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## Evaluation of core faculty development workshop: experience from Patan Academy of Health Sciences, Nepal

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### ABSTRACT

**Introduction:** Faculty development programs (FDP) is important to promote the core education principles/philosophies and instill the innovations planned and/or carried out in any educational program. Thus, Patan Academy of Health Sciences (PAHS) carries regular FDP in order to effectively implement and innovate curriculum, and assessment.

**Methods:** Effectiveness of the workshop was assessed by validated questionnaire of FDP workshop on PBL in 2010 at School of Medicine PAHS. Paired t-test was used to test the differences between before and after scores on knowledge and application on various aspects of the program. Effect size was also calculated to determine the size of the difference between before and after the workshop.

**Results:** There were 19 participants, 11 male and 8 female, mean age was 38.4 years. There was overall increase in mean scores for all 18 items. The overall mean score of knowledge and application increased after FDP. The knowledge and application scale among the participants in terms of their age, gender and discipline increased. The effect sizes were high ( $d > 1.3$ ) and moderately high ( $0.8 < d < 1.3$ ) for most scores.

**Conclusions:** The knowledge and application of participants after FDP increased on various aspects of health professions education in the areas of adult teaching-learning, feedback cycle and assessment as part of the formal curriculum.

**Keywords:** faculty development, innovation, medicine, PAHS, PBL

## INTRODUCTIONS

Faculty development programs (FDP) is important to promote the core education principles/philosophies and instill the innovations planned and/or carried out in any educational program. These programs can be a powerful tool to constitute a positive institutional climate and can range from basic orientation programs for new faculty members to postgraduate medical education programs for health professionals.

Thus, Patan Academy of Health Sciences (PAHS) has carried out regular DFP for its faculty in order to effectively implement an innovative curriculum, teaching/learning methods and student assessment.

The objective of this study was to evaluate the effectiveness of FDP for knowledge and application of the participants regarding teaching-learning and students' assessments methods in an innovative undergraduate curriculum at PAHS.

## METHODS

A 3-day in-depth faculty development workshop on PBL in 2010 at School of Medicine PAHS was conducted for faculties using interactive lectures.

Effectiveness of the workshop was assessed by validated questionnaire at the end of the workshop. Paired t-test was used to test the differences between before and after scores on knowledge and application on various aspects of the program. Effect size was also calculated to determine the size of the difference between before and after the workshop. Effectiveness of FDP was assessed as described earlier.<sup>1</sup>

Repeated measures statistical method (Paired t-test) was used to assess the effectiveness of the workshop in terms of knowledge acquisition and ability to apply the concepts on each items,

required to work as a competent faculty at School of Medicine, Patan Academy of Health Sciences.

As the number of participants was small (<30) in this study, the effect size was also calculated to determine the size of the difference between the scores obtained before and after the workshop. Data entry and analysis was done using IBM SPSS 20.0 software.

## RESULTS

There were 19 participants in the workshop: 11 were male and 8 were female. The mean age of the participants was 38.4 years with a large variation i.e. standard deviation was 8.65 years. Thus, minimum age was 25 and maximum was 59 years. There were 10 participants below the age of 35 and 9 were above 35. Among them 6 were from basic sciences and community health sciences and 13 were from the clinical sciences.

There was an overall increase in mean scores for all 18 items after the workshop (Table 1). The knowledge for andragogy increased from 7.89 to 67.11 and application from 7.37 to 59.47. There were similar increases in Kolb's learning cycle, understanding of small group teaching/learning, student assessment and OSPE/OSCE. The coefficient of variation decreased suggesting the decreased variation between before and after scores, (Table 1).

The overall mean score of knowledge, application increased (Table 2), 45.9 to 84.2 (83.5%), 41.9 to 78.3 (86.4%), 43.9 to 81.2 (84.90%) respectively. The differences between these scores for two domains followed normal distribution, Shapiro Wilk test was not significant. The parametric test for dependent samples i.e. paired t-test showed increase in knowledge, application and total scores, with high effect size ( $0.8 < d < 1.3$ ) (Table 2).

The knowledge and application scale among the participants in terms of their age, gender and discipline increased (Table 3). The effect sizes were high ( $d > 1.3$ ) and moderately high ( $0.8 < d < 1.3$ ) for most scores, (Table 3).

**Table 1. Knowledge, application and total scores on various 18 items related to faculty development program (FDP), PAHS, 2010**

