

Original Article**Evaluation Of Training Of Trainers (Tot) Program In A Dental Institution As A Recon To Enhance Teaching Skills Among Dentists****Mythri H¹, Sateesh C P², K R Kashinath³**^{1,2} Reader, Department of Public Health Dentistry, Sri Siddhartha Dental College, Tumkur.³ Principal & Professor, Department of Prosthodontics, Sri Siddhartha Dental College, Tumkur

ARTICLE INFO



Keywords:

Training of trainers (TOT), educational objectives, teaching learning skills, dental health professional, evaluation.

ABSTRACT

Introduction: Effective teaching is a concern of all teachers. Therefore, regular teachers' training is emphasized globally. Attempts to improve teaching-learning skills by training dental faculty by organizing training of trainers (TOT) are done in few colleges. But its effectiveness has not been studied so far. Hence the aim of the present study was to assess the effectiveness of 3-day training programme on "Teaching-learning methodology and Evaluation" held in a dental institution. **Methodology:** The training programme was targeted at dental health professionals. The study was based on Kirkpatrick's four level model i.e., gain in knowledge, perception, behavior & impact of the programme. **Results:** The result showed that all participants (n = 24) improved their scores after attending the workshop (p < 0.001). Majority of respondents expressed that group activity and interactive sessions was the strength of the programme. The TOT was perceived as an acceptable way of acquiring teaching-learning skills. **Conclusion:** The overall impression about the training programme was very positive. Therefore, regular organization of such programmes with addition of new advances in dental education would be highly beneficial to improve dental professional as a model teacher.

INTRODUCTION

For centuries teaching experts were assumed to be a part of clinical or scientific expertise.^{1,2} Faculty members were expected to be effective teachers merely by virtue of their content knowledge and mastery. Studies have shown that there is a positive correlation between individual teacher skills & student academic performance.¹ Without sufficient training & development, educators lack the knowledge, skills & abilities to maximize the impact of teaching. Teachers of primary & secondary education learn through specific curriculum & practice the application during their training.¹ However in fields like medicine & dentistry; people who take up academics as a

profession receive little to no formal training in the actual process of teaching. Only in the second half of the 20th century, teaching in a medical school has been acknowledged as a skill independent of content expertise.² Although lack of teaching skill is not a new problem, there was no solution for scholars who choose academics as their carrier in health sciences. Training these teachers to be effective is the expected approach; the reality is surprising as accessible teaching development opportunities are lacking in higher education.¹

The proliferation of teacher training programs started in late 1970s and the 1980s. At that time schools started to train their teachers through short workshops,

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seminars and microteaching techniques. These programs reflect positive outcomes documented by means of subjective assessment; however, limitations in resources, lack of release time, and modest capacity result in programs that are offered to few individuals on a one-time basis.²

Evaluation is an integral component in the design of any training program. Data gathered during the evaluation process provides instructional designers, trainers and organizations with information on which training programs to continue, discontinue, modify or improve.³ So it becomes necessary to check the effectiveness of such programmes to see whether such training are modest investment of time & helps in improving the teaching proficiency.

Hence, the objective of this study was to determine the effectiveness of a 3-day training of trainers programme among dental faculty.

METHODOLOGY

This questionnaire-based survey was carried out in July 2015 at a dental institution to find out the effectiveness of teachers training programme on teaching methodologies. For evaluation of teachers training & learning, Kirkpatrick's four-level model (Figure 1) is considered an industry standard.⁴ It consists of Level 1: Reaction, Level 2: Learning, Level 3: Behavior and Level 4: Results. The indicators used to measure these are Perception, Pre & post test, Observation & Impact.⁴

The training programme was targeted at dental health professionals in an institution. People who were voluntarily willing to participate after verbal consent were enrolled in the programme & who had already undergone such programmes was eliminated making the total number of participants as 24. Ethical

clearance was obtained prior by institutional ethical committee. The training integrated the teaching skills & techniques along with educational objectives, microteaching, preparing the question paper and writing MCQS. A team of resource persons from with eminent knowledge in the field were instructors in the programme based on their specific domain of training in education. The resource persons led interactive discussions, highlighting effective teaching techniques and applying active learning throughout. Participants developed a template for an effective lecture, with emphasis on measurable learning objectives. Participants also practiced active-learning techniques in pairs and in small groups during the course. These skills and activities were then incorporated in microteaching followed by daily evaluation process.

