



A comprehensive “real need” assessment, a step toward improving the quality of faculty development programs: A survey-based study in Hormozgan University of Medical Sciences

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Abstract

Background and Aims: Developing a framework to identify the “real” needs of faculty members, the gap between the current and desired conditions, would lead to an effective faculty development program (FDP) and improve higher education quality and health system promotion. For the first time in Iran, instead of needs assessment based on faculty members preferences or assessing needs only in a few areas, this study aimed to assess the difference between “self-rated level of skill” as the current condition and “perceived importance” as the expected condition, regarding all faculty roles and levels at Hormozgan University of Medical Sciences (HUMS).

Methods: This study used a research-made questionnaire that included 73 items within nine domains. The content validity of the questionnaire was confirmed, and Cronbach's alpha coefficient ranged from 0.86 to 0.96 for domains. The census method was applied. Participants rated their current skill level and perceived importance for professional development of each item on a 10-anchor scale. Statistical software, SPSS 19, analyzed the data using descriptive statistics and analytic tests.

Results: Significant differences existed among participants' ratings of skills and the importance of further training in various areas. Priority professional development domains were e-learning, curriculum development, personal development, program evaluation, leadership and management, student assessment, learning theories and teaching strategies, research and scholarship, and ethics and communication.

Conclusion: Additional formal training is required, especially in e-learning and curriculum development, for most faculty members at HUMS to enhance their academic performance. This study is the first needs assessment in Iran based on gaps between current and desired conditions. Conducting a “real needs” assessment before initiating an FDP is necessary for its feasibility.

KEYWORDS

educational need assessment, faculty development, need assessment, staff development

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1 | INTRODUCTION

The terms “faculty development,” “staff development,” and “professional development” are used interchangeably to describe all the activities, both formal and informal,¹⁻³ that are organized to prepare faculty members for their duties and responsibilities. Research and scholarship, teaching, and leadership are all included in these responsibilities.^{2,4-8}

Medical education has always relied heavily on faculty development (FD).⁹ An ever-increasing number of scholarly articles on FD^{1,2} attests to the field's growing prominence in today's academic community.¹⁻³ There are multiple factors that may contribute to this phenomenon, including the dynamic nature of the intricate healthcare system,^{4,9} evolving concepts in medical education,^{1,4,8,9} and changing student characteristics.¹ Additionally, it is crucial to consider that faculty members are recruited primarily based on their expertise and competencies in their respective fields rather than their abilities to teach.^{9,10}

However, to guarantee efficacy, all training initiatives should be faculty-centered and built upon sound needs assessment techniques.^{3,6,8,9,11} A needs assessment is a systematic procedure for gathering and examining data to identify the gaps between “what is,” or the present situation, and “what should be,” or the ideal circumstances.^{1,6,9} Need assessment studies lead to efficient resource allocation,^{1,6,9} labor and time savings,¹ and the clarification and validation of needs and priorities.⁹ In addition to providing the framework for program evaluation, determining the needs helps shape the programs' rationale, training goals, and content.¹² Faculty members are less likely to take part in FD programs (FDPs) and adopt new behaviors if these programs are not prepared based on need assessment surveys.^{3,9}

Based on our research, most FDPs in most countries, including Iran, have relied on self-perceived interests or preferences.^{1,4-6,8,11} The gaps between perspectives of “what an ideal FDP should be” and “what is practiced” have been documented in a few studies. On the basis of faculty members' estimated levels of knowledge and relevance for each particular teaching skill, one study tried to identify needs.¹² The other study assessed participants' knowledge and priorities in each skill.¹⁰ The last one determined their levels of teaching skills and their future desires and needs.⁹

Besides, the majority of articles focused on teaching skills development (educational domains)^{1,3,4,6,8-10,12} and research capacity.^{3,5,6,8,10,11} A much smaller focus on other eras and the various roles that faculty members fulfill.

Developing a suitable framework to identify the “real” educational needs of faculty members, the gap between the current and desired conditions, would lead to an effective FDP and an improvement of higher education quality, which could contribute to health system promotion. In light of the above, this study aimed to assess the difference between “self-rated level of skill” as the current condition and “perceived importance” as the expected condition regarding all faculty roles and levels (junior, mid-career, and senior) at Hormozgan University of Medical Sciences (HUMS).

