Original Article

Do faculties remain motivated after attending medical education workshops and what innovations do they bring about at workplace?

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Abstract

Background & Objective: Faculties attend medical education workshops to gain knowledge and skills. A need was felt to assess the sustainability and type of motivation status of the participants and whether they brought about a change in their workplace over a period of 6 months after the training.

Materials & Methods: A longitudinal prospective, analytic, questionnaire based follow up study was conducted in 60 faculty volunteers who attended a revised basic course workshop on medical education technology. The motivation status was recorded post workshop baseline (0 months), at 2 and 6 months after the workshop. They were also asked to report any innovations initiated in their workplace.

Results: The motivation parameters of External regulation increased from Mean (SD) of 1.89(1.14) to 2.84(1.59), p=0.001 and 3.07(1.55), p<0.001 at 2 months and 6 months. Amotivation increased from 2.37(1.43) to 3.15(1.47), p=0.012 and 3.10(1.53), p=0.020 at 2 and 6 months respectively. Work self-determination index (WSDI) decreased from baseline to 6 months from 17.69(7.65) to 14.02(8.51), p=0.046. Work non self-determined motivation (W-NSDM) increased from baseline, 2.86(1.09), to 3.56(1.24) p=0.004 at 2 months and 3.63(1.19), p=0.001 after 6 months. There was significant correlation between innovation scores and Intrinsic Motivation, Integrated Regulation, Identified Regulation, Work Self-Determination Index and Work Self-Determined Motivation at 2 and 6 months and Introjected Regulation at 2 months.

Conclusion: The faculty's change in motivation status suggests that it was related to goals, targets and awards. Perceived changes related to teaching and assessment methods in workplace was also reported.

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Introduction

A motivated teacher is an asset to society, the institution, and to a medical student's enthusiasm and achievement and this has been agreed upon, irrespective of the variations in suggested dimensions and definitions of motivation (1). The spectrum of motivation ranges from Amotivation, where no motivation exists, to Intrinsic Motivation which is related to the desire to do something new and interesting, explore and learn, without any demand related to job and without the desire for any rewards (2). In between the two entities is External Regulation, which is related to awards; Introjected Regulation dealing with qualities of guilt, pressure and ego that makes a person work; Identified Regulation involves self-recognition, that the expected behavior change or task can actually improve performance. When assimilation of any attitude and behavior to the 'self' occurs, it is termed as Integrated Regulation (2). Motivation is also described as Self-Determined which includes parameters of identified, integrated regulation and intrinsic motivation. Non Self-Determined encompasses Amotivation, External and Introjected regulation (3). Self-determination deals with orientation of behavior, autonomy and control and reflects that the individual is driven to achieve, while non self-determined motivation suggests that the task may be done to satisfy self-esteem or ego or with the aim to gain some award or recognition.

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Workshops on Medical Education technology are important to train faculty about the latest knowledge and skills. They are an important part of the hierarchy of faculty development strategies in medical education (4, 5). The motivation status of the faculty is dynamic, varies and influences the outcome of such workshops. It affects the choice to participate, learning and transfer of work related skill training (6). There are very few studies where motivation of medical faculty has been analyzed (7,8), and this study was undertaken for doctors involved in teaching, and did not include other health care professionals or students to reduce the confounding factors. The study undertaken, thus analyzed the research question, on what was the type of motivation in the faculty who had attended the workshop, immediately after attending (baseline or 0 months) and at two and six months thereafter. In addition, the aim was to find out whether the motivation status of faculty was sustained or changed over a period of six months after attending workshops, based on the revised basic course of Medical Council of India (MCI) for faculty development. In addition, an important objective was whether the faculty perceived that after their training they had brought about any change or innovation in their teaching or assessment methods at their workplace.

Materials and Methods

A longitudinal, prospective, follow up study was conducted in the department of Medical Education of the institute, for which prior ethical approval was obtained from the institutional ethical committee. Three identical workshops with same content, organizers and speakers, but for different participants were held as per the revised basic course of the Medical council of India (MCI). As the period of study was one year and follow-up was scheduled for a period of six months, only three workshops were feasible in the stipulated time. The sample size of convenience was thus taken based on the rules and feasibility of conducting the workshop after benchmarking with previously done studies. Information of the workshops was sent to various medical colleges from the institute which is a regional center for the country.

