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Comparing Faculty Development Needs of Basic Sciences and Clinical Teachers During Major Curricular Reform at Prince Sattam Bin Abdulaziz Medical College in Saudi Arabia

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ABSTRACT

The required competencies of the medical graduates are changing, and by turn those of medical educators are changing as well. The aim of this study was to compare the faculty development (FD) needs of basic sciences and clinical teachers at the College of Medicine, Prince Sattam Bin Abdulaziz University during reforming of the curriculum to an integrated student-centred curriculum. This study is a descriptive cross-sectional study that included an online survey for faculty members to assess their FD needs and priorities. The survey questionnaire included questions about the experience of faculty members in teaching in integrated curricula, motivators to share in FD activities, preferred formats of FD activities, self-perceived competencies and needs in different areas of medical education, and self-perceived current commitment to the 12 roles of medical educators. Comparison between the basic sciences and the clinical teachers' perceived competencies, priorities and commitment to the roles of the medical teacher took place. Mann-Whitney U test was used to compare means. The results of the study showed that the highest self-perceived competencies of faculty members were in lecturing (mean = 4.25 ± 0.99) and constructing multiple choice questions (mean = 4.25 ± 0.92). Statistically significant differences were present between basic sciences and clinical teachers in designing integrated courses ($p = 0.02$) and clinical teaching ($p = 0.03$). Significant differences were also present in the perceived importance of certain topics in FD programmes, such as course design, blueprinting and simulation. The study concluded that there are differences between basic medical sciences and clinical teachers in the learning needs and the competencies, which should be taken into consideration during planning for FD activities.

Keywords: *Needs assessment, Faculty development, Curricular reform*

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INTRODUCTION

Among the expected challenges to medical educators in the 21st century are the changes in the healthcare systems and therefore the required competencies of the medical graduates and by turn of medical educators (1). New concepts are emerging in healthcare every day, such as patient involvement in care, interprofessional education and patient safety (2). These concepts would certainly reflect on the professional roles of doctors (3).

Medical school curricula have undergone major evolution worldwide as a result of placing increasing scrutiny on preparing medical school graduates for large volumes of clinical work (4). Integration, problem-based learning, community-based education, elective courses and more systematic curriculum planning have been added to the tray of medical education (5). More emphasis is being made on self-directed learning (6), with encouragement of students to take more responsibility for their own learning (7), in addition to encouragement of critical approach to knowledge rather than mere regurgitation of enormous amounts of material (8). At the end of the 20th century and the beginning of the 21st century, many medical schools around the world conducted reform of their curricula towards problem-based learning and competency-based education (9).

Medical educators are responsible for teaching undergraduate students, training junior doctors and continuous professional development for doctors at all levels. They are usually a mix of university-employed academics (from medical or non-medical background), clinicians with academic titles and health practitioners employed solely by health service providers (10). In line with the changes in medical schools' curricula, the roles of the medical teacher are also changing, a thing that might cause unease among medical teachers who are familiar with traditional teaching methods only.

There is no consensus on the core competencies of an excellent medical educator (11). Some authors described the roles of the medical educator as a broad spectrum of roles that included teaching, curriculum planning and evaluation, innovation and research with emphasis on reflective practice throughout this array of roles (12). Some others simply devised the roles of the medical educator as teaching, research and management (11). In spite of the apparent difficulty in defining the exact roles of the medical educator/teacher, Harden and Crosby (5) developed a structured role model framework to explain the different roles of the medical teacher, which is expected to fulfill throughout their work in an attempt to build a benchmark for medical teachers. This model has gained popularity among medical schools around the world and used as a guide for medical educators. The model is also used in the assessment of the needs for staff to implement a curriculum, in the appointment and promotion of teachers and in the organisation of a staff development programme.

Many frameworks were developed later by national bodies in different countries that describe the standard roles and practices of the medical educator, such as the Professional Standards of Medical Educators in the UK (13), the five core educator roles by the Association of American Medical Colleges (AAMC) (14) and the University Teaching Qualification certificate in the Netherlands (15). Many medical schools even included teaching practices in their undergraduate curricula (3).

Faculty development (FD) programmes aim at initiating and sustaining change (16). Change is not only on the professional level of the individual doctor, but it can be at the institutional level if FD programmes were effectively planned and implemented (17). FD programmes should be guided by knowing what the core competencies of medical educators are (18), and of course, by their learning needs. Their focus should

not only be on teaching, but also on other aspects that can serve medical educators in their roles, such as planning the curriculum, management and leadership, and educational administration and scholarship (19).