2 | METHODS

2.1 | Subjects

This study was survey-based quantitative research on 310 HUMS faculty members conducted between May and October 2022. The research team used the census method to collect data from different university schools based on personal contact and networking. Then, direct phone calls were made to academic staff members to explain and encourage their participation in the study. Participation in the survey was voluntary, so 166 respondents submitted their opinions by filling out the questionnaire.

2.2 | Preparation and distribution of the questionnaire

In the design of the questionnaire, there were two challenges: (1) Realizing the desired validity of the questionnaire in the sense that the content was comprehensive and included all the needs of a faculty member. (2) How the participants responded to the items in the sense that based on Kaufman's definition of need, the questionnaire could estimate the real need by measuring the gap between the current situation and what should be.¹³ For the first challenge, that is to achieve valid and comprehensive content, data were obtained through three sources: (i) reading the duties of the faculty members approved by Iran's Ministry of Health and Medical Education¹⁴; (ii) an intensive review of previous studies on the research area^{1,4-6,8-11}; and (iii) drawing on experiences of holding FDPs in HUMS and some other medical sciences universities. As a result, an initial questionnaire with 11 domains and 148 items was obtained. Its content validity was evaluated in two phases, at first by the researchers and then by seven specialists with expertise both in medical education and FD. After exchanging opinions and applying suggestions, a questionnaire with nine domains (learning theories and teaching strategies, student assessment, program evaluation, curriculum development, e-learning, ethics and communication, personal development, leadership and management, and research and scholarship) and 73 items were concluded. The researchers developed two 10-anchor scales for each item for the second challenge. The first scale evaluated the faculty member's “current status” in terms of skill in that subject, and the second scale evaluated the faculty member's perspective on the “importance of that subject for their professional development (What should be).”

Finally, Cronbach's alphas were calculated using a reliability analysis for each of the nine categories for both competence and importance. All categories' internal consistency, which ranged from 0.86 to 0.96, was high. Cronbach's alpha for competency and importance by categories is shown in Table 1.

All university colleges received the electronic questionnaire link and instructions on completing it through WhatsApp, Telegram, and Email. To boost response rates, participants received reminders every 7 days.

TABLE 1 Internal estimates of reliability by subscale (area/domain).

Domain	Skill	Importance	Item numbers
Learning theories and teaching strategies	0.926	0.915	16
Student assessment	0.926	0.911	10
Program evaluation	0.934	0.939	5
Curriculum development	0.861	0.887	3
E-learning	0.912	0.894	3
Ethics and communication	0.891	0.884	5
Personal development	0.873	0.885	5
Leadership and management	0.940	0.942	6
Research and scholarship	0.963	0.964	20

2.3 | Data analysis

Data analysis was performed using IBM SPSS software version 19. Descriptive statistics, including mean, and standard deviation, were used to summarize quantitative variables. Qualitative variables were summarized using frequencies and percentages. Subsequently, we calculated the difference between the perceived importance and the perceived skill using the paired samples *t* test. A *p* value below 0.05 was considered significant. Differences that were not significant were considered non-priority. Negative differences of more than 2.5 were ranked from the highest to the lowest priorities. The one-way ANOVA was applied to determine whether there are any statistically significant differences between actual need (as a quantitative variable) in more than two independent (unrelated) qualitative groups, such as schools, academic ranks of faculty members, and teaching experiences of faculty.

2.4 | Ethical consideration

This study was reviewed and approved by the Research Ethics Committees of the National Agency for Strategic Research in Medical Education (IR.NASRME.REC.1400.389). The consent clause was included in the introduction to the survey. All questions were filled out and submitted anonymously to protect respondents' privacy. Those who chose to fill out the survey were told that their privacy would be protected and that only overall data would be shared.

3 | RESULTS

The total number of faculty members was 310. One hundred and sixty-six faculty members participated in the study (response rate = 53.5%). The faculty members' mean age was 41.54 ± 8.08 . The School of Medicine is much larger than other schools; it was predicted that the majority of participants were from this school (51.8) and the least

TABLE 2 Characteristics of faculty members of HUMS who participated in this study (*N* = 166).

