The impact of a faculty development program: evaluation based on the self-assessment of medical educators from preclinical and clinical disciplines

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1Department of Medical Education, 2Department of Public Health, and 3Department of Physiology, School of Medicine, Marmara University, Istanbul, Turkey

Sarikaya O, Kalaca S, Yeğen BC, Cali S. The impact of a faculty development program: evaluation based on the self-assessment of medical educators from preclinical and clinical disciplines. Adv Physiol Educ 34: 35–40, 2010; doi: 10.1152/advan.00024.2010.—Self-assessment tools have previously been used to assess the impact of a faculty development program on the teaching skills of medical educators. In this study, we aimed to assess the impact of a faculty development program on the teaching performances of faculty members in relation to their medical disciplines and academic positions. A faculty-training program consisted of “training skills” and “student assessment instruments” courses. The impact of the program was evaluated by self-reporting of faculty members (a total of 225 reports) 1–2 yr after the program. Both courses were found to be beneficial by nearly all of the attendants. Clinicians benefited more from some topics in the student assessment course and could apply the structured learning and assessment guides, structured oral examination, and objective structured clinical examination more efficiently than their peers from preclinical departments. In conclusion, the results demonstrated that the participants of the faculty development program modified their teaching activities according to the demands of their clinical practice. The correlations between the benefits and behavioral changes were statistically significant.

training skills; assessment guides; structured oral examination; objective structured clinical examination

FACULTY DEVELOPMENT PROGRAMS (FDPs) are especially important in adapting faculty members to their changing roles in initiating and setting the directions for curricular changes. 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. Overall, the aim of all these training programs is to support medical educators in adapting to changing missions of teaching and to enhance the efficiency and performance of their teaching skills while improving work satisfaction and teaching confidence by developing good teachers (4, 5, 6, 11). It has been suggested that comprehensive FDPs should have four development components: professional, instructional, leadership, and organizational (12, 22). According to a systematic review, the majority of FDPs include workshops, seminar series, short courses, and longitudinal programs (18). Key features of effective faculty development give a high priority to experiential learning, provision of feedback, effective peer and colleague relationships, well-designed interventions in accordance with the principles of adult learning theory, and the use of diverse teaching and learning methods (18).

In general, FDPs are evaluated with diverse assessment instruments, such as pretest/posttest, retrospective self-assessment, and independent performance ratings (10, 18). Another type of program has been analyzed with context, input, process, and product evaluations (18).

In light of recent developments in medical education, several medical schools in Turkey have accepted a certificate in training skills as a criterion for academic promotion (13). Some studies (15, 17) of faculty training programs (conducted in Turkey) have evaluated the opinions of participants about the efficiency of the training program. Other studies (16, 21) aimed to elucidate the educational impact of the newly acquired knowledge and skills upon individual and occupational performances in the professional life of the participants.

In our study, we evaluated the impact of the faculty-training program on the teaching performances of faculty members in relation to their medical disciplines and academic positions. This is thought to be important so that course content and teaching methods can be matched to faculty needs in different disciplines and at different professional levels.

The faculty training program in Marmara University School of Medicine (MUSM) was designed to enable faculty members to improve their skills in teaching and assessment methods. For this purpose, two complementary courses were organized and implemented as the “training skills” course (TSC) and “student assessment instrument” course (SAIC).

The TSC has been taught since 1999 and is focused on major themes, such as identifying learning objectives, identifying the principles of adult learning, creating and maintaining a positive learning environment, developing and using audiovisual train-
ing tools and equipment effectively, using interactive teaching techniques in both large and small groups, making an effective demonstration, and coaching and developing competency-based skills, learning, and assessment guides. The course takes 5 days (total: 40 h) and is conducted in an interactive way, consisting of exercises for small groups with plenary discussions and brief expository lectures. On day 5 of the course, participants were asked to demonstrate the teaching techniques they had acquired in a presentation of their own design. The course program was based on the revision of a trainers’ manual that had been originally produced for a course for trainers in an international reproductive health project (20).

The SAIC has been carried out since 2000 and includes the following major themes: purpose of student assessment; comparison of the assessment methods according to objectivity, validity, and specificity; preparing and analyzing multiple-choice and essay questions; advantages and disadvantages of oral examinations and how to prepare a structured oral examination; and the use of clinical skills and methods for assessing oral examinations. The course consists of theoretical and practical sessions, which are given over 2 half-days (total: 8 h).