In order to effectively plan for FD activities, the learning needs of faculty members should be sought. This would render the FD activities more beneficial to faculty members as the training would be tailored to their needs (20). Usually, there is a lack of systematic approaches for needs assessment of faculty members (21). Needs assessment is usually conducted to help in setting the goals of FD programmes, deciding on the content and the priorities of training, deciding on the format of training and ensuring motivation of faculty members (22).

There are many ways to assess the learning needs of faculty members. One of these methods is to evaluate their competencies against known criteria and frameworks. Another method can allow them to identify their own inadequacies. It would be of great help to this process if the culture inside the institution encourages self-assessment and self-reflection (16).

Since its establishment in 2008, the College of Medicine, Prince Sattam Bin Abdulaziz University has adopted a traditional, discipline-based curriculum in which a large amount of time dedicated to conventional lectures. The college is reforming its undergraduate medical education programme, so that it would become student-centred, integrated and problem-based. The need for reforming was based on conformance to the national and international approaches to medical education in the 21st century, conformance to quality and accreditation standards (23), and adoption of continuous quality improvement initiatives.

This study is conducted in order to guide the development of a comprehensive FD plan that supports the implementation of the

curricular reform activities. The aim of this study is to compare the FD needs of basic sciences and clinical teachers in order to effectively plan for FD activities. The study is expected to answer the question “should FD activities be planned differently for basic sciences teachers than for clinical teachers?”

METHODOLOGY

Study Design

This is a descriptive cross-sectional study that was held at the College of Medicine, Prince Sattam Bin Abdulaziz University from May to July 2018. It comprised an online self-administered survey for faculty members to assess their learning needs with the initiation of the new curriculum and the addition of new teaching and assessment methods. The survey was posted to faculty members on <https://www.jotform.com> and the responses were anonymous.

Participants

The target population was the faculty members affiliated to College of Medicine, Prince Sattam Bin Abdulaziz University. The total number of faculty affiliated to the college is 100 members. In this study, we excluded faculty members in different kinds of leaves and sabbaticals (50%). Therefore, a comprehensive sample was taken and included 50 faculty members to whom the survey was sent.

Data Collection Instrument

A self-administered online survey questionnaire was designed for the purpose of the study. It was validated for face and content validity by three medical education experts. The survey was divided into four sections: general information, existing competencies, FD needs and benchmarking against the 12 roles of medical educators of the role model framework developed by Harden and Crosby (5). The items included in the general information

section were data about specialty, previous training in medical education and previous experience in problem-based learning (PBL) curricula. The items included in the existing competencies section were measuring the self-perceived competencies of faculty members in different topics of medical education, especially those needed for the establishment and functioning of the new curriculum. As for the section that comprising FD needs, it included items measuring the perceived need for training in different medical education topics. This section also includes questions about the preferred formats for FD and about the different motivators to share in FD activities. The section under benchmarking against the 12 roles included items about the importance of each of the medical educator's role for the new curriculum, as well as the current level of commitment of faculty members to the 12 roles. The questions of the survey were mainly on a 5-point Likert scale.

Data Analysis

Quantitative data gathered from the survey was coded and entered on SPSS version 20, then interpreted in the form of frequencies, means and standard deviations. Cronbach alpha was performed to test the reliability of the survey items. Mann-Whitney U test was used to compare the responses of basic sciences and clinical teachers in many aspects, such as their commitment to their roles as medical educators, their perceived competence in medical education, and their preference of FD topics. Mann-Whitney U test was selected as all compared variables were ordinal in nature and the test of normality showed non-normal distribution of results in all variables. Results were considered statistically significant at 95% confidence level ($p < 0.05$).

Ethical Considerations

The descriptive survey was in an online format that guarantees the anonymity of responses and since the survey targeted faculty members and not a vulnerable group, no consent was needed, and their answer to the questionnaire was considered as an approval. The goal of the research was explicitly mentioned at the outset. An information sheet was sent to the participants before data collection to familiarise them with the nature of research, their roles and the ethical considerations. Institutional Review Board (IRB) approval to conduct the study was obtained from Prince Sattam Bin Abdulaziz University.

RESULTS

The questionnaire used to assess the learning needs of faculty members showed a high internal consistency (Cronbach's alpha = 0.975). Thirty-one faculty members responded with a response rate of 62%. Among them, 12 members (38.7%) were from the basic medical sciences department and 19 (61.3%) from the clinical department. The respondents were 4 professors (12.9%), 3 associate professors (9.7%), 18 assistant professors (58.1%), and 6 lecturers (19.4%). Only 20% of respondents have previously taught in integrated PBL curricula.

