriptive study method was used.

Results: Majority of the respondents 68(89.4%) expressed that they can confidently use audiovisual materials such as Flip Chart and Black/White Board effectively during post test while only 26(34.2%) respondents expressed they had some idea of using during pretest. The posttest result reveled highly significant effectiveness of the teacher training programmer's performance in each item.

Conclusion: This study demonstrated overall positive effectiveness of the teacher's training workshop.

Key words: Pretest, Posttest, Teacher Traini

Introduction

Medical Education Department (MED) contributes in enhancing the capacity of those medical school which are committed to quality education and strongly holds the value that quality teacher's training leads to quality learning. The Medical Education Department of Institute of Medicine (IOM) which is going to be established as a **"National Center on Health Professions Education and Development for Nepal (NCHPED)"** has been regularly conducting teacher's training workshops for the faculty of Institute of Medicine and for other medical colleges. All together 16 batches of faculty teachers from inside and outside the institute were trained till 28th July, 2006.[1] MED strongly believes that training faculty teachers will help to improve learning in the students. The workshop of MED has been designed to enhance the teaching techniques of different health professional faculty teachers inside and outside the institute. Faculties who have been teaching students in the different health professionals' programs at the different departments who have had no previous opportunity to participate in teacher's training workshops are given special priority in this workshop.

Rationale

There has been no effectiveness study on **"Teacher's Training on Helping Students Learn"** health at Tribhuvan University (TU), Institute of Medicine (IOM). The necessity of both qualitative and quantitative teaching is being increasingly felt. University officials and government representatives, medical school teachers, and student, all are beginning to see that teaching is not merely an innate gift but a science that can and must be learnt by those who are to assume the heavy responsibility of teaching and particularly those for who teach adults. It is beginning to be realized, that a good researcher does not necessarily be a good teacher, or the one well versed in his/her subject does not mean that one is capable of teaching it.[2] Given that MED,

IOM has been regularly conducting teacher's training programs, it is high time that an assessment whether those programs have been effective at all shoud be undertaken.

Objectives

The main objective of the study is to find out the effectiveness of teacher's training and identify the strength and weakness of the teacher's training program and to collect recommendations from the teacher's who have undergone the training.

Materials and methods

We examined all reports and document files of the faculty teachers who had enrolled into the teacher training workshop through the Medical Education Department during the period of April 2000 to July 2006. This included teachers from 6 programs. Each training program was of 6 days duration.

The study population consisted of 76 faculty teachers. The faculty teachers from 9 institutions (7 inside and 2 outside the Katmandu valley) constituted doctors, nurses and Ayurveda teachers.

A written questionnaire was administered to 76 faculty teachers to compare effectiveness of teacher's training using pretest and posttest. The respondents were administered twenty six closed ended written questionnaires at the beginning. The same set of questionnaire was administered in the posttest after following the sessions in order to see the effectiveness of teacher training workshop. Three open ended questions were administered only in the posttest. In order to compare pretest and post test the questionnaire was designed using a 4-point Likert scale. A total of 30 minutes time was allotted for the pretest and posttest. It used the following key:

0= Cannot do

1= Have some idea

2= Can do it

3= Can do it confidently

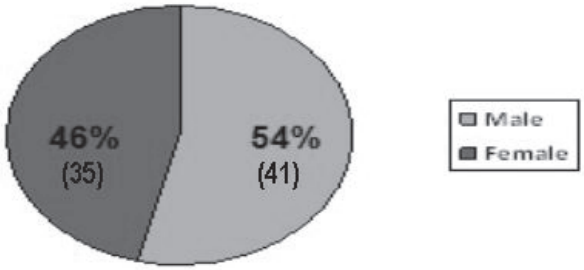
The study had attempted to address the following key contents;

- roles and responsibilities of a faculty teacher
- principles of adult learning and approaches to learning
- task analysis process, concepts and steps
- behavioral objectives and using the objectives
- types & models of curriculum
- different existing and innovative methods of learning
- lesson plan
- principles, preparation and usage of commonly available teaching learning materials
- principles and components of communication skills
- principles and approaches to supervision in the clinics and community field
- basic skills of micro teaching
- principles, types and approaches to educational evaluation
- construction of tools to assess knowledge, skills and attitudes
- community based/community oriented medical education- modern concepts/approaches
- student counseling-modern concepts/approaches
- ethics and medical education

Results

A total of 76 respondents from different 11 institutions filled the questionnaire. Out of 76 respondents 54% were male and 46% were female.