Variables	<i>N</i> (%)
Age	
≤40	91 (54.8)
41–50	46 (27.7)
>50	29 (17.5)
Gender	
Female	92 (55.4)
Male	74 (44.6)
Academic Rank	
Instructor	31 (18.7)
Assistant Professor	117 (70.5)
Associate Professor	17 (10.2)
Professor	1 (0.6)
School	
Medicine	86 (51.8)
Dentistry	15 (9)
Pharmacy	9 (5.4)
Nursing & Midwifery	27 (16.3)
Paramedical Sciences	13 (7.8)
Health	16 (9.6)
Teaching experiences	
≤5 years	96 (57.8)
>5 years	70 (42.2)
Education	
Master	27 (16.3)
Doctorate	91 (54.8)
Professional	48 (28.9)

Abbreviation: HUMS, Hormozgan University of Medical Sciences.

from the school of paramedical science (7.8%). Nearly half of the participants had a doctorate as their highest level of education (54.8%). Assistant professors made up the bulk of participants (70.5%), followed by instructors and associate professors. 55.4% were female and 44.6% were male. The formal teaching experience varied from less than 1 year to 29 years. A description of the demographic data for responding participants is displayed in Table 2.

3.1 | FD areas

Table 3 lists overall mean ratings for each domain and rank order. Mean response scores are also presented, split by respondent-self-identified skills and importance for each era. The negative mean differences mean that the skill of the faculties in that area/topic is

TABLE 3 Priority professional development domain.

Rank	Domain ^a	Self-reported skill Mean \pm SD	Self-reported importance Mean \pm SD	Mean differences (p value)
1	E-learning	4.31 \pm 2.84	7.37 \pm 3.02	-3.060 (<0.001)
2	Curriculum development	4.46 \pm 2.70	6.56 \pm 3.21	-2.102 (<0.001)
3	Personal development	5.80 \pm 2.20	6.06 \pm 2.28	-0.255 (<0.001)
4	Program evaluation	4.76 \pm 2.49	4.99 \pm 2.54	-0.233 (<0.001)
5	Leadership and management	5.52 \pm 2.42	5.73 \pm 2.51	-0.211 (<0.001)
6	Student assessment	5.47 \pm 2.13	5.51 \pm 2.18	-0.043 (0.007)
7	Learning theories and teaching strategies	5.85 \pm 1.75	5.89 \pm 1.78	-0.037 (<0.001)
8	Research and scholarship	5.91 \pm 1.99	5.91 \pm 2.02	-0.000 (0.94)
9	Ethics and communication	6.10 \pm 2.28	6.06 \pm 2.30	0.041 (0.30)

^aPaired samples t test.

less than its importance, and the larger the gap, the higher the priority of future learning.

In general, our faculty members have described their present skill or importance at a modest level (scale points 4–7), taking into account the scale points 0–3 as “limited skill/importance,” 4–7 as “moderate skill/importance,” and 8–10 as “substantial skill/importance.” Respondents reported the lowest abilities in e-learning (mean 4.31 \pm 2.84) and the highest importance for improving this era further (mean 7.37 \pm 3.02, p < 0.001). Therefore, e-learning was the first priority for FDPs. The highest and lowest priority topics in each domain are shown in Table 4.

Regardless of domains, the topics with the highest ratings, whose mean differences between self-reported skills and importance were higher than 2.5, are listed in Table 5. The lowest-rated issues for which there were no statistically significant differences in skill level and importance for future development were, respectively: ward rounds teaching (mean diff = 0.156, p = 0.53), conducting an effective search in scientific literature and databases (mean diff = -0.265, p = 0.49), laboratory class teaching (mean diff = -0.210, p = 0.43), developing an educational research proposal (mean diff = -0.265, p = 0.49), designing a standard written exam (mean diff = -0.271, p = 0.41), ambulatory teaching (mean diff = -0.313, p = 0.21), conducting morning report, journal club, and ground round (mean diff = -0.439, p = 0.11), writing a scientific article in Persian (mean diff = -0.500, p = 0.18), ICDL course (mean diff = -0.566, p = 0.14), small group teaching (mean diff = -0.584, p = 0.06), and use of bibliography management applications (mean diff = -0.662, p = 0.10).