As regard, the previous training in medical education and the previous experience in PBL curricula teaching, 22 faculty members (71%) received previous training in medical education and only 9 faculty members (29%) previously taught in a PBL curriculum. As shown in Table 1, the preferred formats of FD activities were workshops, certified degrees, on-campus courses and seminars. As shown in Table 2, the motivator to participate in FD activities included mainly improving teaching practices, learning new concepts and self-satisfaction.

Table 1: Comparison between the preference of basic sciences teachers and clinical teachers regarding FD formats

Items	Basic sciences teachers		Clinical teachers		p-value
	Mean	SD	Mean	SD	
Seminars	4.08	0.90	4.00	1.20	0.91
Workshops	4.16	0.93	4.52	0.61	0.28
On-campus courses	3.58	0.90	4.36	0.83	0.01*
E-courses	3.25	0.86	4.15	0.89	0.01*
Blended courses	3.16	0.85	4.16	0.61	0.02*
Flipped classrooms	3.00	0.73	3.84	0.89	0.01*
Conferences	3.58	1.16	4.00	1.05	0.31
Certified degrees	4.16	1.11	4.36	0.76	0.78

Note: 1 = Not at all interesting; 2 = Slightly interesting; 3 = Moderately interesting; 4 = Quite interesting; 5 = Extremely interesting. *Statistically significant at 95% confidence level.

Table 2: Comparison between the motivators for basic sciences teachers and clinical teachers to participate in FD activities

Items	Basic sciences teachers		Clinical teachers		p-value
	Mean	SD	Mean	SD	
Certification	4.18	0.98	4.10	0.73	0.59
Promotion	4.08	1.56	4.31	0.88	0.88
Acknowledgement	4.33	0.65	4.00	1.08	0.48
Learning new concepts	4.41	0.78	4.68	0.58	0.32
Improving teaching practices	4.50	0.52	4.73	0.56	0.13
Self-satisfaction	4.50	0.67	4.57	0.60	0.75
Acquisition of continuing medical education hours	3.75	0.98	4.36	0.76	0.06

Note: 1 = Strongly disagree; 2 = Disagree; 3 = Neutral; 4 = Agree; 5 = Strongly agree.

Results of the inquiry about the content of training in the FD programmes showed that the most preferred topics were clinical skills teaching, student motivation, quality assurance in medical education and course evaluation. As shown in Table 3, the comparison between the basic medical sciences department and the clinical department concerning perceived importance of FD topics showed that the clinical department had higher means in all items. Some of these items showed statistically significant differences.

Table 4 shows the highest perceived competencies among faculty members were in lecturing, constructing multiple choice questions (MCQs), student motivation and constructing stations for performance assessments (objective structured clinical exam [OSCE] and objective structured practical exam [OSPE]). Comparison between the basic medical sciences department and the clinical department in the perceived competencies showed statistically significant differences in designing integrated courses, clinical skills teaching and designing simulation sessions.

Concerning the perception of faculty members about their current commitment to the 12 roles of the medical educator, Table 5 shows that the highest perceived competencies were the roles of lecturer in classroom, learning facilitator and planner of formal exams. Comparison between the basic medical sciences department and the clinical department with the current commitment to the 12 roles of medical educators did not show any statistically significant difference except for the role of lecturer in clinical/practical setting ($p = 0.009$), where the clinical teachers

reported a higher mean. As regard, the perceived importance of the 12 roles for the new curriculum showed that all roles were considered important. The most important roles were lecturer in clinical or practical setting, lecturer in classroom and course organiser (mean = 4.32 ± 0.97). Comparison between the basic medical sciences department and the clinical department in the perceived competencies showed statistically significant differences in designing integrated courses, clinical skills teaching and designing simulation sessions.

Table 3: Comparison of opinions of basic medical sciences teachers and clinical teachers concerning the importance of topics to be included in the FD activities ($n = 31$)