Participants of the Study

A maximum of 25 medical faculty per workshop were allowed as per standard protocol. Seventy two of the 75 (96%) participating faculty members of various medical colleges volunteered and were enrolled for the workshops. The questionnaires were completely filled by 60 (80%) participants. At the beginning of the study, they were informed about the details of the study, ensured that their anonymity and confidentiality would be maintained and there would not be any potential harm to them, and informed consent was taken from the volunteers. At the end of the workshops they were also explained, both verbally and in writing, the significance and guidelines for filling the follow-up questionnaires which would be helpful to assess their motivation status and what innovations they had done at workplace.

Content of the Workshops

The content of workshops, was designed according to the revised basic course of MCI and had been standardized in the institution. It is a standard format practiced by regional and zonal centres throughout the country for faculty development. It provided a comprehensive hands on training experience, involving a two-way communication process, and has lectures and exercises of topics related to several topics of medical education technology. These include goals, curriculum planning, group dynamics, learning domains, competencies, objectives, teaching and learning methods, assessment methods, skill development, feedback, and networking were the topics discussed.

The Motivation Questionnaire

A standard internationally accepted questionnaire using the Work Extrinsic and Intrinsic Motivation Scale (WEIMS) was used after obtaining permission

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from the respected and supportive author via email (9). This instrument has been used in other research studies as well (10). The scale has a construct validity with items to total correlation above 0.5 for all its subscales and its Cronbach alpha range is 0.64(Amotivation) to 0.83(Integrated Regulation). This scale measures different aspects of motivation based on the self-determination theory. It is an 18 item Likert scale whose items scores range from, 1 (does not correspond at all) to 7 (corresponds exactly). It is divided into six subscales whose score is the mean of three items each. It is therefore projected as Intrinsic Motivation (IM), Integrated Regulation (INTEG), Identified Regulation (IDEN), Introjected Regulation (INTRO), External Regulation (EXT) and Amotivation (AMO). The scores are used to calculate the Work Self-Determination Index (WSDI), Work Self-Determined Motivation (WSDM) and Work Non Self-Determined Motivation (WNSDM) as described. The WSDI score is within 36, and a positive score indicates a self-determined profile and a negative score represents a non self-determined profile. No translation of the questionnaire was required as all participating medical faculty were proficient in the English language.

The Perception of Innovation questionnaire

The questionnaire was validated in the institute with the help of 24 faculty members from the Department of Medical Education and other departments and pilot tested as per standard procedure (11). Six members made the questionnaire, 8 did expert validation and 10 participated in the pilot study. The CVI/UA scale was 0.96 and CVI/Average was 0.99. The Cronbach alpha was 0.939. To record innovations, 14 items, were made on a 5 point Likert scale and included responses from 1 (strongly disagree) to 5 (strongly agree). It was used to record the perceived change brought about by the faculty at their workplace in terms of innovations done, their teaching and assessment methods and had items related to student interest and attendance. This questionnaire used a mixed approach of analysis where an explanatory sequential design was used and qualitative follow up questions were added to a quantitative questionnaire. The qualitative component asked them to explain the nature of innovations carried out by them. The stem of the questionnaire began with "Post workshop I believe I have brought about a change in my technique/methodology of", and then the options were mentioned with explanations on what each option meant, wherever deemed necessary.

Protocol Followed in Work Plan

On the last day of each of the workshops, the questionnaire was filled by the volunteers. Thereafter the same questionnaire was sent to them in physical or online form, as per their choice of preferred medium, 2 and 6 months after attending the workshop.

Statistical Analysis

Data was analyzed using SPSS-23 version package, IBM, USA with a significance set to 0.05. Likert scale was analyzed using ANOVA followed by Tukey's HSD to compare subscales of motivation and the parameters of self-determined motivation and non self-determined motivation from post workshop 0 to 6 months. Descriptive statistics was used for variability of ordinal scale items. The frequency of responses of items of innovation questionnaire was calculated at 2 and 6 months post workshop. The total of the scores of items, called as the innovation scores was compared at 2 and 6 months using t-test. The association between the innovation score and subscales of motivation was studied using Pearson's correlation. A value of $p<0.05$ was considered significant.