3.2 | Participation in the FD activities

Almost half of the respondents (42.2%) had participated in less than five FD workshops in the last 2 years. While 36.7%

participated in 5–10 workshops, 7.2% in 11–15 workshops, and only 2.4% in more than 15 workshops, 11.2% of faculties have not attended any of the FD workshops in the last 2 years.

The willingness of faculties to participate in FD courses, to teach in FDPs, and to cooperate with the FD committee was 87.2%, 23.4%, and 52.3%, respectively.

Statistically significant differences in the priority of FD needs based on academic rank (p = 0.01), teaching experiences (p < 0.0001), age (p = 0.002), and schools (p = 0.004) were observed. At the same time, no differences were seen based on gender (p = 0.55) or education (p = 0.36).

4 | DISCUSSION

In this study, all faculty roles and levels were targeted, marking the first time in Iran that the list of HUMS faculty members' priority training needs was identified based on the difference between “self-rated level of skill” as the current condition and “perceived importance” as the expected condition. Based on the results of this study, the priority order of the nine domains of FD was: E-learning, curriculum development, personal development, program evaluation, leadership and management, student assessment, learning theories and teaching strategies, research and scholarship, and ethics and communication. If, as in many studies, only the individual's preference and desire were considered in determining educational needs (self-reported importance), the order of priorities according to Table 3 was as follows: E-learning, curriculum development, ethics and communication, personal development, learning theories and teaching strategies, leadership and management, student assessment, research and scholarship, and program evaluation.

Based on these results, the “ethics and communication” was considered the third priority in the conventional method. In contrast, according to this study's method, it was the last priority.

TABLE 4 Highest and lowest priority in each domain.

Rank of domain	Domain	Highest priority		Lowest priority	
		Topic ^a	Mean differences (p)	Topic ^a	Mean differences (p)
1	E-learning	Student assessment in distance education	-3.132 (<0.001)	Learning management system (LMS)	-2.993 (<0.001)
2	Curriculum development	Curriculum development models	-2.698 (<0.001)	Course plan and lesson plan development	-0.993 (0.004)
3	Personal development	Conducting internal and international academic communications	-3.024 (<0.001)	International Computer Driving License (ICDL) course	-0.566 (0.14)
4	Program evaluation	CIPP program evaluation model	-3.138 (<0.001)	Basics and models of program evaluation	-2.602 (<0.001)
5	Leadership and management	Advanced management course	-2.789 (<0.001)	Time management strategies	-1.108 (<0.001)
6	Student assessment	360-degree student assessment tools	-3.319 (<0.001)	Design a standard written exam	-0.271 (0.41)
7	Learning theories and teaching strategies	Conceptual learning and mind map	-2.355 (<0.001)	Ward rounds teaching	0.156 (0.53)
8	Research and scholarship	Book and journal editorial techniques	-3.427 (<0.001)	Conducting an effective search in scientific literature and databases	-0.150 (0.68)
9	Ethics and communication	Improving student motivation	-2.271 (<0.001)	Ethical considerations in clinical education	-0.861 (0.003)

^aPaired samples t test.

This shows that even though people are aware of the importance of ethics, due to their high self-perceived skill, this domain has not been prioritized.

On the other hand, while the program evaluation was placed in the last priority of the needs based on the preference of the faculty members, based on the method used in this study, it was promoted to the fourth priority. The reason for this priority change was the faculty's low self-reported skills. This offers the information and guidance needed to develop better educational programs. The results of the current study showed that the faculty members expressed a strong need for e-learning training. Following our results, previous research has also emphasized the necessity for faculty professional development in instructional technology or virtual tutorials.^{1,3,6,8,15-17} However, Ramesh et al. placed low importance on using multimedia and web-based technologies for education.¹² The first rank in e-learning for FD in HUMS can be attributed to the predominantly young faculty members who are willing and enthusiastic to embrace and empower themselves in e-learning.

