# *Medical Education*

## Needs and priorities of faculty development for medical teachers in India: A Delphi study

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### ABSTRACT

***Background.*** The models of faculty development (FD) currently in use in India are not based on any needs assessment of teachers working in Indian medical schools. We did this study to identify pedagogic themes that should be included in FD programmes in India and to ascertain the relative importance of these themes as perceived by experienced teachers.

***Methods.*** A questionnaire containing themes relating to FD was developed from a review of the literature and the content of current FD programmes in India. The themes to be included in the questionnaire were piloted with the help of 3 senior teachers. We then conducted a 3-round normative Delphi technique to identify which of these themes were considered the most important for FD programmes in India.

***Results.*** Of 32 teachers from both clinical and non-clinical departments who agreed to rate the themes, 26 completed the entire process. There was a significant decrease in the standard deviation of the ratings in round 3 as compared to rounds 1 and 2. Themes related to instruction and assessment were rated the highest. Curriculum-related themes received lower priority. There was no significant difference in the ratings provided by clinical and non-clinical teachers.

***Conclusions.*** We prioritized the themes for FD programmes in India on the basis of the felt needs of teachers. These identified themes need to be given priority when planning FD programmes.


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### INTRODUCTION

Academic growth and vitality in any system of education depend, among other variables, on the expertise and growth of faculty members. Universities, funding agencies and society are increasingly demanding professionalism and scholarship in teaching.[1] Newer teaching and assessment methods are being adopted, necessitating capacity-building of medical teachers.[2] There is a need for the development of teachers at all levels—junior as well as senior.[3]

McLean *et al*.[4] have written about the changing focus of faculty development (FD) over the past 3 decades. The focus during the 1970s was mainly on instructional skills. However, more recently, the emphasis has been on underpinning teaching skills with learning theories. A need is also being felt to prepare teachers to adopt the newer technologies that are becoming available.[2] At the same time, the participants' context and cultural needs should be given consideration in designing FD programmes.

There is a growing interest in training teachers, but little is available in the curriculum for such courses.[5] FD is most likely to be successful if it is linked to the needs of the local faculty, strikes a balance between individual and organizational needs, addresses the specific needs of the teachers and is site-focused.[6] There are many reports in the literature regarding the design of such programmes on the basis of the participants' needs[3,7–9] and the fact that the participants receive such programmes better. Surveys of faculty have been used to understand the local needs and help design programmes.[5,6,8]

FD remains a rather neglected area in India,[10,11] with participation in such programmes being voluntary. During the late 1990s, the Medical Council of India made it mandatory for all medical schools to have medical education cells 'for faculty development and providing teaching learning resources'.[12] Guidelines were provided regarding the staffing pattern and infrastructure, but the content of the activities was not specified. The content of the existing FD programmes[13,14] appears to be guided either by an educationist's point of view or the philosophy of the training organization, and is not based on an assessment of the needs of the faculty.

McLeod *et al*.[15] used the Delphi technique to identify themes that would help medical teachers perform better. They rated the top concepts to be summative versus formative assessment, goals and objectives, key concepts of assessment, pedagogical implications of learner differences and motivation for learning. They clubbed various themes into the broad categories of 'assessment', 'helping adults learn', 'how adults learn' and 'curriculum'. They called these themes the 'ABCs of pedagogy', implying that this knowledge was essential before teachers could become successful clinical teachers. This study, however, used educational experts to rate the themes and was targeted for clinical teachers.

We did a study to answer the following questions:

1. Which pedagogic themes should be included in FD programmes in India?
2. How do experienced teachers in India rate the relative importance of these themes?

### METHODS

#### *Survey tool*

We used the Delphi technique to obtain collective views from individuals about issues, where there was little or no definite evidence and where opinion was important.[15] This is an iterative questionnaire exercise with controlled feedback to a group of panelists, who are anonymous. It is used as an alternative to group

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meetings and has the advantage of eliminating the influence of individual personalities and status. It is simple to use and provides confidentiality, allowing many barriers to communication to be overcome, including reluctance to state unpopular views, to disagree with one's associates or to modify previously stated positions.[16] The major use of the Delphi technique in education has been for planning and curriculum development.[17]

The list of pedagogical themes compiled from the literature[16] and the course content of existing programmes[13,14] was used for this study. Institutional research and ethical approval was obtained. E-mail consent was taken from all respondents, who were assured that anonymity would be maintained. The list was piloted with the help of 3 senior teachers with experience in FD. A list of 69 items was prepared for the study.