Results

The details of the participants, including their profile and their change in knowledge of teaching and assessment methods that were analyzed are mentioned in a prior publication (12). Most of the faculties were between 40-49 years of age; 54% were male and 58% were professors; 68% were part of the

medical education unit of their institute; and 25% had 6 to 10 years of experience while 16% had more than 25 years of teaching experience.

The evaluation of the motivation parameters is shown in Table 1. Parameters of EXT and AMO increased from 0 to 2 and 6 months. WSDI decreased from 0 to 6 months, accompanied by an increase in WNSDM form 0 to 2 and 6 months. No significant change was seen in these variables between 2 and 6 months.

Table 1: Motivation status post workshop at 0, 2 and 6 months

Parameter	Post Workshop Mean ± SD			p value (ANOVA)	p value (Tukey's HSD)
	Baseline	2 months	6 months		
Intrinsic motivation	6.03 ± 1.06	6.03 ±1.10	6.08 ± 0.87	0.94	0 to 2 months=1.000 0 to 6 months=0.961 2 to 6 months=0.952
Integrated regulation	5.27 ± 1.42	5.52 ± 1.24	5.57 ± 1.16	0.38	0 to 2 months=0.521 0 to 6 months=0.408 2 to 6 months=0.980
Identified Regulation	4.27 ± 1.40	4.79 ± 1.30	4.79 ± 1.31	0.04*	0 to 2 months=0.081 0 to 6 months=0.086 2 to 6 months=1.000
Introjected Regulation	4.33 ± 1.53	4.69 ± 1.37	4.71± 1.25	0.25	0 to 2 months=0.342 0 to 6 months=0.299 2 to 6 months=0.996
External regulation	1.89 ± 1.14	2.84 ± 1.59	3.07 ± 1.55	<0.001*	0 to 2 months=0.001* 0 to 6 months<0.001* 2 to 6 months=0.663
Amotivation	2.37 ± 1.43	3.15 ± 1.47	3.10 ± 1.53	0.006*	0 to 2 months=0.012* 0 to 6 months=0.020* 2 to 6 months=0.981
WSDI	17.69 ±7.64	14.09 ± 8.98	14.02 ± 8.50	0.02*	0 to 2 months=0.052 0 to 6 months=0.046* 2 to 6 months=0.999
WSDM	5.18 ± 1.10	5.45 ± 1.03	5.479 ± 0.89	0.23	0 to 2 months=0.346 0 to 6 months=0.264 2 to 6 months=0.984
WNSDM	2.86 ± 1.08	3.56 ± 1.23	3.62 ± 1.19	0.001*	0 to 2 months= 0.004* 0 to 6 months=0.001* 2 to 6 months=0.948

Baseline indicates immediately after or 0 months post workshop.
*p<0.05 is significant.

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The scores of perceived innovation were 55.62 ± 7.7 at 2 months and 55.19 ± 9.2 at 6 months, they did not significantly change from 2 to 6 months as p=0.600. The percentage of participants reporting innovation in their teaching and assessment methods is shown in Table 2. More than 80% of the participants perceived that they had brought about a change and innovations in their existing teaching and assessment methods like lectures, practical, small and large group discussions and teaching skills. More than 65% wrote that they had introduced an innovative way of teaching and 74% at 2 months and 76% at 6 months reported that they had encouraged other faculty members to do so also. Similarly, they reported an increase in student interest, understanding and attendance in classes. Figure 1 reports the variety of innovation practices followed by the faculty in their teaching and assessment methods. It is encouraging to note that the list is a good mix of digital and traditional classroom innovation practices. Moreover, incorporating feedback as part of their teaching was an innovation reported by two participants at 6 months.