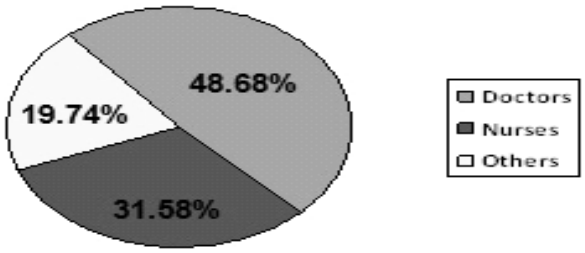
Fig. 1: Gender Analysis of Respondents



PIE DIAGRAM SHOWING THE NUMBER OF RESPONDENTS

According to professions most were doctors followed by nurses. The candidates from different departments; Physiology, Microbiology, Community Medicine, Radiology, Clinical Physiology, Ophthalmology, Biochemistry, Clinical Pharmacology & Pharmacy and Ayurveda attended the course (Fig.2)

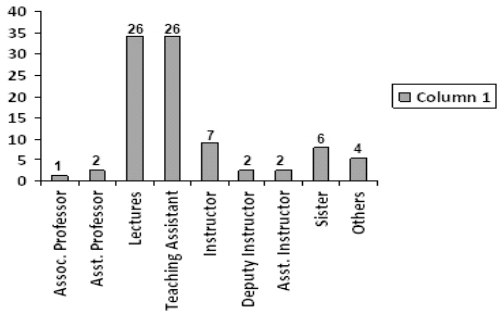
Fig. 2: Analysis of respondents according to the professions



PIE DIAGRAM SHOWING THE PROFESSIONS OF THE RESPODENTS

Most of the courses were attended by Lecturers, Teaching Assistants and Nurses (Fig.3).

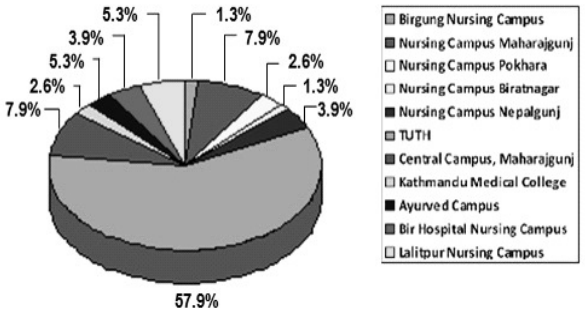
Fig. 3: Position of the respondent faculty teachers



SIMPLE BAR DIAGRAM SHOWING POSITION OF THE RESPONDENT FACULTY TEACHERS

Majority respondents 44 (57.9%) were from Tribhuvan University Teaching Hospital (TUTH) with 30 doctors and 14 other health professionals (Fig.4).

Fig. 4: Name list of the Stakeholders Institution



3–D PIE CHART SHOWING THE STAKEHOLDERS INSTITUTION

Table 2: Item distribution based on type of meaning of Likert scale

Type of meaning of Likert scale	Pretest	Posttest
Can do it confidently	0	24 (100%)
Have some idea	11(45.8%)	0
Can do it	13 (54.2%)	0
Can not do	0	0
Total	24 (100%)	24 (100%)

Note: The features represent the total number of items falling under each item in which the respondents' highest number scored in have some idea and can do it in the pretest whereas respondents highest number scored in can do it confidently in the posttest.