The items generated from the expert meeting were compiled in the form of a scale and sent by e-mail to medical teachers involved in FD activities in their own institutions and elsewhere. This group was selected by convenience sampling and personal knowledge. They were requested to rate each item on the list based on their opinion of its importance, i.e. the benefit to the teachers of knowing and understanding the principle underlying the item.

A 3-iteration normative Delphi technique was used to develop a consensus on the themes that should be included in FD programmes for medical teachers in India. The initial iteration was meant to identify the broad issues. The second and third rounds were more specific, seeking ranking of various items. The results of the previous rounds were fed back to facilitate convergence to a consensus of opinion. The items that the respondents felt would fit into a 'must know' category were to be rated as 4. Those in the 'should know' category were rated 3, the 'nice to know' category 2 and those of no importance 1. In the first round, raters were invited to add items they considered to be missing and possibly important. The respondents suggested 8 additional items (Table I) at the end of round one.

When the round 1 ratings were returned, the list was sent back for a second round of rating. The second round mailing included additional items that had been suggested after round 1 and the mean ratings of the items rated in round 1. The respondents' own rating for that item during the previous round was also provided. The respondents were requested to perform the round 2 ratings taking into account their own round 1 rating and the mean ratings reflecting others' opinions. When all round 2 responses had been received, a final third round was done using the same method as that used in the second round.

Statistical analysis at the end of each round included calculation of the mean (SD) of the ratings. Analysis of variance was used to assess the differences between the SD for each of the rounds.[18]

TABLE I. Final list of themes used for the Delphi survey

| | |
|---|---|
| Academic counselling | Active versus passive learning |
| Assessment of attitudes | Assessment of clinical skills |
| Assessment of knowledge | *Assessment planning* |
| Basic statistics | Bedside teaching |
| Bloom's taxonomy of learning | Blueprinting for paper setting |
| Coaching | Collaborative learning |
| Communication skills | Community-oriented learning |
| Concept maps | Conflict management |
| Curricular alignment | Curriculum design |
| Dealing with misconceptions of students | Direct observation of procedural skills |
| Distance learning | Educational leadership |
| Educational networking | Educational research |
| Educational spiral | Experiential learning |
| Formative versus summative assessment | Goals and objectives |
| Good teaching practices | *Governance issues in education* |
| Group dynamics | Helping adults learn |
| Hidden curriculum | How adults learn |
| *Humanistic values* | Information processing |
| Instructional process | Integrated assessment |
| Integrated teaching | Interactive teaching |
| Internal assessment | Interpersonal skills |
| Knowledge organization | Learning styles |
| Management of memory | Managing change |
| Media in education | Mentoring |
| Meta-cognition | Microteaching |
| Need and methods of faculty development | Needs assessment |
| Oral examinations | Philosophies of learning |
| Portfolios in education | Problem-based learning |
| Problem-solving for students | Professionalism |
| *Programme evaluation* | Project planning and management |
| Providing feedback for learning | Qualitative research |
| *Quality assurance* | Questionnaire scale construction |
| *Scholarship in education* | *Self-learning* |
| Small-group teaching | Spices model |
| Standard setting in assessment | Student-centred learning |
| Student feedback on teaching | *Student–teacher relationship* |
| Teaching medical ethics | Teaching study skills |
| Time management for self | Validity and reliability of assessment |
| Web-based learning | Writing for publication |

Items in italics were added during round 1 by the participants

## RESULTS

Thirty-two teachers agreed to participate and returned the questionnaire. In round 1, 69 items were rated. Twenty-six questionnaires were returned after round 2. The round 2 questionnaires were similarly returned with the mean ratings of the group. All the questionnaires were retuned after round 3, the overall response rate being 81.2%. The additional 8 items suggested during round 1 were also included in the questionnaires in rounds 2 and 3, making a total of 77 items. Since non-participation can also induce changes in the mean, the final analysis was restricted to only those 26 respondents who completed all 3 rounds. The mean rankings were the highest in the first round (mean 2.84), and the variation in rankings was also the highest in this round (SD 0.71). In round 2, the mean ranking was slightly lower than in round 1 (mean 2.49), and there was less variation (SD 0.60). In round 3, the mean was the smallest (2.39), as was the variation (SD 0.46).

In order to determine whether there were statistically significant changes in the means and SDs of the rankings based on time (i.e. round), a multivariate (item mean, item SD) repeated measures analysis of variance (RM-MANOVA) was done. The dependent variables were mean rankings and SDs. The independent variable was time (round 1, round 2, round 3). The hypothesis that there were differences in mean item rankings and item SDs based on time was assessed. There were statistically significant differences in mean item rankings based on time ($F=102.8$, $p<0.0001$). There were also statistically significant differences in SDs based on the round ($F=36.6$, $p<0.0001$, Fig. 1).