The instructors of the courses were volunteer faculty members from the Departments of Medical Education, Public Health, and Physiology who had a specific interest in medical education and completed the required courses to become master trainers, willing to devote part of their professional time to faculty development in MUSM. This article was written to evaluate the FDP by these instructors.

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 (7). The use of self-assessment as a tool enables the participants to make a conceptual integration of knowledge, skill, and attitude (3).

The present study was planned as a part of the program evaluation activity. We evaluated the impact of the FDP on the teaching performances of faculty members at MUSM on the basis of their use of new concepts, skills, and knowledge to compare their preexisting teaching activities with those they used after the courses. We assumed that at least a 1-yr interval between the FDP (TSC or SAIC) and the followup questionnaire was sufficient to investigate the evidence of long-term effects of the FDP. The professional benefits and modifications of the teaching practices of the faculty members were compared according to their academic status and field of teaching expertise, i.e., clinical or basic medical science.

METHODS

Participants of the FDP in the MUSM received either a MUSM-TSC or MUSM-SAIC questionnaire or both, which asked them to indicate individual opinions about the impact of the program on the modifications produced by the FDP on their teaching activities and behavior. Participants were sent the questionnaires 1–2 yr after the completion of the respective courses. A followup survey of the 1999–2005 cohorts of MUSM-TSC was conducted by sending the 145 participants a questionnaire, whereas the 2000–2004 cohorts of MUSM-SAIC was conducted by sending 133 participants another questionnaire (Fig. 1).

MUSM-TSC and MUSM-SAIC questionnaires were organized in two distinct parts. The first part asked the participants to rate their opinion of the professional benefits gained in their performance of specified teaching- and learning-related activities. A Likert-type scale (“completely,” “markedly,” “partly,” and “not at all”) was used. The second part of the questionnaire had 12 “yes or no” questions asking for choices among different teaching activities that were altered by the FDP. The opinions of the faculty members about their postcourse teaching activities were analyzed in relation to their academic positions and membership in preclinical or clinical disciplines. This comparison was made using a chi²-test. Similarly, the relationships between the opinions on self-development and professional benefits from the FDP were analyzed using a “two related samples chi²-test” (McNemar test) with the SPSS 11.0 statistical package.

RESULTS

One hundred eighteen faculty members who had participated in the TSC and 107 faculty members who had participated in the SAIC returned the questionnaires, giving response rates of 81.4% and 80.5%, respectively. Of those who returned their questionnaires, 81 (56.2%) of the respondents had taken both courses, whereas 26 (18.1%) of the respondents had participated only in the SAIC and 37 (25.7%) of the respondents had participated only in the TSC.

Most of the members of preclinical departments (76.1%) and about half of the members of clinical departments (54.1%) completed the TSC. Participants of the SAIC included 57.1% of faculty members from preclinical departments and 40.5% of faculty members from clinical departments. An analysis of the participants according to their academic position showed that 40.7% of the TSC participants were assistant professors, 34.7% were associate professors, and 24.6% were full professors, whereas 39.3% of the SAIC participants were associate professors, 31.8% were assistant professors, and 29.0% were full professors.

TSC. In general, all participants stated that they benefited “completely” or “markedly” from the main themes of the TSC program, whereas only 28.0% of the participants stated that they benefited “partly.” Seventy-seven percent of the participants who were employed in clinical sciences compared with those working in preclinical departments (55.2%) claimed that all main themes were “completely” or “markedly” beneficial (P < 0.05; data not shown).

The opinions of the participants regarding the professional benefits of TSC topics are shown in Table 1. More than 90% of the participants benefited from almost all aspects of the course topics. However, the topics consisting of interactive teaching techniques, demonstrations, coaching, and competency-based
learning and assessment guides were relatively less beneficial for some of the participants, who were mainly from preclinical sciences such as medical biology, biophysics, microbiology, histology, anatomy, and physiology (P < 0.05).