Items	Basic sciences teachers		Clinical teachers		p-value
	Mean	SD	Mean	SD	
Problem construction	4.3333	0.49237	4.4211	0.69248	0.524
PBL process	4.2500	0.62158	4.2632	0.80568	0.826
Facilitating small group discussions	4.2500	0.62158	4.4737	0.84119	0.223
Integration in medical education	4.1667	0.83485	4.4211	0.76853	0.374
Lecturing	4.4167	0.79296	4.3158	0.82007	0.736
Writing learning outcomes	4.0833	0.66856	4.2105	0.91766	0.472
Course design	4.0833	0.79296	4.6316	0.76089	0.032*
Clinical skills teaching	4.1667	0.71774	4.8421	0.50146	0.002*
Simulation	3.6667	0.77850	4.4737	0.69669	0.008*
Portfolios	3.3636	0.50452	4.1111	0.90025	0.014*
Blueprinting for written assessment	3.7500	0.75378	4.5789	0.60698	0.004*
Constructing items for written tests	3.8182	0.60302	4.5263	0.61178	0.006*
Planning for OSPE/OSCE	3.8333	0.83485	4.6316	0.59726	0.008*
Blueprinting for OSPE/OSCE	3.7500	0.75378	4.6842	0.58239	0.001*
Designing OSPE/OSCE stations	3.7500	0.96531	4.6316	0.59726	0.007*
Item analysis for MCQs	3.6667	0.88763	4.4737	0.77233	0.013*
Psychometrics for OSPE/OSCE	3.5833	0.79296	4.4211	0.76853	0.008*
Mentoring	3.6667	0.88763	4.2222	0.80845	0.098
Online course management	3.5000	0.67420	4.0526	0.97032	0.050*
Student motivation	4.2500	0.86603	4.6316	0.68399	0.173
Course evaluation	4.1667	0.83485	4.5789	0.60698	0.153
Quality assurance	4.0000	0.85280	4.7368	0.56195	0.009*

Note: 1 = Not important at all; 2 = Slightly important; 3 = Moderately important; 4 = Quite important; 5 = Extremely important. *Statistically significant at 95% confidence level.

Table 4: Comparison of perceived competencies of basic medical sciences teachers and clinical teachers in different topics of medical education ($n = 31$)

Items	Basic sciences teachers		Clinical teachers		p-value
	Mean	SD	Mean	SD	
Constructing educational problems	3.5000	0.52223	2.9474	1.02598	0.087
Designing integrated courses	3.4167	0.90034	2.5263	1.26352	0.023*
Facilitating small group discussions	4.0000	1.20605	3.5263	0.96427	0.118
Lecturing	4.4167	1.24011	4.1579	0.83421	0.158
Writing learning outcomes	3.9167	1.08362	3.7368	1.97580	0.546
Clinical teaching	3.4167	1.24011	4.2632	1.04574	0.034*
Designing simulation session	2.3333	1.07309	3.2632	1.04574	0.019*
Evaluating students' portfolios	3.5455	1.03573	3.4211	0.96124	0.671
Preparing blueprints for exams	3.5000	1.08711	3.3158	1.29326	0.673
Constructing MCQs	4.3333	1.15470	4.2105	0.78733	0.313
Constructing supply items	3.8333	1.40346	4.0000	0.94281	0.965
Designing OSPE/OSCE stations	3.9167	1.24011	4.0526	0.84811	0.947
Item analysis for MCQs	2.8333	1.19342	3.1053	1.28646	0.513
Interpreting psychometrics of OSPE/OSCE	2.9167	1.16450	3.0526	1.26814	0.717
Mentoring students	3.9167	1.16450	4.0000	0.81650	0.881
Course evaluation	3.8333	1.02986	3.5789	0.96124	0.265
Student motivation	4.3333	.650134	4.1053	0.80930	0.458
Course management on blackboard	3.1667	1.33712	3.1111	1.32349	0.914
Quality assurance	3.3636	1.12006	3.0526	1.07877	0.435
e-learning	3.0833	0.79296	3.0526	1.22355	0.882

Note: 1 = Not competent at all; 2 = Slightly competent; 3 = Moderately competent; 4 = Quite competent; 5 = Extremely competent. *Statistically significant at 95% confidence level.

Table 5: Comparison of current commitment to the 12 roles of medical educators between faculty members affiliated to the basic medical sciences and clinical sciences ($n = 31$)

12 roles of medical educators	Basic sciences teachers		Clinical teachers		p-value
	Mean	SD	Mean	SD	
Lecturer in classroom	4.5000	0.90453	4.4737	0.69669	0.673
Lecturer in clinical or practical setting	3.5000	1.24316	4.5263	0.69669	0.009*
On-job role model	3.6667	0.77850	3.4211	1.12130	0.688
Teaching role model	4.0000	0.95346	3.6316	0.89508	0.237
Mentor/personal adviser	3.8333	1.02986	3.7895	0.85498	0.914
Learning facilitator	4.1667	0.71774	3.5556	0.92178	0.066
Planner of formal exams	3.9167	0.99620	4.0526	0.70504	0.795
Curriculum evaluator	3.5833	0.90034	3.4211	1.30451	0.932
Curriculum planner	3.6667	1.15470	3.3684	1.38285	0.717

(continued on next page)

Table 5: (continued)

12 roles of medical educators	Basic sciences teachers		Clinical teachers		p-value
	Mean	SD	Mean	SD	
Course organiser/coordinator	4.0000	1.04447	3.7368	1.24017	0.624
Producer of study guides	4.0000	1.04447	3.5263	1.38918	0.399
Developer of learning resource materials	3.5833	1.16450	3.2632	1.32674	0.686

Note: 1 = None; 2 = Little; 3 = Some; 4 = Considerable; 5 = Great. *Statistically significant at 95% confidence level.