The 20 most highly rated items are listed in Table II. There was no difference in the ratings of clinical and non-clinical teachers.

## DISCUSSION

The Eric thesaurus defines needs assessment as 'identifying needs and deciding on priorities among them' (*http://www.eric.ed.gov*). A needs assessment is done before planning any professional development activity and typically takes the form of a survey. The respondents are asked for their thoughts concerning various issues and their suggestions on professional development programmes that might address those issues.[19] Well-planned programmes should strike a balance between meeting individual and organizational needs.[6] This applies equally to the design of FD programmes.

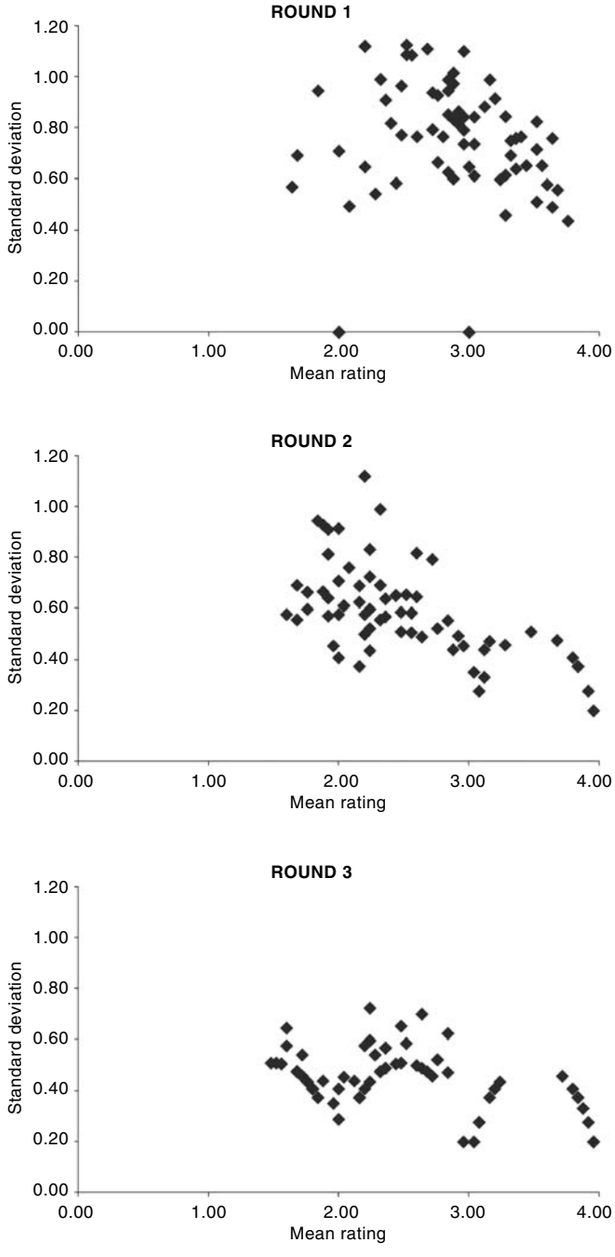


FIG 1. Standard deviation over 3 rounds

TABLE II. Themes with the highest priority

| Theme | Mean (SD) ranking |
|---|---|
| Interactive teaching | 3.96 (0.20) |
| Student-centred learning | 3.92 (0.27) |
| Small-group teaching | 3.92 (0.27) |
| Good teaching practices | 3.88 (0.33) |
| Formative versus summative assessment | 3.85 (0.37) |
| Validity and reliability of assessment | 3.85 (0.37) |
| Providing feedback for learning | 3.77 (0.43) |
| Bedside teaching | 3.73 (0.45) |
| Assessment of clinical skills | 3.27 (0.45) |
| How adults learn | 3.23 (0.43) |
| Assessment of knowledge | 3.19 (0.40) |
| Integrated teaching | 3.08 (0.27) |
| Helping adults learn | 3.08 (0.27) |
| Communication skills | 3.04 (0.20) |
| Group dynamics | 2.96 (0.20) |
| Internal assessment | 2.85 (0.46) |
| Problem-based learning | 2.81 (0.63) |
| Academic counselling | 2.77 (0.51) |
| Instructional process | 2.73 (0.45) |
| Educational spiral | 2.73 (0.53) |

From an educational point of view, the contents of FD fall into clear areas, viz. curriculum design, instructional delivery, student assessment and educational management. Each of these elements will have different sub-areas that need to be covered. However, going by the diversity of needs reported in the literature, it appears that the design of FD programmes has to take a number of other factors into consideration. The job requirements of the teachers, type of curricula being followed, assessment practices, degree of autonomy provided to teachers and local hierarchical structure are some of the factors which have a bearing on the needs of the teachers. Skeff *et al.*[20] illustrate this by taking the example of competencies required of clinical teachers and how these can be met by specific programmes geared towards developing these competencies.