In accordance with the professional benefits derived from the topics of the course, almost all of the participants (98.3%) stated that they had altered their teaching practices by attending the TSC and using the knowledge and skills they acquired. The detailed results shown in Table 2 demonstrate that the faculty members modified their large-group presentations and small-group learning activities. They also started to use demonstration and coaching techniques together with competency-based guides. A significant difference was found between preclinical and clinical faculties regarding the use of competency-based guides for both learning and assessment (P < 0.05).

Table 2. Impact of the course contents on the teaching practices of the participants

<table>
<thead>
<tr>
<th>Teaching Practice</th>
<th>Did You Make Any Changes in Your Teaching Practices After the TSC?</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Preclinical</td>
</tr>
<tr>
<td>Large-group presentation</td>
<td>23 (79.3)</td>
</tr>
<tr>
<td>Teaching in small groups</td>
<td>19 (65.5)</td>
</tr>
<tr>
<td>Demonstration and coaching</td>
<td>12 (14.4)</td>
</tr>
<tr>
<td>Use of competency-based guides</td>
<td>2 (6.9)</td>
</tr>
</tbody>
</table>

Values are numbers of faculty members, with percentages of total respondents in parentheses. *Statistically significant difference.

evaluation of both the opinions on professional benefits and teaching practice indicated that there was consistency between benefits and behavioral changes both in “using demonstration and coaching skills effectively” and in “developing competency-based guides for both learning and assessment” (P < 0.05 by McNemar test; data not shown).

Another comparison was made regarding the academic levels of the participants, where 43.9% of the associate professors remarked that the most beneficial theme was “making an effective demonstration and coaching” (43.9%) compared with assistant (39.4%) and full professors (16.7%); these differences were statistically significant (P < 0.05). Similar to the results of the first part of the questionnaire, the second part, dealing with the effects on teaching activities among the three academic levels, demonstrated that 76.7% of the junior academic staff had modified their teaching activities, a higher percentage than for the full professors (23.3%), but this was found to be not statistically significant (data not shown).

SAIC. In general, almost all of the participants (97.2%) benefited from the SAIC, and there were no differences between participants from the clinical and preclinical sciences (P > 0.05). Table 3 shows detailed opinions of the participants from the preclinical and clinical disciplines regarding their professional benefits from the SAIC topics. As could be expected, faculty members from the clinical sciences benefited more from the topics of structured oral exams and clinical skills assessment instruments (P < 0.05), whereas faculty members from the preclinical sciences found the topics on “preparing essay questions and multiple-choice questions” more useful.
A Personal View

IMPACT OF A FACULTY DEVELOPMENT PROGRAM

Table 3. Faculty member opinions regarding the professional benefits of the SAIC topics

