# **Original Research Article**

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# Use of Kirkpatrick's model for evaluation of reaction and learning of participant of national level workshop on linear regression

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#### **ABSTRACT**

Background: Workshop is a very useful learning method for increasing the understanding and knowledge of participant. We conducted a workshop and evaluated it using Kirpatrick's model for evaluation.

Methods: A national level workshop was conducted for MBBS and MD students. Feedback about the reaction of the participant was taken at the end of the participant and also a pre-test and post-test assessment was done.

Results: Out of total 28 participants 19 (67.9%) were females and 9 (32.1%) were males. All (100%) attendee said that they liked, enjoyed and considered the training relevant. For learning evaluation the pretest score and posttest score were taken. The average pretest score was 4.1 (SD=2.1). The average posttest score was 6.5 (SD=2.1). The difference was statistically significant (p=0.0002). On question of rating of overall conduct of the workshop 11 (39.3%) rated the workshop excellent, 13 (46.4%) good and 4 (14.29%) did not answer the question. On asking the question on the topic on future workshop they would like to be conducted 16 (57.1%) said multiple linear regression, 12 (42.3%) each on logistic regression and met-analysis, 09 (32.1%) on cox proportional hazard ratio, 3 (10.7%) on SPSS, and 01 (3.5%) on infectious disease modeling.

Conclusions: Evaluation of workshop is important for continuing improvement of teaching learning process. Participant positive feedback and objective evidence of improvement in learning proves effectiveness of the workshop. Kirpatrick's offers a model for various stages of learning process and can be used for assessment of workshops.

**Keywords:** Workshop, Evaluation, Kirpatrick's model

## INTRODUCTION

Workshop is a very useful learning method for increasing the understanding and knowledge of participant. Workshop is usually conducted among limited predecided participant. However the attendees may vary in their qualification and different knowledge of the subject, hence it throws a challenge to the organizer for taking every participant along.1

Like any other education process, the workshop needs to be evaluated. The evaluation is essential to generate empirical evidence whether the objectives of the workshop have been achieved. Also there is a increasing scrutiny to evaluate the academic programs for their stated objectives. <sup>2</sup>

There are several evaluation model existing, however the one developed by Kirpatrick has served as the primary organizing design for the evaluation for past three decades.<sup>3</sup> It has basically four levels of the program evaluation. Each level has an impact on other level. First level focuses on "How did participants feel about the workshops program"? Second level checks the improvements in participant's knowledge and skills. Third and fourth level checks about how it has changed the behaviour of the participants and how the organisation is benefitted from them.

The national level workshops are open to all eligible participants all over the India. Hence, we intended to take the feedback and evaluate the participant for level 1 and level 2 of the Kirkpatricks model.

#### **METHODS**

A workshop on linear regression was organized for MBBS and MD students at national level. It was organized in the month of Mar 2018 at Pune. A pretest questionnaire was given to the students to evaluate their pre-conference knowledge. A feedback based on the Kirkpatrick's evaluation of reaction was measured at the end of the workshop. A post-test questionnaire to evaluate the increase in the knowledge of the participant was also done. A qualitative feedback was also taken. Verbal consent of the participant was taken for use of data.

Descriptive analysis was done using mean and Standard deviation for quantitative variable and frequency and percentages for qualitative data. The data was entered in MS Excel and analyzed using STATA 13 I/C. A p value of 0.05 was taken as significant.

### **RESULTS**

The workshop on simple linear regression was conducted as a part of National level Conference. A total of 20 seats were allotted for the workshop. However, due to good response seats were increased to 30. All 30 seats were filled. Two participants could not attend the workshop.

Hence, a total of 28 attended the workshop. The minimum requirement for attending the workshop was MBBS. Out of 28, who attended the workshop 19 (67.9%) were females and 9 (32.1%) were males. A total of 3 (10.7%) were MD, 24 (85.7%), and one (4%) was Diploma after MBBS. The duration of MBBS completion was from 02-24years with median 7 years. Out of all attendee 8 (28.6%) have attended the workshop on linear regression (Table 1).

Evaluation of feedback was done at the level 1 (reaction) and level 2 (learning) of Kirkpatrick's model. All (100%) attendee said that they liked, enjoyed and considered the training relevant. On question of expectation from the workshop 12 (42.9%) had said that they want to clear the basic concepts of linear regression, 8 (28.6%) answered that they wanted to learn something new, 4 (14.3%) wanted to revise their knowledge and 4 (14.3%) did not answer the question. For learning evaluation the pretest score and posttest score were taken. The average pretest score was 4.1 (SD=2.1). The average posttest score was 6.5 (SD=2.1). The difference was statistically significant (p value =0.0002). The same is shown in Figure 1. We also divided the participant into two groups those with low baseline knowledge and those with high baseline knowledge based on the median. The average score of difference in low baseline and high baseline score were 3.8 (SD=0.8) and 1.6 (0.7) respectively. The difference was statistically significant (0.04).

