

# Evaluation of Level 2 of Kirkpatrick's Model "Learning" Among the Masters of Health Professional Education Candidates of Shaheed Zulfiqar Ali Bhutto Medical University, Islamabad

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## Author's Contribution

<sup>1-3</sup>Substantial contributions to the conception or design of the work; or the acquisition, analysis, Proof reading, critical revision of the manuscript for important intellectual content, <sup>4,5</sup>Statistical Analysis, <sup>6</sup>Active participation in active methodology

**Funding Source:** None

**Conflict of Interest:** None

**Received:** July 01, 2023

**Accepted:** Nov 29, 2023

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## ABSTRACT

**Objective:** To evaluate the extent of learning achieved by the participants of ongoing Masters of Health Professionals Education (MHPE) program, corresponding to level 2 of Kirkpatrick's model.

**Methodology:** A total of 18 Masters of Health Professionals Education (MHPE) candidates were recruited in the study by convenience sampling, who attended the MHPE first session of Shaheed Zulfiqar Ali Bhutto Medical University, from 8<sup>th</sup> March 2023 to 14<sup>th</sup> March 2023. Those participants with at least 80% attendance and willing to participate were included, while those with attendance less than 80% were excluded from the study. A questionnaire comprising of three parts was used for data collection. The level 2 of Kirkpatrick's model, that is "learning" was evaluated by analyzing data through SPSS.

**Results:** Majority of the participants 12 (66.7%) agreed that they had clear understanding of learning objectives (LOs), and that the LOs were aligned with the knowledge and skills. Also, majority of the candidates showed strong consensus that the course material provided was easy and essential to success. Regarding content relevance, the content was found to be relevant to the HPE candidates. A large portion of the samples agreed that they were enriched with learning from the facilitator's knowledge and skills. The delivery and style of the two facilitators involved in teaching was well engaging. The candidates showed little discomfort over the pace and length of the session.

**Conclusion:** Overall, it was noted that the learning of MHPE candidates was improved in the first contact session of the MHPE program.

**Keywords:** Kirkpatrick model, Level II, Learning process, Knowledge and skills, Masters of Health Professional Education.

**Cite this article as:** Fazal A, Nasir F, Mujtaba A, Tanvir S, Fatima N, Nabeel S. Evaluation of Level 2 of Kirkpatrick's Model "Learning" Among the Masters of Health Professional Education candidates of Shaheed Zulfiqar Ali Bhutto Medical University, Islamabad. Ann Pak Inst Med Sci. 2023; 19(4):457-461. doi. 10.48036/apims.v19i4.901.

## Introduction

A training program must be well designed with clear objectives and relevant content that corresponds with the needs of the participants and the organization.<sup>1</sup> A well-structured training program can enhance employee satisfaction and has a positive impact on overall performance of employees and organization. Hence, training is a powerful tool for human resource development. Its success depends upon program design,

delivery methods, assessment, support and follow up and evaluation methods. Accurate assessment of the impact of training is essential.<sup>2</sup> This involves measuring not only participants' satisfaction but also their acquired knowledge, skills and their ability to apply what they have learned.<sup>3</sup>

Kirkpatrick's model is a widely recognized framework for evaluating the effectiveness of training programs. It consists of four levels. First level includes the participants'

immediate reactions to the training program. This could involve their satisfaction with the training, the relevance of the content and the quality of the instructors.<sup>4</sup> Level II of the Kirkpatrick model includes assessment of learning, in which the participants enrolled in the training are assessed whether their knowledge and skills are improved or not. According to Kirkpatrick model, Level II assessments are conducted as pre- and post-training workshops, interviews, simulation and on-job-observations.<sup>5</sup> Third level includes evaluation of behavior which assesses the transfer of training to the job. Fourth level namely the result, measures the broader impact of the training on the organization's goals including productivity and efficiency. By following this model, organizations can systematically evaluate their training programs and make data-driven decisions about their effectiveness.<sup>6</sup>

Program evaluation in Health Professions Education (HPE) is a comprehensive and ongoing process that ensures quality, relevance and continuous improvement of medical training programs. It not only benefits learners but also contributes to the delivery of safe and effective healthcare services to the community.<sup>7</sup>

The MHPE Program at Shaheed Zulfiqar Ali Bhutto Medical University (SZABMU) is undergoing evaluation of its educational quality using Kirkpatrick's model. In the initial study, the focus was on participants' reactions and their satisfaction, falling under the purview of level 1 of Kirkpatrick's model.<sup>8</sup>

The present study aims to evaluate the extent of learning achieved by the participants of ongoing Masters of HPE program, corresponding to level 2 of Kirkpatrick's model.