Table 3: Strengths of the workshop (n=76)

Strengths of the workshop	Number (%)
Appropriate duration of training (6 days)	72 (94.7%)
opportunity to develop new knowledge, skills and attitude	70 (92.1%)
Objectives and contents were relevant	68 (89.4%)
Interesting sessions	65 (85.5%)
High motivation	65(85.5%)
Excellent and experienced resource persons	64 (84.2%)
Very systematic organization of the program	64 (84.2%)
Sharing ideas and experiences	62(81.5%)
Opportunity to practice micro teaching in the class	61 (80.2%)
Confident to use new teaching methods	60 (78.9%)

Majority respondents 72(94.7%) considered that duration of teacher's training (6 days) was appropriate while the least 60(78.9%) respondents opined the confident to use new teaching methods.

Table 4: Weaknesses of the workshop (n=76)

Weaknesses of the workshop	Number (%)
High theoretical presentation in some sessions	30 (39.4%)
Lack of follow up and refresher training	28 (36.8%)
Lack of use of principles of A/V aids in some sessions.	25 (32.8%)
Lack of time management	20 (26.3%)

30 respondents (39.4%) considered that main there was high theoretical presentation in some sessions, which was the weakness of the workshop while the least 20 (26.3%) respondents opined the lack of time management as the weakness of the workshop.

Table 5: Recommendations (n=76)

Recommendation	Number (%)
MED faculty should come and evaluate faculty teacher's teaching technique in the real classroom set up	55 (72.3%)
Need to improve time management according to the time table	51 (67.1%)
Course manual on the T/T should be prepared and provided to the participants before the start of the training	48 (63.1%)
Give more emphasis on practical demonstration and involve participants rather than lecturing	45 (59.2%)
Refresher training should be provided in future	40 (52.6%)
Resource person should be conscious in use of principles of A/V aids in some session	33 (43.4%)
MED should be equipped in additional use of new technology e.g. Information Technology	30 (39.4%)

Majority of the respondents 55 (72.3%) considered that MED faculty should evaluate faculty teacher's teaching technique in the real classroom set up, whereas 30 (39.4%) respondents opined MED should be equipped with new technology e.g. Information Technology.

Discussion

Most of the respondents felt it will help them become a better teachers to help the students learn, especially most of the respondents also expressed that they can confidently construct learning objectives for the course based on job descriptions after the course. This was similar to the study of Pant.D.S. et al, (2003) where most of the students in classroom mentioned that the teachers clearly stated their objectives. They also mentioned that the sessions by teachers were excellent or very satisfactory.[3] Similarly, the teachers also agreed that they can confidently plan lessons better after the course. Most of the teachers also stated that they can more confidently use audio visual materials such as flip chart and black/white board effectively.

It has been proven that during lecture, use of different methods and medias showed high effectiveness in the students' learning [4]. This confident was stated by more respondents in their posttest than in their pretest. Educational research has also shown that students who are actively involved in the learning activity will learn more than students who are passive recipients of knowledge [5]. Attention span studies have shown that students' interest and attention in the traditional lecture diminishes significantly after 20 minutes.[6] Mixed method (Lecture, Small Group Discussion) is comparatively more effective in terms of students' learning of all three types of knowledge i.e. factual, procedural and insightful .[7] According to Butler (1992) student satisfaction with the lecture format increased when the students were actively involved in the teaching session.[5] In the identification of tools on knowledge to asses students, posttest result shows that majority of the respondents expressed that they can confidently identify the appropriate tools now than before the course.

The importance of feedback to learning has been frequently noted [8]. Interactive techniques allow teachers to receive feedback at a number of levels: on students needs (at beginning, middle or end of a lecture), on how the information has been assimilated, and on future learning directions. Students, on other hand, can get feedback on their own knowledge or performance[8]. After the course, majority of the respondents expressed that they can confidently provide feedback on the learners and improve the lectures accordingly.