For level 1 & 2, the collection of data had two categories of responses: (1) a pre & post test to determine their gain in knowledge and (2) a semi-structured questionnaire survey of participants at the end of workshop to evaluate their perception on usefulness of the workshop. For the teaching effectiveness perceptions survey, a questionnaire was developed with 44 items in four domains: Instructor specific, training specific, self evaluating & open ended with five-point likert scale (Strongly agree, Agree, Neither agree nor Disagree, Disagree, Strongly disagree) as a response based on teaching course evaluation questionnaire template from Berkeley university of California⁵ & Keith G Deim.⁶ The responses to open-ended questions / statements were used to document participant's general views.

The responses were analyzed by descriptive statistics including percentage & mean with paired t test using SPSS version 10. A 'P' value of less than 0.05 was considered statistically significant.

Variable	Agree (%)	Neither A nor DA (%)	Disagree (%)	Mean \pm SD
Presentation	96	4	0	4.43 \pm 0.59
Clarity	100	0	0	4.21 \pm 0.42
Helpfulness	96	4	0	4.34 \pm 0.71
Feed back	100	0	0	4.26 \pm 0.44
Encouragement	100	0	0	4.47 \pm 0.51
Teaching effectiveness	92	8	0	1.43 \pm 0.51
Rating	100	0	0	1.52 \pm 0.51

Table 1: Perception about instructor specific activities

Variable	Agree (%)	Neither D nor A (%)	Disagree	Mean \pm SD
Course content	96	4	0	4.17 \pm 0.49
Application	96	4	0	4.30 \pm 0.55
Theory	91	9	0	4.21 \pm 0.59
Course overall	100	0	0	1.60 \pm 0.49
Rate of training	100	0	0	1.56 \pm 0.50

Table 2: Perception specific about Training

For level 3, observation was made to check the behavioral changes & impact of the overall programme was assessed in level 4.

RESULTS

The response was entered into a spreadsheet and analyzed using SPSS.

Level 1: The percentage of respondents for each question agreement was calculated for a survey. Table 1, 2 & 3 shows for all the three domains, the responses were from agreed to strongly agree and negligible percentage opted for neutral but disagreement was none among the subjects. For the analytical purpose, scale 1 and 2 were merged together (category agree), 4 and 5 were merged (category disagree) retaining the category 3 as neutral response.

The workshop was perceived as an acceptable way of acquiring teaching-learning skills but 39.4% participants expressed that the duration of the workshop was too short. In open ended questions, majority of the respondents expressed that group activity and interactive sessions was the strength of the programme.

The overall impression about training programme was very positive. Therefore, regular organization of such

programmes with addition of new advances in dental education would be highly beneficial to improve teaching learning skill of dental teachers.

Level 2: Graph 1 shows that there was significant gain in knowledge following the workshop [pre-test mean 13.37 \pm 3.78 (range 2-19) to post-test mean 20.04 \pm 3.44 (range 13-25), $p < 0.000$]. The result showed that all participants improved their scores after attending the workshop.

Level 3: Observation followed by feedback from students after TOT programme revealed a lot of positive changes among the staff, their way of teaching & assessment methods.

Level 4: Impact of the programme can be credited positively as recommendation to standardize the assessment technique was initiated at institutional level & also considered to recommend at university level.

DISCUSSION

The aim of the present study was to check the effectiveness of teachers training programme by using Kirkpatrick's four level model.⁴ This study was first of its kind among dental cohort. The perception of all the participants in all the domains was very supportive

Variable	Agree (%)	Neither D nor A (%)	Disagree	Mean ±SD
Extent of application	83	17	0	1.47±0.79
Your effort	91	9	0	1.82±0.57

Table 3: Self evaluation about the programme implementation

related to the training programme which was similar to the studies done on medical students by Nirmal B et al,² Baral N et al.³. The gain in knowledge was assessed by pre & post test which shows increase in level of knowledge which was similar to studies by Susan MS et al,¹ Baral N et al,³ Juan AM et al,⁷ Haghan F et al⁸ & Nuray Y et al.⁹ In the ideal situation when evaluating training, one would be able to see a real difference between their performance at the beginning and at the end. The evaluation in this study is more modest and relates to the training course objectives being fulfilled in the immediate short term. Clearly, participants felt more confident at the end of the course. Overall, the result of the study shows that the training was acceptable to trainee.