## Methodology

A cross- sectional study was carried out among the candidates enrolled in the program of Masters of Health Professional Education (MHPE) in Shaheed Zulfiqar Ali Bhutto Medical University (SZABMU), Islamabad from 8<sup>th</sup> March, 2023 to 14<sup>th</sup> March, 2023. Eighteen candidates were recruited in the study through convenience sampling. The inclusion criteria included candidates with at least 80% of attendance during the session, and present on the day of data collection. The students with less than 80% attendance or not willing to fill in the questionnaires were excluded from the study. In the present study, level II of Kirkpatrick model was evaluated by using a questionnaire that is already validated and widely accepted.<sup>9</sup> The questionnaire included three parts. Part 1 comprised of socio- demographic factors, part II contained items related to learning objectives, course materials, and content relevance. While part III comprised of knowledge, delivery and style of the facilitator, and regarding learning environment. Each item was graded as strongly disagree to strongly agree. Data analysis was done using statistical package for social sciences (SPSS).

## Results

Twelve out of 18 candidates were males, and remaining 6 were females. Majority of the candidates 6/ 18 were of the age of 50 years and above. 9 candidates (50%) were from the field of General Surgery, while one candidate (5.6%) from General Medicine and Dentistry each, while remaining 7 (38.9%) were from other medical specialties. Out of 18, 10 candidates (55.6%) had work experience of

**Table I: Evaluation of learning objectives, course materials, and content relevance in level II (Assessment of Learning) of Kirkpatrick Model.**

	Strongly disagree N (%)	Disagree N (%)	Neutral N (%)	Agree N (%)	Strongly agree N (%)
<b>Learning objectives</b>					
Clear understanding of learning objectives (LOs)	0 (0)	0 (0)	1 (5.6)	12 (66.7)	5 (27.8)
LOs in consistency with knowledge and skills	0 (0)	0 (0)	3 (16.7)	12 (66.7)	3 (16.7)
Clarity about the expectations as a health professional education (HPE) candidate	0 (0)	0 (0)	3 (16.7)	11 (61.1)	4 (22.2)
<b>Course Materials</b>					
Easy to understand course material (slides, handouts etc.) provided	0 (0)	0 (0)	5 (27.8)	6 (33.3)	7 (38.9)
Background knowledge appropriate with complexity of material provided	0 (0)	0 (0)	2 (11.1)	13 (17.2)	3 (16.7)
Course material provided essential to success	0 (0)	1 (5.6)	1 (5.6)	6 (33.3)	10 (55.6)
<b>Content Relevance</b>					
Application of gained knowledge in daily practice as HPE candidate	0 (0)	0 (0)	1 (5.6)	9 (50.0)	8 (44.4)
Gained necessary knowledge as a HPE candidate	0 (0)	0 (0)	4 (22.2)	12 (66.7)	2 (11.1)
Clarity of role as a HPE candidate	0 (0)	1 (5.6)	4 (22.2)	9 (50.0)	4 (22.2)

**Table II: Evaluation of knowledge, delivery style of the facilitator, and environment in level II of Kirkpatrick Model.**

	Strongly disagree N(%)	Disagree N(%)	Neutral N(%)	Agree N(%)	Strongly agree N(%)
<b>Knowledge of Facilitator</b>					
Enriched learning by facilitator's knowledge	0 (0)	0 (0)	0 (0)	12 (66.7)	6 (33.3)
Enriched learning by facilitator's experiences	0 (0)	0 (0)	4 (22.2)	9 (50.0)	5 (27.8)
<b>Delivery and style of the facilitator</b>					
Well engaging session	0 (0)	0 (0)	3 (16.7)	9 (50.0)	6 (33.3)
Active involvement during the session	0 (0)	1 (5.6)	4 (22.2)	9 (50.0)	4 (22.2)
Ample time to ask questions from the facilitator	0 (0)	0 (0)	2 (11.1)	10 (55.6)	6 (33.3)
Ample opportunity to practice the learned skills	0 (0)	0 (0)	3 (16.7)	11 (61.1)	4 (22.2)
Comfortable pace of session	0 (0)	2 (11.1)	4 (22.2)	7 (38.9)	5 (27.8)
Course provided relevant to daily job	0 (0)	0 (0)	3 (16.7)	7 (38.9)	8 (44.4)
Comfortable length of session	0 (0)	3 (16.7)	6 (33.3)	6 (33.3)	3 (16.7)
<b>Facility and environment</b>					
Comfortable and conducive environment, with no distractions	0 (0)	0 (0)	2 (11.1)	7 (38.9)	9 (50.0)

16- 20 years, 5 candidates had less than 16 years of experience, while 3 candidates had more than 20 years of experience. Sixteen MHPE students reported working in government hospitals, while 2 candidates were working in private set up. Eight out of 18 candidates were Assistant Professors, 4 candidates were Demonstrators/ Senior Registrars, and three were Professors.

Learning objectives, course materials and content relevance are discussed in table I. Regarding learning objectives (LOs), majority of the candidates 12 (66.7%) agreed that they had clear understanding of LOs, and that the LOs were in consistency with the knowledge and skills. Also, majority of the participants 11 (61.1%) had the clarity about the expectations as HPE candidate.

Moreover, 7/ 18 candidates strongly agreed that the content provided was easily understandable, and 10/ 18 participants strongly agreed that course material provided was essential for success. Thirteen candidates out of 18 candidates agreed that the background knowledge was appropriate with the complexity of material being provided. Regarding content relevance, 9 HPE candidates (50%) showed consensus on relevance of knowledge provided with the daily routine, and they had the clarity of role as a Masters of Health Professional Education (MHPE) candidate. However, one candidate disagreed regarding clarity of role as HPE candidate.