Appendix 1: Pretest & Posttest results showing number of responses with significance

S.N.	Statements	Cannot do		Have some idea		Can do it		Can do it confidently	
		Pretest	Posttest	Pretest	Posttest	Pretest	Posttest	Pretest	posttest
1	Identify the roles and responsibilities of a faculty teacher	5 (6.5%)	0	**35 (46.0%)**	1 (1.3%)	25 (32.8%)	21 (27.6%)	11 (14.4%)	**54 (70.0%)**
	p value	0.06		< 0.0001		0.48		< 0.0001	
2	Construct learning objectives for the courses or sessions where the objectives are based on job descriptions	6 (7.8%)	0	29 (38.1%)	2 (2.6%)	**36 (47.3%)**	18 (23.6%)	5(6.5%)	**56 (73.6%)**
	p value	0.028		< 0.0001		0.002		< 0.0001	
3	Analyze the task of a health professional for job description.	8 (10.5%)	0	**42 (55.2%)**	3 (3.9%)	26 (34.2%)	23 (30.2%)	0	**50 (65.7%)**
	p value	0.006		< 0.0001		0.60		< 0.0001	
4	Identify the different types, models of existing curriculum	2 (2.6%)	0	**36 (47.3%)**	3 (3.9%)	32 (42.1%)	15 (19.0%)	6 (7.8%)	**58 (76.3%)**
		0.50		0.0003		0.003		< 0.0001	
5	Select appropriate instructional strategies based on the principles of adult learning	11 (14.4%)	0	**46 (60.5%)**	2 (2.6%)	17 (22.3%)	22 (28.9%)	2 (2.6%)	**52 (68.4%)**
	p value	0.002		< 0.0001		0.35		< 0.0001	
6	Plan units of instruction (lessons) which will achieve stated objectives.	5 (6.5%)	0	**35 (46.0%)**	1 (1.3%)	25 (32.8%)	21 (27.6%)	11 (14.4%)	**54 (70.0%)**
	p value	0.06		< 0.0001		0.48		< 0.0001	
7	Select appropriate instructional methods based on principles of Teaching/Learning	4 (5.2%)	0	18 (23.6%)	0	**28 (36.8%)**	13 (17.1%)	26 (34.2%)	**63 (83.8%)**
8	Use of Interactive Lecture method	2 (2.6%)	0	15 (19.7%)	2 (2.6%)	**38 (50%)**	13 (17.1%)	21 (27.6%)	**61 (80.2%)**
	p value	0.50		0.002		< 0.0001		< 0.0001	
9	Use of Demonstration method	3 (3.9%)	0	14 (18.4%)	2 (2.6%)	**41 (53.9%)**	18 (23.6%)	18 (23.6%)	**56 (73.6%)**
	p value	0.245		0.004		0.0001		< 0.0001	
10	Use of Group discussion method	3 (3.9%)	0	26 (34.2%)	4 (5.2%)	**34 (44.7%)**	12 (15.7%)	13 (17.1%)	**60 (78.9%)**
	p value	0.245		0.0002		0.0001		<0.0001	
11	Use of Role-play method	8 (10.5%)	0	**30 (39.4%)**	3 (3.9%)	27 (35.5%)	17 (22.3%)	11 (14.4%)	**56 (73.6%)**
	p value	0.006		< 0.0001		0.074		< 0.0001	
12	Prepare appropriate teaching materials to support planned lesson of instruction.	0	0	12 (15.7%)	0	**37 (48.6%)**	14 (18.4%)	27 (35.5%)	**62 (81.5%)**
	p value			0.0009		< 0.0001		< 0.0001	