Furthermore, concerning e-learning domain, the faculties in the present survey expressed the highest priority for professional development in online assessment. One potential explanation is that the university's virtual education center administered the online student assessment, with faculty members not directly involved in the operational and technical aspects. While in Tavakoli's study,

online assessment was a priority,⁸ participants in Güneri's study expressed the slightest need for this item.¹

The current study's other FD priorities were curriculum and personal development. It is similar to the findings of Algahtani et al., in which respondents showed an interest in improving both personal and curriculum-related aspects,⁴ and the finding of the Shah study, in which the area with the most significant difference between the current and desired knowledge of the faculty was curriculum planning.⁹ Adkoli et al. also found gaps in the curriculum development process.¹⁸ In the literature, other studies have reached similar conclusions about faculty need for personal development.^{16,19-21} Nonetheless, curriculum design received less than half the vote in the Karimi research,⁶ and teachers reported feeling most effective in personal development in the Yenen study's.³

In addition, for the curriculum development domain, course plans and lesson plans were given the least priority in the present study, which is in line with other studies.^{3,5,11,15,16} However, Shah et al. found that course planning was among the most significant gaps between faculty members' actual and desired knowledge,⁹ which is consistent with the findings of various other studies.^{3,15,18,22} Based on our results, in the personal development domain, participants reported their skill in the ICDL course as high and its importance as low. Being young and the necessity of familiarity with ICDL and using them during postgraduate studies may be the reason for this issue.

TABLE 5 Priority professional development topics.

Rank	Topic ^a	Mean differences (<i>p</i> value)
1	Book and journal editorial techniques	-3.427 (<0.001)
2	360-degree student assessment tools	-3.319 (<0.001)
3	CIPP program evaluation model	-3.138 (<0.001)
4	Student assessment in distance education	-3.132 (<0.001)
5	Educational content preparation in distance education	-3.048 (<0.001)
6	Conducting internal and international academic communications	-3.024 (<0.001)
7	learning management system (LMS)	-2.993 (<0.001)
8	Peer Assessment Tool (mini-PAT)	-2.981 (<0.001)
9	Book and textbook authorship techniques	-2.921 (<0.001)
10	Accreditation in higher education	-2.897 (<0.001)
11	The ways of university-industry relationship (incorporation (registration of Knowledge enterprise, patent procedures, and intellectual property rights)	-2.867 (<0.001)
12	Educational Connoisseurship and Criticism Program Evaluation Model	-2.813 (<0.001)
13	Goal-oriented program evaluation model	-2.789 (<0.001)
13	Advanced course of management (creative thinking and creative management techniques, team building and teamwork methods, competition development strategies)	-2.789 (<0.001)
14	Basic steps and models in curriculum development	-2.698 (<0.001)
15	Regulations of scholarship of learning and teaching (SOLT)	-2.668 (<0.001)
16	Educational need assessment models	-2.614 (<0.001)
17	Basics and models of program evaluation	-2.602 (<0.001)
18	Basics course of management (manager's communication skills, effective speech rules for managers, performance evaluation techniques)	-2.578 (<0.001)
19	Develop and conduct educational innovative research and SOLT activities	-2.500 (<0.001)

^aPaired samples *t* test.

However, this is contrary to the results of Karimi, Abedi, and Shafaei's study.^{6,11,23}

In the current study, the next priority was program evaluation. However, this field has been given less attention in the needs assessment studies, but a few studies have addressed this issue. For example, Shafaei et al. showed the high level of need in this era only in nonclinical faculties.¹¹ In Mirzaei Karzan's study, more than two thirds of the participants rated their needs as high and very high.²⁴ Furthermore, the results of Na's study indicated the modest ability and importance of class evaluation.²⁵

Leadership and management ranked fifth as a priority in our study. Medical education should include leadership training to prepare faculty for future responsibilities.²⁶ In other studies, the interest and need of faculty members to develop these skills was high, and respondents felt leadership was a vital Topic.²⁷⁻²⁹ In Behar-Horenstein's study, although most participants rated their knowledge in this era as low, only one fifth of the faculty slightly over one half rated these activities as a high priority.³⁰