Domain Test Items	Knowledge				Application			
	Pre-Test		Post-Test		Pre-Test		Post-Test	
	Mean	CV*	Mean	CV*	Mean	CV*	Mean	CV*
PAHS Mission and Goals	59.47	55%	89.47	7%	48.42	63%	81.32	12%
Andragogy	7.89	237%	67.11	11%	7.37	239%	59.47	13%
Kolb's Learning Cycle	4.21	242%	69.74	9%	4.21	242%	62.63	12%
Learning Style - VARK / VAKT	7.89	245%	73.68	12%	5.79	233%	67.37	9%
Give Effective Oral Presentation	67.58	35%	88.37	8%	62.11	35%	83.95	11%
Prepare PP Slides and Handouts	74.47	29%	91.84	6%	71.58	30%	89.21	8%
Small Group Teaching/Learning Methods	62.89	37%	85.79	8%	57.63	47%	82.11	10%
CP and PBL	63.68	40%	83.42	10%	53.16	47%	79.47	11%
Principles and Methods of Student Assessment	54.21	54%	88.68	9%	49.47	60%	80.79	12%
Write Good MCQs	52.89	61%	86.05	11%	52.11	63%	81.84	13%
Standard Setting – Angoff	19.74	162%	82.11	10%	11.58	231%	73.42	14%
Item Analysis	27.63	106%	83.16	8%	24.74	115%	75.79	11%
Giving Feedback	54.74	62%	89.74	8%	53.95	59%	83.68	13%
Micro-Teaching	35.79	100%	90.00	7%	30.53	111%	81.32	10%
OSPE/OSCE	48.95	77%	88.42	8%	43.42	88%	81.84	13%
Professional Ethics	72.37	32%	87.11	8%	74.47	22%	84.47	11%
Mentoring	53.16	64%	84.21	8%	47.63	72%	79.47	12%
Role Modelling	58.16	47%	86.58	8%	57.63	40%	80.53	10%

\* Coefficient of variation

**Table 2. The overall mean score of knowledge and application increased after FDP, PAHS, 2010**

Domain Scores	N	Pre-Test Mean	Pre-Test CV	Post-Test Mean	Post-Test CV	p-value	Effect Size (Cohen's d)*
Knowledge Score	19	45.87	38.3%	84.19	4.6%	<0.001	0.82
Application Score	19	41.98	38.7%	78.26	7.0%	<0.001	1.02

\* Corrected effect size for paired t-test.

**Table 3. Increase in effect size of knowledge and application in terms of age, gender and discipline after FDP, PAHS 2010**

Background Characteristics	N	Knowledge (Mean score)			Application (Mean score)		
		Pre	Post	p-value	Pre	Post	P-value
Age Groups							
<35	10	44.22	84.33	<0.001 <sup>c</sup>	42.64	78.83	0.002 <sup>c</sup>
35+	9	47.71	84.04	<0.000 <sup>c</sup>	47.71	77.63	<0.001 <sup>a</sup>
Gender							
Male	11	45.92	84.19	0.000 <sup>b</sup>	40.30	77.78	0.000 <sup>c</sup>
Female	8	45.79	84.20	0.000 <sup>a</sup>	44.31	78.92	0.001 <sup>d</sup>
Discipline							
Basic +Community Health Sciences	6	47.27	84.77	0.004 <sup>b</sup>	44.77	79.17	0.003 <sup>b</sup>
Clinical Sciences	13	45.23	83.93	0.000 <sup>b</sup>	40.71	77.84	0.000 <sup>b</sup>

Note: a = d ≥ 1.3 (Very large), b = 0.8 &lt; d &lt; 1.3 (Large); c = 0.5 &lt; d &lt; 0.8 (Medium); d = 0.2 &lt; d &lt; 0.5 (Low)

## DISCUSSIONS

There was an overall increase in mean scores for knowledge and application after the workshop (Table 1), overall knowledge, application and total scores increased (Table 2) and the knowledge and application scale among the participants in terms of their age, gender and discipline also increased (Table 3).

Faculty member is the driving force behind an institution and training them is expected to make the entire institution more productive. Although many types of FDPs are applied in undergraduate and postgraduate medical education, studies that have evaluated the effectiveness of these programs in the long term are limited. An early report<sup>2</sup> has made comments on the cognitive effects on teacher-student contacts and reported that the teachers who attended a workshop-based course benefited mainly from the early practice of the acquired skills.

The result of this study showed a significant increase in knowledge and application scores regarding knowledge in teaching methodology and philosophy. It has been suggested that comprehensive FDPs should have four development components: professional, instructional, leadership, and organizational.<sup>3,4</sup> Junior faculty members, however, benefited more from demonstration and coaching, probably because they are more involved with skills training than full professors. According to a systematic review, the majority of FDPs include workshops, seminar series, short courses, and longitudinal programs.<sup>5</sup> Studies based on feedback of the FDPs have a unique role in guiding faculty development, since they demonstrate the impact of the FDP upon the educational experiences of the teachers, resulting in the improvement of their teaching practices<sup>6</sup> Dennick<sup>7</sup> has reported that the participants of a 2-day teacher-training program maintained the core objectives of the course and were using the acquired skills between 1<sup>st</sup> and 2<sup>nd</sup> year after the course. Moreover, it was proposed that the participants used the course as a platform to develop a

deeper understanding of their professional practices.

In two other studies conducted in Turkey, the major impact of the course on the teaching practices of faculty members was reported to be on large-group teaching, which was modified by the improvement of didactic lectures.<sup>8,9,10</sup> Hewson et al.<sup>11</sup> showed that participants' retrospective self-assessment and independent ratings by their trainees were positively inter-correlated.

## CONCLUSIONS

The study found significant increase in knowledge and application of participants on various aspects of health professions education. The faculty development workshop was effective in improving faculty's knowledge and application in the areas of adult teaching-learning and feedback cycle, principles of student assessments including standard setting and item analysis of MCQs and OSCE/OSPE as part of the formal curriculum.

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