13	Use of Flip Chart....	12 (15.7	0	**26 (34.2%)**	0	20 (26.3%)	8 (10.5%)	18 (23.6%)	**68 (89.4%)**
	p value	0.0009		< 0.0001		0.012		< 0.0001	
14	Use of OHP…….	4 (5.2%)	0	18 (23.6%)	0	**28 (36.8%)**	13 (17.1%)	26 (34.2%)	**63 (82.8%)**
	p value	0.12		< 0.0001		0.006		< 0.0001	
15	Use of Black /White Board.....	7 (9.2%)	0	14 (18.4%)	0	**43 (56.5%)**	8 (10.5%)	12 (15.7%)	**68 (89.4%)**
	p value	0.014		0.003		< 0.0001		< 0.0001	
16	Identify types of tools to asses students knowledge	2 (2.6%)	0	**36 (47.3%)**	3 (3.9%)	32 (42.1%)	15 (19.0%)	6 (7.8%)	**58 (76.3%)**
	p value	0.50		0.0003		0.003		< 0.0001	
17	Identify types of tools to asses students skills	4 (5.2%)	0	**45 (59.2%)**	2 (2.6%)	23 (30.2%)	19 (25%)	4 (5.2%)	**49 (64.4%)**
	p value	0.12		< 0.0001		0.468		< 0.0001	
18	Identify types of tools to asses students attitudes	9 (11.8%)	0	**40 (52.6%)**	3 (3.9%)	23 (30.2%)	24 (31.5%)	4 (5.2%)	**49 (64.4%)**
	p value	0.003		< 0.0001		0.86		< 0.0001	
19	Select appropriate instructional methods based on principles of Teaching/Learning	4 (5.2%)	0	18 (23.6%)	0	**28 (36.8%)**	13 (17.1%)	26 (34.2%)	**63 (83.8%)**
	P value	0.12		< 0.0001		0.006		< 0.0001	
20	Use principles of communication skills in interviewing	8 (10.5%)	0	**42 (55.2%)**	5 (6.5%)	24 (31.5%)	27 (35.5%)	2 (2.6%)	**44 (57.8%)**
	P value	0.006		< 0.0001		0.606		< 0.0001	
21	Use principles and approaches to counseling	10 (13.1%)	0	**32 (42.1%)**	5 (6.5%)	28 (36.8%)	25 (32.8%)	6 (7.8%)	**46 (60.5%)**
	P value	0.003		< 0.0001		0.61		< 0.0001	
22	Provide feedback on the learner's Performance	4 (5.2%)	0	**45 ((59.2%)**	2 (2.6%)	27 (35.5%)	17 (22.3%)	0	**57 (75%)**
	P value	0.12		< 0.0001		0.074		< 0.0001	
23	Use principles and approaches too supervision	11 (14.4%)	0	**35 (46.0%)**	2 (2.6%)	26 (34.2%)	24 (31.5%)	4 (5.2%)	**50 (65.7%)**
	P value	0.002		< 0.0001		0.73		< 0.0001	
24	Identify critical features of community based medical education	27 (35.5%)	0	**36 (47.3%)**	5 (6.5%)	13 (17.1%)	25 (32.8%)	0	**46 (60.5%)**
	P value	< 0.0001		< 0.0001		0.026		< 0.0001	
25	Identify and self-evaluate ones own professional needs	8 (10.5%)	0	29 (38.1%)	3 (3.9%)	**33 (59.2%)**	22 (28.9%)	6 (7.8%)	**51 (67.1%)**
	P value	0.006		< 0.0001		0.063		< 0.0001	
26	Identify the ethics in medical education	4 (5.2%)	0	27 (35.5%)	2 (2.6%)	**45 (59.2%)**	17 (22.3%)	0	**57 (76.3%)**
	P value	0.12		< 0.0001		< 0.0001		< 0.0001	

There is significant different between pre-test and post-test knowledge of the participants, ($p<0.0001$).

Conclusion

Critical analysis of document of pretest and posttest demonstrated overall positive effectiveness of teacher's training programs. It is high time that teacher training be considered as a prerequisite for all aspiring health professional teachers before being accredited as teacher and prior to going to classroom teaching.[9]

Acknowledgement

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