Table 2: Faculty's Perception of innovation in teaching learning and assessment methods after 2 and 6 months of workshop †

Perception of innovation by faculty volunteers after workshop	Two Months		Six Months	
Technique/Methodology	Disagree%	Agree%	Disagree%	Agree%
Lectures	1.58	85.71	3.17	84.12
Practical/clinical Discussions	0	87.30	1.58	80.95
Teaching attitudinal domain/ Role Plays	6.34	66.66	6.34	68.25
Small Group Discussions	3.17	84.13	3.17	82.54
Large Group Discussions	1.58	85.71	3.17	84.13
Introduced an innovative method of teaching	6.35	65.08	9.52	65.08
Introduced an innovative method of Assessment	6.35	55.55	11.11	61.90
Existing Method of teaching	4.76	68.25	7.94	71.43
Existing Method of Assessment	3.17	60.32	11.11	63.49
Teaching skills	1.58	87.30	3.17	88.88
Attendance in class	1.58	79.37	1.58	88.88
Student interest/Understanding	3.17	84.13	6.35	80.95
Encouraged/ Motivated other faculty	3.17	74.60	4.76	76.19
E- learning methodologies	6.35	68.25	11.11	73.02

† Results are expressed as percentage (%) of participants. 'Strongly agree' and 'agree' on Likert scale are expressed as 'agree' and 'strongly disagree' and 'disagree' are clubbed as 'disagree'. Other participants neither agreed nor disagreed.

The correlation between subscales of motivation and innovation scores at 2 and 6 months in Table 3 depicted significant correlation between innovation scores and IM, INTEG, IDEN, WSDI and WSDM at 2 and 6 months and INTRO at 2 months. This suggests that self-determined factors are significantly correlated with innovation practices followed at the workplace.

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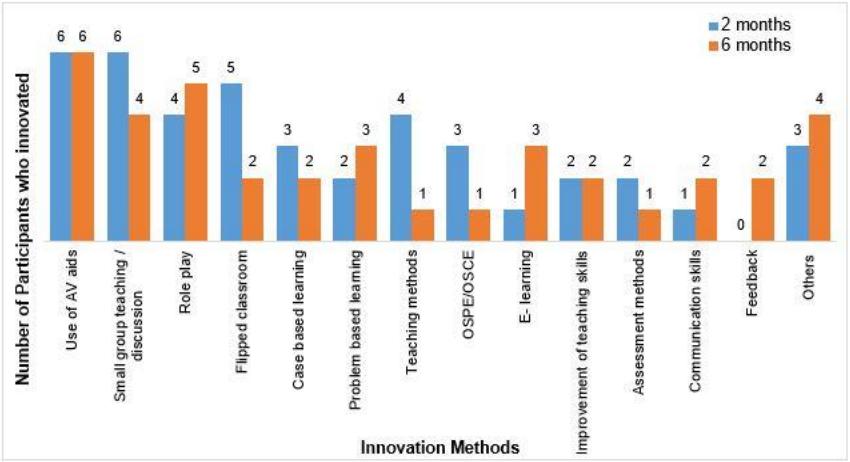
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Table 3: Correlation of motivation parameters scores with respective innovation score of 2 and 6 months

Motivation Parameter	Innovation score			
	2 months		6 months	
	r	p	r	P
Intrinsic motivation	0.491	<0.001*	0.611	<0.001*
Integrated regulation	0.587	<0.001*	0.333	0.009*
Identified Regulation	0.586	<0.001*	0.271	0.036*
Introjected Regulation	0.350	0.006*	0.195	0.136
External regulation	0.084	0.522	-0.112	0.393
Amotivation	0.062	0.640	-0.137	0.296
WSDI	0.316	0.014*	0.408	0.001*
WSDM	0.655	<0.001*	0.475	<0.001*
WNSDM	0.189	0.147	-0.039	0.767

* p<0.05 is significant

Fig 1: Types of innovations in Teaching learning and Assessment methods done by faculties at the workplace post workshop at 2 and 6 months ‡



‡ Teaching Methods include Panel discussion, tutorial, skill teaching, OMP (One Minute Perceptor) variant, student lecture, seminar and demonstration.