Behar-Horenstein's study found that the skill and importance ratings for "using effective student assessment" were not statistically significant.¹⁰ This finding is consistent with the present study, where "student assessment" was ranked sixth in priority, and Karimi's study, where less than half of the faculties showed interest in this topic.⁶ Developing a standardized written exam was deemed the least important aspect of student assessment in our study. The results of our study were contrary to those of other authors.^{9,31} Perhaps the reason for our result is faculty members do not receive feedback on their performance in the field of student assessment and ignore the results of exam analysis.

Teaching strategies ranked seventh in our study, consistent with Behar-Horenstein's findings that skill and importance ratings were not statistically significant, as well as Avijgan's study.^{10,16} Teaching methods are deemed essential in numerous studies.^{3,4,6,8,12,24}

Research indicates that many faculty members perceive themselves as effective instructors and may not recognize the necessity of professional development to enhance their pedagogical abilities.

Teaching is often perceived as an innate ability not acquired through learning. However, faculty members tend to comprehend the advantages of the program and their own educational requirements only after participating in an FDP.⁹

Our study found no significant difference in the mean level of skill and importance in the ethics and research domains, which were the last two priorities. Similarly, Shafaei et al. demonstrated that training in professional ethics was considered a low priority.¹¹ Karimi and Brown reported identical findings.^{6,32} Algahtani et al. found that a majority of faculty members considered research-related aspects to be a less important program,⁴ which is consistent with Karimi's study, where less than 50% of participants expressed interest in research.⁶ Consistent results have been documented by other researchers as well.^{5,32} Our study found lower priority levels for the research domain^{3,9} and the use of digital libraries (search in scientific literature and databases),^{8,11} in contrast to previous research.

Enhancing student motivation was the highest priority in relation to ethics and communication domain, which is thought to be an important result of this study. The study's findings suggest that faculty members recognize the significance of student motivation in promoting student success and enhancing the efficacy of learning activities. Like these results, other studies have found that motivating students is a top priority for teachers.^{1,5,12,33}

Evidence suggests the necessity for periodic actual need assessments of faculty members at all levels (junior, mid-career, and senior) to develop suitable educational programs.^{12,34} Moreover, incorporating other resources and data such as student or peer evaluation of teaching or academic performances may be considered for future research. In the next step, it is suggested that an actual needs assessment be carried out according to the schools and academic ranks of the faculty members.

While the study results were enlightening, the response rate of 53.5% may be considered a limitation; however, there was a suitable combination of academic staff members of all faculties, and due to the normality of the distribution of quantitative data, the sample seems to be a suitable representative of the entire population.

5 | CONCLUSION

Additional formal training is required, especially in e-learning and curriculum development, for most faculty members at HUMS to enhance their academic achievement. The study evaluated and determined essential needs and skills that should be integrated into an FDP to tackle these domains. This study addressed gaps between current and desired conditions. Colleges and medical institutions should implement a comprehensive FDP to equip faculty members with the necessary skills to fulfill their academic responsibilities and advance education and healthcare systems. Conducting a "real needs" assessment before initiating an FDP is necessary for its feasibility.

AUTHOR CONTRIBUTIONS

Marziyeh Barzegar: Conceptualization; investigation; funding acquisition; writing—review and editing; writing—original draft. **Hamidreza Miri:** Writing—review and editing; data curation. **Samirerh Abedini:** Data curation. **Farahnaz Kamali:** Data curation; writing—review and editing. **Elham Boushehri:** Formal analysis; supervision; writing—review and editing; investigation; methodology.

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CONFLICT OF INTEREST STATEMENT

The authors declare no conflict of interest.

DATA AVAILABILITY STATEMENT

The data sets used and analyzed during the current study are available from the corresponding author at reasonable request through email.

TRANSPARENCY STATEMENT

The lead author Elham Boushehri affirms that this manuscript is an honest, accurate, and transparent account of the study being reported; that no important aspects of the study have been omitted; and that any discrepancies from the study as planned (and, if relevant, registered) have been explained.

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