EVALUATION OF MEDICAL TEACHER'S TRAINING PROGRAM THROUGH KIRKPATRICK'S MODEL

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ABSTRACT

OBJECTIVE: to see the impact of teachers training program in medical institutions after conducting ten teacher's training courses, each of six modules spread over twenty-four days and further to do formal program evaluation of teacher training in medical education.

METHODS: The study was conducted at Dow University of Health Sciences from the year 2008 till 2014. Kirkpatrick's model was adopted to evaluate this program, which evaluate a program at four levels. The first level is immediate reaction of participants at the end of the course which was evaluated by an opinion proforma. Second, observing the extent of learning that was assessed through pre and post-module tests. The third level pertained to documenting transfer of acquired knowledge to the students by trained teachers via structured proformas. The fourth level was determining the overall impact of the training course which is evaluated by feedback obtained from students as well as teachers.

RESULTS: Immediately after completion of the course, 90% participants stated that they have benefitted from the course. However, the program evaluation months later showed that 40% of course participants showed improvement; 34% benefitted to a certain degree and 18% were affected to a lesser degree. Only 2% teachers claimed to have not benefitted from the course at all.

CONCLUSION: The evaluation of training courses documents the enhancement of knowledge and teaching skills of the trained faculty. This helps in identifying gaps which can eventually be bridged by specially designed follow-up courses.

KEY WORDS: Program evaluation (MeSH), Kirk Patrick's model (Non-MeSH), Academic Training (MeSH), Training Activities (MeSH), Training of Trainers (MeSH), Personnel, Educational (MeSH).

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INTRODUCTION

The main purpose of having good standards of medical education is to produce excellent doctors and specialists that are beneficial to the society in terms of being better providers of health services[1]. They should have consideration for patient safety which is of prime importance. Hence, their competency in this regard should be assessed[2]. The faculty members of a medical college do have subject knowledge and experience but they need to be trained on how to impart knowledge, which also requires a change in their attitude[3]. Practically, teachers should act as role models or mentors for the medical students, this requirement must be taught in training programs as Continuing Medical Education (CME)[4]. The attribute of medical teacher include empathy that needs to be analyzed during their performance evaluation.[5]

Training programs provide comprehensive updated knowledge and give information to teaching faculty. Well planned training programs, provide comprehensive updated knowledge and give confidence to teachers, resulting in a more positive attitude and believe in self-efficiency to enhance learning[6,7]. The purpose of training programs not only include content information but also teaching methodologies along with assessment tools and factors that enhance teaching impact and students learning.[8] The teachers of medical colleges need training to motivate and energize the student's power so as to encourage their self-development.[9,10]

The program evaluation is defined as "a process answering basic queries and questions, about various programs after a systemic procedure of planning, data collection, analysis and feedback."[5] Training programs of health professionals need evaluation to assess their efficacy.

The evaluation tools of such programs are broad based, involving maximum possible information objectively and subjectively, reporting of data collected, it's analysis and finally incorporating precious experiences to interpret the results of evaluation.[11] Usually, the evaluation process has six stages[12]:

STAGE – 1 (Planning);

STAGE – 2 (Specific Evaluation of Questions);

STAGE – 3 (Data Collection);

STAGE – 4 (Data Validity and Reliability);

STAGE – 5 (Analysis of questions) and

STAGE – 6 (Targeting stake holders).

Evidence suggests that medical teachers are not formally trained as general education teachers. Such programs are vital for the training of future physicians, who deals with human lives on day to day basis after graduation. Furthermore, even where training programs exist, such programs are not evaluated. The evaluation can help identification of potentially successful teachers[9,11]. Therefore, the general purpose of this study was the program evaluation of elaborative twenty four days, teachers training programs which were conducted in ten phases, according to Kirkpatrick's Model. They were evaluated at four levels[11]. The other part of the study was to provide insight to the changing patterns of teaching attitudes.