<table>
<thead>
<tr>
<th>Opinions Regarding Professional Benefits</th>
<th>Completely</th>
<th>Markedly</th>
<th>Partly</th>
<th>Not at all</th>
<th>P Value</th>
</tr>
</thead>
<tbody>
<tr>
<td>Preparing essay questions</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Preclinical</td>
<td>2 (8.3)</td>
<td>13 (54.2)</td>
<td>6 (25.0)</td>
<td>3 (12.5)</td>
<td>0.93</td>
</tr>
<tr>
<td>Clinical</td>
<td>8 (9.6)</td>
<td>41 (49)</td>
<td>27 (32.5)</td>
<td>7 (8.4)</td>
<td></td>
</tr>
<tr>
<td>Total</td>
<td>10 (9.3)</td>
<td>54 (50.5)</td>
<td>33 (30.8)</td>
<td>10 (9.3)</td>
<td></td>
</tr>
<tr>
<td>Preparing multiple-choice questions</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Preclinical</td>
<td>2 (8.3)</td>
<td>17 (70.8)</td>
<td>3 (12.5)</td>
<td>2 (8.3)</td>
<td>0.54</td>
</tr>
<tr>
<td>Clinical</td>
<td>9 (10.8)</td>
<td>50 (60.2)</td>
<td>21 (25.3)</td>
<td>3 (3.6)</td>
<td></td>
</tr>
<tr>
<td>Total</td>
<td>11 (10.3)</td>
<td>67 (62.6)</td>
<td>24 (22.4)</td>
<td>5 (4.7)</td>
<td></td>
</tr>
<tr>
<td>Analyzing multiple-choice questions</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Preclinical</td>
<td>1 (4.2)</td>
<td>7 (29.2)</td>
<td>9 (37.5)</td>
<td>7 (29.2)</td>
<td>0.30</td>
</tr>
<tr>
<td>Clinical</td>
<td>7 (8.4)</td>
<td>28 (33.7)</td>
<td>36 (43.4)</td>
<td>12 (14.3)</td>
<td></td>
</tr>
<tr>
<td>Total</td>
<td>8 (7.5)</td>
<td>35 (32.7)</td>
<td>45 (42.1)</td>
<td>19 (17.8)</td>
<td></td>
</tr>
<tr>
<td>Structured oral exams</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Preclinical</td>
<td>4 (16.7)</td>
<td>3 (12.5)</td>
<td>5 (20.8)</td>
<td>12 (50.0)</td>
<td>0.000*</td>
</tr>
<tr>
<td>Clinical</td>
<td>11 (13.3)</td>
<td>33 (39.8)</td>
<td>30 (36.1)</td>
<td>9 (10.8)</td>
<td></td>
</tr>
<tr>
<td>Total</td>
<td>15 (14.0)</td>
<td>36 (33.6)</td>
<td>35 (32.7)</td>
<td>21 (19.6)</td>
<td></td>
</tr>
<tr>
<td>Clinical skills assessment instruments</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Preclinical</td>
<td>0 (0)</td>
<td>1 (4.2)</td>
<td>3 (12.5)</td>
<td>20 (83.3)</td>
<td>0.000*</td>
</tr>
<tr>
<td>Clinical</td>
<td>8 (9.6)</td>
<td>26 (31.3)</td>
<td>27 (32.5)</td>
<td>22 (26.5)</td>
<td></td>
</tr>
<tr>
<td>Total</td>
<td>8 (7.5)</td>
<td>27 (25.2)</td>
<td>30 (28.0)</td>
<td>42 (39.3)</td>
<td></td>
</tr>
</tbody>
</table>

Values are numbers of faculty members, with percentages of total respondents in parentheses. SAIC, student assessment instruments course. *Statistically significant difference.

Almost all of the participants (91.6%) stated that they altered their assessment practices using knowledge and skills they acquired by attending the SAIC. There was a statistically significant difference between participants from the clinical and preclinical sciences in relation to the use of structured oral exams and new clinical skills assessment techniques like objective structured clinical examination (OSCE) after attending the course. Almost one-third of the faculty members from the clinical disciplines stated that they modified their traditional oral exams by designing “structured oral exams,” whereas in the basic science disciplines, such as physiology, where multiple-choice questions are the major examination tools, this ratio was found to be 8.3%. In accordance with that, a significant difference was also found between faculty members from preclinical and clinical departments in their use of OSCE after acquiring knowledge and skills by attending the course (Table 4). In addition, the evaluation of both the opinions on professional benefits and effects on teaching practice indicated that there was a correlation in “preparing multiple-choice questions,” “preparing oral questions and structured oral exams,” and “clinical skills assessment” (P < 0.05 by McNemar test; data not shown).

A comparison of the academic position of the participants showed that 45.2% of the associate professors benefited from the topic on “clinical skills assessment instruments” compared with 25.8% of the full professors or 23.5% of the assistant professors, but the difference was not significant (P > 0.05). Similarly, the impact of the course on the assessment practice among the three levels of academic position was not significantly different (P > 0.05).

DISCUSSION

Since the faculty member is considered as the driving force behind an institution, assisting that member is expected to make the entire institution more productive. Although many types of FDPs are applied worldwide in undergraduate and postgraduate medical education, studies that have evaluated the effectiveness of these programs in the long term are limited. An early report (14) 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.

In MUSM, almost half of the faculty members participated in the FDP, with a higher percentage of assistant and associate professors. This is mainly due to the fact that it is obligatory for assistant and associate professors to take the courses according to the academic promotion regulations, whereas full professors volunteered to attend the courses. However, only one-fourth of the volunteering professors modified their teaching activities after the courses, whereas the vast majority of the junior academicians modified their teaching activities.