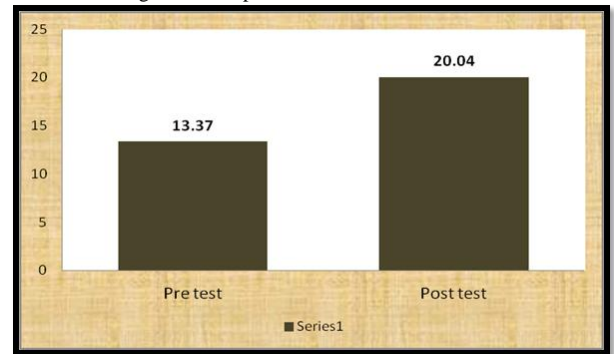
Taking the response with highest percent from agreeable to disagreeable to each item, the entire participants agreed upon the training being informative and learned new things about teaching methodologies similar to Baral N et al³ & Nuray Y et al.⁹ All the participants agreed that there were sufficient opportunities for interaction among participants during the training.^{2,3} Participants suggested for holding similar training for reinforcement with increase in the duration of training.

CONCLUSION

Overall, the training was feasible, acceptable and useful for trainers with possible reinforcement to



Figure 1: Kirkpatrick's four-level model



Graph 1: Pre & Post test assessment of Knowledge among the participants. P<0.000

enhance the teaching skills among dentists. However, follow up studies of such training is still to be evaluated in future.

RECOMMENDATIONS

Small sample size & not measuring the long term effect of the programme being the limitation of the present study further behavioral studies are recommended. Constant reinforcement being the key element for retention of new behavioral changes further such programmes are also recommended.

REFERENCES

1. Susan M. S, Brad S. F, Shawn E. D, Linda G M. A 1-Day Course to Improve the Teaching Effectiveness of Health Professions Faculty Members. *American Journal of Pharmaceutical Education* 2012; 76 (1): 1-9.
2. Nirmal B, Bishnu H P, Binod K L, Madhukar A, Balbhadra P D, Nilambar J, Madhab L. An evaluation of training of teachers in medical education in four medical schools of Nepal. *Nepal Medical College Journal*. 2007;9(3):157-61.
3. Baral N, Gautam A, Lamsal M, Paudel BH, LalDas BK, Aryal M. Effectiveness of teachers' training in assessment techniques: participants' perception. *Kathmandu University Medical Journal* 2011;35(3):189-92.
4. Evaluation in instructional design – Kirkpatrick's 4 level model. [Cited on 2015 July 15] Available from:
www.nwlink.com/~donclark/hrd/isd/kirkpatrick.html
5. Course Evaluation Questionnaire Template. Berkeley university of California. Centre for teaching & learning. [Cited on 2015 July 15] Available from:
<https://teaching.berkeley.edu/learning-goalsoutcomes>
6. Keith G. Diem. A Step-by-Step Guide to Developing Effective Questionnaires and Survey Procedures for Program Evaluation & Research. [Cited on 2015 July 15] Available from:
cahnrs.wsu.edu/.../A-Step-By-Step-Guide-to-Developing-Effective-Quest...
7. Juan A M, Yolanda S T, Noelia B P. Questionnaire evaluating teaching competencies in the university environment. *Evaluation of teaching competencies in the university. New approaches in educational research* 2015;4(1):54-61.
8. Haghani F, Eghbali B, Memarzadeh M. Effects of "Teaching Method Workshop" on general surgery residents' teaching skills. *Journal of Education & Health Promotion* 2012;1:38.
9. Nuray Yolsal, Aysen Bulut, Selma Karabey, Nuriye Ortayli, Guler Bahadir, and Zeynep Aydin. Development of training of trainers programmes and evaluation of their effectiveness in Istanbul, Turkey. *Medical teacher* 2003;25(3):319-324.