DISCUSSION

This study was conducted to compare the FD needs of basic sciences teachers and clinical teachers during reforming of the curriculum from a traditional teacher-centred curriculum to an integrated, problem-based, student-centred curriculum, in order to guide the development of a comprehensive FD programme that is tailored to those needs. Tailoring the FD programmes to the faculty needs could help with motivating them to participate in the programme and maximise their benefit from it (24).

The results of the study showed that the highest perceived competencies among faculty members were related to the traditional teaching practices, such as lecturing, constructing MCQs and conducting performance assessments. This is consistent with the traditional curriculum that was run for 10 academic years in the college. In a study held in Turkey that assessed the self-perceived competencies before FD programme conduction, a big proportion of respondents perceived their teaching skills as excellent (25). Ng states that “little is known about what factors can motivate teachers to engage in professional learning in a meaningful way” (26). In the current study, motivators for participating in FD activities were mainly internal motivators. This is consistent with the results of a study that was held in Ireland (27), in which personal choice for continuous professional development (CPD) activities among school teachers was the most cited motivator for participating in CPD programmes.

From the point of view of faculty members, all medical educational concepts and topics suggested in the survey were considered important, with varying degrees. Similar results were also shown in another study where faculty members, even the experienced ones, reported the need to improve in most aspects of medical education (21). In the current study, clinical teachers were more interested in many more topics than basic sciences teachers. This would be beneficial during planning for FD as to make special focused sessions for clinicians addressing these topics.

There exists different formats for FD in the literature such as workshops, seminars, degree programmes, mentorship, peer-coaching and communities of practice (18, 20). In the current study, the preferred formats of FD activities were mainly from the conventional formats, such as workshops, certified degrees, training courses and seminars. The innovative formats to FD, such as the flipped classrooms and blended courses did not gain much popularity among the faculty members; perhaps because the change would then be overwhelming, with reforming of the curriculum and also FD formats. These results would inform the selection of FD formats, at least during the early phase of the FD programme until the faculty members are familiarised and comfortable with the new curriculum, then new FD formats can be added.

It is well known that one of the success factors for FD is the commitment of faculty members in teaching (28). It was important to measure the self-perceived commitment of faculty members to the

roles of the medical teacher. Therefore, one of the famous frameworks for the roles of the medical teacher was used to measure this commitment. It was also important to obtain the opinions of faculty members on the roles most needed for the new curriculum. This would help them perceive the gaps in competencies that they needed to work on. In this study, faculty members felt more competent as lecturers and students assessors, which is expected in traditional curricula. They felt less competent in the roles of curriculum planner and evaluator, and producer of learning materials. The differences between basic sciences teachers and clinical teachers were not statistically significant. These competencies therefore will be focused on in the FD activities for all teachers.

Many studies addressed evaluation of FD activities for participants that included a mix of clinicians, nurses, basic sciences teachers and health administrators. However, none of them compared the needs among professions. The current study is expected to add to the knowledge base about whether different groups of teachers have different needs and whether this should be taken into consideration during planning for FD programmes.

LIMITATIONS

This study has several limitations. Only “self-perceived” competencies opinions from the faculty members were sought. Other stakeholders’ opinions such as the students and the patients would have added to the assessment of faculty members’ competencies and current commitments. Also, the generalisability of the study is difficult to attain due to several reasons such as the small sample size. Besides, the fact that the study was performed in a specific situation, which is in curriculum reform.

CONCLUSION

It is obvious that curricular reform should be accompanied by a structured FD programme that is tailored to the needs of the faculty members and their expected roles. Basic medical sciences teachers may have different competencies and priorities in FD than clinical teachers. Therefore, it is important to tailor the programme to the needs of both types of teachers. It is now established that FD is essential during curricular reform. What is uncommonly found in the literature is whether there should be a different FD activities for basic sciences teachers and clinical teachers. This is yet an area to be further studied.

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