A total of 26 (92.9%) said that their expectation of the workshop have been met, 1 (3.5%) did not answer and 1 (3.5%) answered in negative. On question of rating of overall conduct of the workshop 11 (39.3%) rated the workshop excellent, 13 (46.4%) good and 4 (14.29%) did not answer the question. On asking the question on the topic on future workshop they would like to be conducted 16 (57.1%) said multiple linear regression, 12 (42.3%) each on logistic regression and met-analysis, 09 (32.1%) on cox proportional hazard ratio, 3 (10.7%) on SPSS, and 01 (3.5%) on infectious disease modeling.

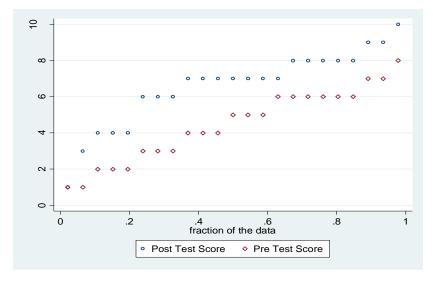


Figure 1: Quantile plot of pre-test and post-test.

**Table 1: Characteristics of participants.** 

S.no	Characteristics	Number (%) 28 (100%)
1	Sex	-
	Female	19 (67.9)
2	<b>Education qualifications</b>	
	MBBS	24 (85.7)
	MD	3 (10.7)
	Diploma	1 (4)
3	Duration of MBBS (Median;	7 (02-24)
	Range)	years
4	Previously attended workshop on the same topic	8 (28.6)
5	Reasons for attending workshop	
	Basic concepts of linear regression	12 (42.9)
	Learn something new	8 (28.6)
	Revision	4 (14.3)
	Did not answer the question	4 (14.3)
6	Expectation met	
	Yes	26 (92.9)
	No	1 (3.5)
	No Answer	1 (3.5)

#### **DISCUSSION**

Workshop evaluation and feedback is essential for not only assessing the gain in knowledge of the participant but also form an important part of feedback for the teachers. Input, process and output of the workshop in terms of various domain can be assessed. Kirpatrick's method remains the most widely used method in for the evaluation. We evaluated level 1 (Reaction) and level 2 (Learning) of our workshop.

Kirpatrick's first level assesses reaction to course instructor, environment and learning activities. Our results shows that's the participant gave positive impression of the workshop. Almost all said that there expectation have been met for the workshop. Many organizations uses only first level as means of program evaluation. However in this learning part is not evaluated. We evaluated learning part by pre and post test MCQ test. Difference in pre and post test draw attention to learning process during workshops. As expected there is more improvement in knowledge among student with low baseline score as compared to high baseline score. Low baseline score has also been found to be predictor of knowledge improvement in other studies.

There was felt need for other type of statistical concepts among the participants of the workshop as nearly all wanted to attend higher workshops in future. Evaluation of Kirpatrick's third and fourth level are more challenging and involve long term follow up either by telephone, emails etc. It has been reported that participants may acquire knowledge and skills but still not practice it.<sup>6</sup>

#### **CONCLUSION**

Evaluation of workshop is important for continuing improvement of teaching learning process. Participant positive feedback and objective evidence of improvement in learning proves effectiveness of the workshop. Kirpatrick's offers a model for various stages of learning process and can be used for assessment of workshops.

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#### **REFERENCES**

- Workshops: Advantages, Disadvantages and Considerations: Teaching Chemical Information 3/98: ACS CINF: Projects and hosted sites archive: Swain Library. Available at: https://web.stanford. edu/group/swain/cinf/workshop98mar/wrkshpadvdis .html. Accessed on 3 September 2018.
- Morrison J. Evaluation. BMJ. 2003;326(7385):385-
- Kirkpatrick's Levels of Training Criteria: Thirty Years Later - Alliger - 1989 - Personnel Psychology -Wiley Online Library. Available at: https://online library.wiley.com/doi/abs/10.1111/j.1744-6570.1989.tb00661.x. Accessed on 25 August 2018.
- 4. Morgan RB, Casper WJ. Examining the factor structure of participant reactions to training: A multidimensional approach. Human Resource Development Quarterly. 2000;11(3):301-17.
- 5. Kumar P, Yadav A, Pathak A, Kumar A. Low Baseline Score Shows Significant Improvement With Research Methodology Workshop. JMSCR. 2014;2(9).
- Rouse DN. Employing Kirkpatrick's evaluation framework to determine the effectiveness of health information management courses and programs. Perspect Health Inf Manag. 2011;8:1.

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