Table II illustrates knowledge and delivery style along with the environment where the session has been conducted. Twelve out of 18 candidates agreed that they were enriched with learning by the facilitators' knowledge, while 9/ 18 participants reported that they had an enriched learning by facilitators' experiences. Regarding the delivery and style of the two facilitators, majority candidates 9 (50%) agreed that the training

session was well engaging and active involvement of the participants was noted. However, 1 participant (5.6%) disagreed regarding the active involvement during the session. Ten out of 18 candidates agreed that they had ample time to ask questions from the facilitator, and 11 participants had ample opportunity to practice the skills gained during the training session. However, 2 participants and 3 participants had disagreement with the pace and length of the session respectively. Moreover, majority of the MHPE candidates showed consensus over relevance of the course provided. Out of 18, 9 candidates (50%) showed strong agreement over the environment during the session. The candidates agreed that the environment was comfortable, conducive, and free of distractions.

## Discussion

Medical education is pre-eminent for all healthcare professionals, that's why there is increasing recognition of the need of continuous training for medical professionals in order to cope the ever changing dynamics of healthcare delivery system with the passage of time throughout the world.<sup>10</sup> The Masters in Health Professions Education (MHPE) is a program, designed to meet the educator training needs of health professionals at a range of levels: both those new to teaching and existing staff wishing to improve their educational expertise.

A globally recognized method of evaluating the results of both formal and informal training and learning programs and rating them against four levels of criteria: reaction, learning, behavior, and results is Kirkpatrick Evaluation Model.<sup>11</sup> In the present study, we have used this model (level 1 and level 2) to assess students with an overview of key issues in medical education and to enable them to develop a basic level of educational competence and professionalism after their first training session. We have

observed that participants learned significantly after their first session.

Similar significance was reported by Johnston and his colleagues who conducted a systemic analysis of research work published between year 2000 and 2016 for assessing educational impact of simulation and debriefing in healthcare education using Kirkpatrick's evaluation model level 1 and 2.<sup>12</sup> Our findings also matched with the observations of a study conducted on sixty pharmacy students evaluating their knowledge and skill through Kirkpatrick model level 1 and level 2 about medical reconciliation, after viewing a 6 minutes video tutorial, showing improvement in learning.<sup>8</sup> Another broad spectrum study retrieved 3096 references published between year 2011 and 2018 in health professions students observed improvement in knowledge, skill and professional behavior through micro learning that could assist them to practice across various domains of teaching and learning in their own settings.<sup>13</sup> In a study conducted in 2022, Mary L Quiton and her colleagues used Kirkpatrick's model and observed learning in 301 young people and observed development of effective learning environment and learner support system and reflected personal development that increased learning outcomes.<sup>14</sup>

At national level, a local cross-sectional study conducted on 353 healthcare workers from January to March 2020 at four hospitals showed that participants achieved learning outcomes and significant improvement in knowledge and skill was reported ( $p<0.001$ ).<sup>15</sup> Another systematic review by Gabriel et al, revealed that training enhances the ability to teach and support learning, contribute to the design and planning of learning activities, to assess basic curricula level 1 and longitudinal research skills level 2; enabling the medical students to self-evaluate and evaluate the programs itself.<sup>16</sup>

Simplicity of the process, measurement of a limited number of variables, ease of evaluation criteria, lack of need to collect the primary data and learners' previous performance, and independence of individual and environmental variables, led Amira and her colleagues, use Kirkpatrick evaluation model in 322 dental students regarding understanding of antibiotics use and resistance.<sup>17</sup> As it requires clear evaluative steps to follow, Kirkpatrick model had limitations due to time constraint, absence of institutional policies and negative attitude of participants.<sup>18</sup> Another study conducted recently in 2023, in Griffin Institute United Kingdom on 155 health professionals attending a 5-days microsurgery curriculum delivered between 2017 and 2020 reported that increased

time duration of training, improved learning outcomes significantly as 88.5% of the participants attained level 2 of Kirkpatrick evaluation model.<sup>19</sup> In a study conducted by Lauciphler MC and his colleagues, pre and post study of a group on Artificial Intelligence was conducted. Post analysis showed significant increase in perceived artificial intelligence readiness. Sessional training provided better understanding of all the factors.<sup>20</sup> Better medical education leads to better patient care, so there is public and professional demand for more relevance in educational programs with funding bodies and government requiring accountability and quality in education.<sup>21</sup>

## Conclusion

Overall, it was noted that the learning process of the candidates of MHPE program was improved. The LOs were clear, and aligned with the knowledge and skills. The course material (handouts, slides, books etc.) were easy to understand and relevant to the course. The candidates had a great learning with facilitator's learning and experiences. The session was well engaging and active involvement was noted. Moreover, little discomfort was found over the pace and length of the session. The environment was conducive and comfortable. However, it is further recommended to do research on level II of Kirkpatrick model, considering pre- and post- training assessment of learning to evaluate whether the knowledge and skills of the training participants are improved.

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