The third purpose of this study was to give a boost at the individual and institutional levels, besides encouraging policy makers to organize and conduct future teaching programs with specific aims & objectives and proper planning[12]. Since this is a program evaluation at four levels, the research question has been formulated for this study as follows: " what is the impact of teachers training programs on teachers and their students?"

Many courses are being conducted for teachers to impart teaching skills by various institutions and the general observation in our context is that the efficacy, outcomes or end results are usually analyzed only at reaction level. There are various other ways of evaluating programs[13,14]. However, this particular study aims to evaluate a particular teachers' training program at four levels that is knowledge, learning, competency and the impact of the training program.

METHODS

It is a mixed method approach which has been used to evaluate the medical teachers' training program. The two methods include a major proportion with structured close ended questions, while the second method includes few open ended questions regarding teacher's personal evaluation.

POPULATION AND SAMPLING:

Population for the study includes:

1. All the faculty members of Dow Medical College (DMC) and Sindh Medical College (SMC) who attended any one of the 24 days "Teachers Training Program".
2. All the facilitators of the training programs.
3. Students of various classes of MBBS at Dow Medical College (DMC) and Sindh Medical College (SMC).
4. Administrative and academic heads of DMC and SMC, of Dow University of Health Sciences (DUHS), Karachi.

Sampling of the study is as follows:

1. Simple random sampling amongst faculty members (who attended the training programs), heads (academic & administrative) and facilitators.
2. Purposive non random sampling for students.

RESEARCH INSTRUMENTS:

The program evaluated was a series of ten sessions of teachers training courses, each of 24 days duration with daily eight hours sessions. Each course had approximately thirty participants. The training course was structured and had identical modules to be taught. The teachers who were participants were almost of the same level having the same level of qualification and experience. Micro-teaching sessions were also conducted for every participant in every course and they were given feedback on their own performance during microteaching sessions. Microteaching involves camera recording, and consciousness of teachers being in front of the camera was also noted. The outcomes based program evaluation can be done due to access and availability of trained participants. The teachers' performance of DUHS was compared before and after the course with the help of the administration. It was related to level IV of Kirkpatrick's Model evaluating the impact of the training course. The administration also observed the change in the attitude of teachers. Students' feedback was also available at DUHS. The participants were also available and gave follow up reaction their own feedback. The whole process was time consuming. Teachers at times had difficulty in recalling the contents taught.

DATA COLLECTION AND ANALYSIS PROCEDURES:

The data was collected at four levels i.e. reaction of trainer, pre and post evaluation for learning of participants during training course, observations during microteaching sessions of the participants and participants' feedback, months after training was imparted.

The data collected was analyzed to study FOUR levels of Kirkpatrick's Model [Level I: Evaluation of Reaction; Level II: Evaluation of Learning, Level III; Evaluation of Change in Behavior; Level IV; Overall Impact of Training].

RESULTS

LEVEL ONE (Evaluation of reaction)

The modules taught were; Educational psychology, advanced teaching skills, communication skills, research methodology, curriculum development and measurement & evaluation modules. The average of overall learning of these

modules was of 77.85% (Range 64-91%). The computer skills module was of the least interest for the participants as most of them were not computer friendly.

Six modules were taught and before each module, a test paper was given.

LEVEL TWO (Evaluation of learning):

This tool was used to judge their current knowledge and then the same test paper was given after the module. This gave a clear view of learning by the participants. This tool showed clear learning which took place in every module separately. The pre & post tests correlation worked out by Paired-T Test for mean values, standard deviation and correlation was 0.001. This was statistically significant, indicating that the knowledge delivered resulted in learning of the participants which has been documented in the post tests results. The results (Table 1) give us the impact of the delivered lectures that was significant.

The most successfully delivered module was of curriculum development, followed by those of research methodology and assessment & evaluation in the same sequence. Whereas, the modules of advance teaching skills, educational psychology and administrative planning had the least pre & post difference, indicating that more training is required in these fields so as to match each other in terms of success.