The TSC was found to be beneficial by nearly all of the attendants, whereas faculty members working at preclinical departments found the topics on interactive teaching, demon-
stration, coaching, and use of guides to be less useful. The preclinical participants of this study were from the Departments of Physiology, Histology, Biochemistry, Medical Biology, Microbiology, Biophysics, Deontology, Biostatistics, Anatomy, and Medical Education. Since faculty members from the preclinical fields are involved mostly in large-group lectures, it appears that they could not find these methods and techniques applicable. In accordance with this observation, the topic that was found to be effective in implementing a change in most of the faculty members’ teaching activities was that for large-group presentations, an activity that is common for all faculty members. 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 (15, 16, 21). Junior faculty members, however, benefited more from demonstration and coaching, probably because they are more involved with skills training than full professors.

The SAIC, given in 2 half-days, was found to be beneficial by almost all of the attendants, without a difference between clinicians and preclinicians. However, clinicians stated that they gained a greater advantage from the topics on assessment methods, like the structured oral exam and OSCE presented during the course, than did faculty members from the preclinical disciplines. In accordance with that, it was mostly the clinicians who made changes in these topics because multiple-choice exams were mostly prepared by teachers from the preclinical disciplines, whereas faculty members of clinical departments were prepared to use other assessment techniques in their clerkship programs. Most of the faculty members were introduced to structured oral exams and objective clinical exams during this course. The SAIC differed from the TSC in so far as neither the level of benefit nor the degree of modification after the course varied with the academic position of the individual, suggesting that all faculty members, including full professors, were in need of this course to make sound changes.

Dennick (4) 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 and 2 yr 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. Our results demonstrate that the participants of the faculty-training program modified their teaching activities according to the demands of their teaching practice. The use of guides and structured oral or clinical exams, which were new for most of the clinicians, was started after the FDP. As could be expected, the benefits from courses were even higher for the comparatively less experienced medical teachers, who were in need of methodological consultation.

FDPs can be evaluated using a combination of satisfaction ratings, by an assessment of the extent to which the training program and learning activities reach the objectives of the course, and by the assessment of teaching performances as rated by the teachers themselves and by their students (4, 8, 9, 19, 23, 24). Hewson et al. (9) showed that participants’ retrospective self-assessment and independent ratings by their trainees were positively intercorrelated. The present study was planned as a part of a program evaluation activity, and our results totally relied on self-reports through a followup questionnaire, which could be considered as a limitation of the study. Although self-assessment of posttraining performance is a commonly used method for program evaluation, the use of multiple methods and data sources to allow for triangulation of data is recommended (18). In the present study, we found a consistency between the benefits and self-reported modifications on teaching practices. This result could be interpreted as an evidence for the reported changes in teaching practice.

It has been suggested that participants as learners are described as “a group of people, informally bound together by shared expertise” (24), who will then take active roles in the improvement of the curriculum and of the teaching modalities. It was proposed by Armstrong et al. (1) that one of the outcomes of a professional development program is the implementation of informal learning networks that the participants create to sustain their interest, both across disciplines and across institutions. Our experiences also support this concept, because of the many faculty staff expressed on several occasions their increased motivation, self-awareness, and enthusiasm after their training. Moreover, many others continued the efforts that they initiated during the training to teach more effectively in their special fields. It has been stated that the aim of a staff development activity is to make the teachers better at what they already are doing or to help them to acquire new skills and fulfill new roles (8). Accordingly, our results showed that professors, who have more experience in teaching, modified their teaching practices less than their junior colleagues. Similarly, Baroffio et al. (2) discovered that the greatest improvement after their intervention occurred among inexperienced teachers. It has been suggested that further work in this area will shed light on this important and complex interaction.

In conclusion, our results suggest that two separate faculty-training programs encouraged teachers to think about their teaching practices and to assimilate new teaching or assessment skills, depending on whether they were basic scientists or clinicians. The present findings also indicate that faculty training programs have long-term impact and that medical teachers with demanding teaching, research, and service schedules should spare time to refresh their acquired knowledge and skills in teaching and to get accustomed to new learning technologies. Medical faculties aiming to provide an advanced learning environment for their students need to prepare the members of their faculty to operate in a drastically changed environment through faculty training programs.

ACKNOWLEDGMENTS

The authors appreciate the contributions of all teachers of the faculty development program and the faculty members participating in it. The authors thank Prof. R. W. Guillery (Marmara University) for English editing of the text.

DISCLOSURES

No conflicts of interest, financial or otherwise, are declared by the author(s).

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