Literature has emphasized the importance of well-crafted needs assessment to ensure that programme goals are relevant to the needs of participants.[21] A number of authors have used needs assessment as the first step in the design of FD programmes.[3,7,22,23] It has been suggested that medical teachers should be involved in setting the curriculum for FD programmes.[5]

We compiled items ranked by the respondents as the top 20 from a list containing 77 items. These items were considered important for inclusion in FD programmes. The list contains concepts and how these are delivered will still need to be decided. As an example, assessment of clinical skills could include a number of sub-topics, such as objective structured clinical examination, mini-clinical examination, long case and portfolios, the choice of which will have to be based on the local context.

The respondents ranked the items in terms of their perceived importance. The top 4 slots are instructional methods—interactive teaching, student-centred learning, small-group teaching and good teaching practices. There is an overlap between the topics which could be due to respondents interpreting the terms differently. The next in order of importance are themes related to assessment—formative versus summative assessment, validity and reliability of assessment and providing feedback on student learning. There is some overlap between these too. Issues related to curriculum were not considered as a priority area.

Curriculum and planning were the lowest prioritized items, possibly because these did not concern the respondents, had a low utility for them, or both. We believe that this possibly relates to the prevailing medical education scenario, in which teachers are not involved in curriculum planning. This may indicate the need for more decentralization of curriculum planning.

The high ranking given to topics such as internal assessment, problem-based learning (PBL), assessment of practical skills and bedside teaching is probably a reflection of the emphasis being laid on these areas by regulatory bodies in India. Steinert[2] has emphasized the role of the current context in designing FD programmes and suggested that ongoing educational reforms may provide the right opportunity to add importance to certain areas.

There is no report on needs assessment from India that one can use for purposes of comparison. However, there are reports of faculty needs from other countries.[7,9,24] The variety of needs reported in these publications only serve to reinforce the role of context and local requirements in designing FD programmes. The priorities indicated by our respondents are different from the priorities decided by a group of educational experts.[15] The educational experts had given more priority to learner differences, motivation for learning, transfer of learning and curriculum design, in addition to topics related to student assessment. However, these authors commented that since none of the respondents had any practical experience of clinical teaching, their viewpoint could be very different from practising teachers. The topics suggested by the experts are based on sound theoretical foundations of how people learn and how teachers help them learn. However, the choice of teachers is more likely to be guided by their actual job requirements.

The fact that the ratings provided by clinical and non-clinical teachers were similar suggests that a common programme based on these themes should be useful for all teachers. In addition, this provides evidence for the construct validity of the findings.

What are the implications of our findings? The results are interesting for the design of FD programmes in India and elsewhere. There could be, and probably will be, a conflict between what educational experts feel is required and what teachers want. It is difficult to side with either. The right path may be somewhere in the middle, where course designers need to strike a balance between what is required (as guided by theory) and what is desired (as guided by task requirements). It should also be possible to amalgamate the two by using some of the teachers' priorities as model teaching behaviours. As an example, the session on goals and objectives could be planned to showcase skills of interactive teaching, small-group teaching and good teaching practices. By asking participants at the end of the sessions to reflect on the adopted methodology and applicability in their own classroom situations, it should be possible to meet the requirements of both sides.

There are certain methodological issues which may have had a bearing on our results. Our assumption was that respondent teachers, especially with their involvement in FD activities, should be able to identify areas which are of importance in the Indian context. This assumption might be challenged. However, as discussed earlier, the entire exercise was aimed at building a consensus on what the priorities should be for development of medical teachers.

Although Delphi is considered a consensus-building tool, a consensus may not always emerge.[16] Simple statistics may suppress bimodal distributions, which indicate lack of consensus.[25] The interpretation, again, will depend on the purpose of the Delphi. If the aim is to seek normative views, then outliers may not be important.[26] Delphi may best be viewed as a useful communication tool to generate debate, rather than reach a conclusion.[25] The output is, at best, an opinion and should be interpreted as such. The existence of consensus from a Delphi process does not mean that the correct answer has been found.[27]

Within the given constraints, our results provide a useful insight into the issue of the design of FD programmes and re-emphasize the importance of keeping the local needs and context in mind while designing these programmes.

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## CONFLICT OF INTEREST

None

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