TABLE I: MODULE-WISE AVERAGE VALUES OF PRE& POST COURSE ASSESSMENT

Module	Pre – Course Assessment	Post–Course Assessment	Difference
Module 1	2.7	3.4	0.7
Module 2	2.5	3.1	0.6
Module 3	3.3	4.0	0.7
Module 4	2.8	3.8	1.0
Module 5	2.6	3.5	0.9
Module 6	2.7	3.5	0.8

Results were on Likert scale, A = Least Change, E= Best Change

TABLE II: RESULTS OF EVALUATION OF CHANGE IN BEHAVIOR

Planning	A (%)	B (%)	C (%)	D (%)	E (%)	Total
Around the Single Concept	2.44	21.95	43.90	29.27	2.44	100.00
It was Sequential	7.32	34.15	34.15	21.95	2.44	100.00
Time budget verses content	2.44	9.76	43.90	36.59	7.32	100.00

Results were on Likert scale, A = Least Change, E= Best Change

TABLE III: EVALUATION OF GENERAL CHANGES IN BEHAVIOR

General	A (%)	B (%)	C (%)	D (%)	E (%)	Total
Relevant Methodology	2.44	26.83	51.22	19.51	0.00	100.00
Liveliness of the Teacher	0.00	39.02	36.59	19.51	4.88	100.00
Appropriate Summing Up	0.00	7.32	34.15	48.78	9.76	100.00
Not Camera Conscious	7.32	56.10	34.15	2.44	0.00	100.00
Interaction with the students	4.88	4.88	36.59	43.90	9.76	100.00
Using appropriate IT	2.44	46.34	46.34	4.88	0.00	100.00
Answering the Students Questions	4.88	2.44	36.59	48.78	7.32	100.00
Overall Rating in your view	21.95	4.88	34.15	29.27	7.32	100.00

LEVEL THREE (Evaluation of Change in Behavior):

The changes in behavior of teachers pertaining to their teaching style were evaluated by microteaching sessions of participants through a structured pro forma. In microteaching, only 3% of the participants adhered to a single concept in their lecture. Each participant was allocated ten minutes to deliver their lecture. Regarding time budgeting, as per required content, was very successfully done by 7% of participants, whereas 44% of participants barely completed their lecture while rushing at the end (Table II). In this connection, only 5% of participants motivated their students at the start of the lecture whereas 46% of participants tried to do it with a lack of concentration. Five percent of teachers started from topics taught in previous sessions or classes so as to have connectivity in their lecture. About 3% of teachers themselves asked questions from the students at the end of the lecture. Regarding the aspect of giving time to think over the questions asked, 7% of teachers provided adequate time to the students to understand it properly before answering it (Table III).

Data showed that every teachers was camera conscious, 3% of them overcame it after some time and 34% of teachers were at ease nearly after half the lecture was delivered. Overall rating of teachers during microteaching sessions, regarding their performance was done by the fellow participants and the data showed

that only 8% of participants had all the qualities of a good teacher. Thirty percent of participants had most of the required qualities.

LEVEL FOUR (Evaluation of Results) Impact of Training:

The results were referred to the outcomes achieved after the training was transferred to course participants. This was done indirectly by taking faculty's feedback through a questionnaire as to how training has brought changes.

Impact of training Evaluated through Semi Structured Questionnaire

A semi structured questionnaire was implemented to collect the feedback. Thirty seven percent of the participants strongly agreed that most of the skills they have acquired during the course are being applied by them in their teaching sessions. To evaluate the training skills sustainability acquired by participants, 46.7% of the participants strongly agreed that the skills acquired by them during the training course are sustainable as they practice it routinely in their classes, whereas another 20% of participants think that only selected skills are sustainable, depending upon the interest of the course participant. However, 6.7% of the participants mentioned that they need to update themselves for sustainability of their acquired skills.