Assessment methods included MCQ and portfolio assessments

Others category includes the Theatre of oppressed, quizzes, early clinical exposure, thinking out of box, think pair and share and fishbowl techniques

Discussion

The study included medical faculty from different parts of the country and studied their motivation status over a period of six months and whether they brought about any change in their workplace after getting trained in medical education technology. Therefore, the results are more universal and not related to a single institution or university which would have narrowed the scope of the study (7). It is evident from the positive motivation scores that the faculties were self-determined throughout the period of intervention (9). However, their motivation type and status varied. Both Amotivation and external regulation increased with the passage of time. This observation was substantiated with the increase in WNSDM and a decrease in WSDI. Since Amotivation is related to a suboptimal motivational outlook, lack of interest or intention to continue this finding in addition to decrease in WSDI is not a favorable factor for faculty development (13). The results also suggest that the faculty became more non self-determined in their motivation status. The reasons have to be investigated, perhaps the faculty attend these workshops because they are required to do this for external demands and requirement, personal endorsement, promotions or retaining their jobs and this is reflected in their motivation status.

Motivation can also be linked to seniority, although this was not be an issue for this study as more than half of the faculty participants were designated professors, and belonged to the medical education unit. To comment further on this, a sizable number of participants of different seniority levels would be required. Moreover, this association was not found to be significant in one study (14). In another study four types of motivational profiles have been mentioned and a high score on autonomous learning, has been found to be useful for lifelong learning (8). However, our study did not do analyses on this aspect of faculty motivation.

The innovation scores did not show any significant change although many participants perceived a change in their teaching and assessment methodology, especially in use of AV aids, role play and small group teaching methods. They reported that student attendance and interest in their classes increased and that they had encouraged other faculty members in various ways. This is a very positive outcome of the study. It may not be possible to train all faculties, in medical education technology throughout the country, so this transfer of knowledge is very useful.

A significant positive correlation at 2 and 6 months between with innovation score and IM, INTEG and IDEN, WSDI and WSDM was observed. This is expected because faculty with self- determined qualities are likely to challenge themselves and satisfy their inherent desire to do something new. Intrinsic motivation is positively related to job satisfaction and enjoyment, it encourages a person to perform, challenge and explore one's capacity and bring about innovation (15). In terms of faculty development in medical education, this could be in use of new technology, improvement in teaching skills or introduction of innovative methods. Ultimately all this leads to an efficient transfer of knowledge to students, increasing their interest, efficiency and competence. The student responses in turn stimulate and motivate the teacher and thus complete the circle of improvement in medical education.

However there has been a study where a positive correlation was reported between self and non self-determined motivation and it was suggested that both types of motivation can influence performance and success at workplace (16-18). Faculty have to be internally driven, to transfer training received in workshops into educational practices, for student motivation and teaching effectiveness, but other factors like academic leadership and persistence may also contribute to the overall change (19,20). It is known that students and faculty may appreciate different qualities in a medical teacher. In a study, students rated 'respectful' and 'good planning' as desired qualities in a teacher while faculty attributed more importance to communication skills. Moreover,

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good lectures, excellent subject knowledge and use of audio-visual aids were appreciated by both. (21). In order to continue to give their best and improve their teaching skills, generate student interest, motivation of medical faculty is a very important factor It is natural to think that motivation can wane over time after attending any training workshop, therefore if any subtype of motivation is sustained after workshops, the idea of holding such faculty development programs for skill training is favorable to medical education.

Limitation of the study and Future scope

The motivation status of any faculty prior to the workshop was not known and it cannot be commented if any confounding factors, especially in their workplace, like the level of seniority, promotion avenues, workplace environment and workload of participants, could have contributed to the motivation status. These variables are difficult to predetermine or control in a realistic environment and under a specific timeframe and the limitations are not causal effect. The feedback of other faculty, peers and students relating to the teaching skills or innovations done by faculty are some opportunity areas, which can be explored as the future scope of this study.

Conclusion

The study shows an increase in Amotivation and External regulation and Work Non self-determined motivation and a decrease in Work self-determination index of faculty from immediate post workshop values over a period of six months after attending faculty development workshops. Perceived changes in their teaching and assessment skills and an encouraging response in terms of student interest and attendance in classes was reported. Faculty with a more self-determined characteristic profile brought about more innovation.

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