The other question of the semi structured questionnaire, elaborates on sharing of knowledge acquired in the training course with their colleagues, noticeable changes in teaching style and habit of collecting and distributing teaching material. Forty percent of them strongly agreed that they shared the knowledge acquired by them in the training course, with their colleagues in their department or institution.

Last question was related to the "Impact of training on participants' learning, performance, their ability to engage students in the class and enhancement of the results". About 43.3% of the participants strongly agreed with all of the above mentioned noticeable changes in them and fewer number of participants 6.7% consider to have impact of the training to a lesser degree but none of the participants mentioned that they had no impact of training pertaining to knowledge, performance, capability to handle students and noticeable efficacy of class in the form of result enhancement.

DISCUSSION

The results of present evaluation using the Kirkpatrick Model showed that overall a significant proportion of participants showed better learning through the medical teacher's training program. The participants had statistically significant increase in learning after attending the course with the highest improvements in curriculum development followed by the research methods and evaluation sections of the training program. The evaluation of third module showed that very low proportion of participants who changed their behaviors regarding teaching. This may be suggesting that the behavior change phenomenon do not occur rapidly and better behavior changes may be noted with the passage of time, preferably with follow up courses. Overall, it appeared that the Kirkpatrick's model reasonably capture all the required aspects of program evaluation for medical teacher's training.

Our findings regarding the reaction and learning modules of medical teacher's training program are in line with previously published papers on teacher's performance evaluation using the Kirkpatrick's model[15]. These results are also consistent with two other studies conducted by Gloden et al (1996) and Chatterton et al (1998)[16,17]. Both of these studies trained twelve staff members either in one or two days and showed only slight increase in learning in contrasting to our results where participants consider their learning has considerably improved. These differences may be because the duration of the training program in our course was significantly longer than the duration (24 days) of training program in their studies. Furthermore, the level and field of education of participants in their course and our course might be different which may have led to such differential results.

As we observed, 80% of participants were satisfied by question answer session but the percentage of overall learning (73%) is matching with the percentage of relevance to their needs (73%). This shows that only those participants concentrated in the sessions who thought that, psychology of the student should be judged by the teachers. The remaining participants probably thought that it is the job of the psychologist and not that of the teacher, to analyze the student's attitude and approach.

Another important aspect of the evaluation program was the assessment of behavior change among the participants of medical teacher's training program. In terms of behavior change the studies using Kirkpatrick's model have shown conflicting results. A study of 24 self-selected staff during a two day training workshop did not show any significant changes in the behavior of staff which is also in line with our findings[18]. However, there is also some evidence which suggests that the training programs evaluated by same model show slight increase in staff's positive interaction behaviors[16].

In summary, the Kirkpatrick's model captures the outcomes of training program effectively on all four levels. Our findings are reasonably comparable with the existing literature, however there is limited evidence, where this model has been used in the trainings of medical professionals to evaluate the effectiveness of training programs, so that

remains the strength of our study as this tool has shown significant utility for the evaluations of medical teacher's training programs.

A good teacher is required to have induction strategy that is motivating students to be attentive and receptive of knowledge.

CONCLUSION

The Kirkpatrick's model is a useful tool for the evaluation of medical teacher's training programs. The tools has not been widely used in evaluations of medical teacher's training programs, so further evidence is required to establish this tools utility in medical training programs.

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AUTHOR'S CONTRIBUTION

Following authors have made substantial contributions to the manuscript as under:

RQM: Concept, acquisition, analysis & interpretation of data, drafting the manuscript, final approval of the version to be published.

MAWU: Study design, critical revision, drafting the manuscript, final approval of the version to be published.

Authors agree to be accountable for all aspects of the work in ensuring that questions related to the accuracy or integrity of any part of the work are appropriately investigated and resolved.

CONFLICT OF INTEREST

Authors declare no conflict of interest

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