Faculty Development

Residents' and Faculty's Beliefs About the Ideal Clinical Teacher

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Background and Objectives: *The objective of this study was to examine how residents and faculty in family medicine compare in their beliefs about ideal clinical teaching.* Methods: *We studied 205 residents and 148 faculty in family medicine who completed the Clinical Teaching Perception Inventory (CTPI) online between April 2001 and July 2008. The participants ranked 28 single-word descriptors that characterized clinical teachers along a 7-point-scale ranging from "least like my ideal teacher" to "most like my ideal teacher."* Results: *Both residents and faculty indicated that the ideal clinical teachers should be stimulating, encouraging, competent, and communicating and should not be conventional, cautious, or controlling. However, residents rated probing and innovative significantly lower than did faculty.* Conclusions: *Clinical faculty and residents in family medicine have a shared view of the ideal clinical teacher. However, residents and faculty differed in their ratings on the descriptors "Probing" and "Innovative." This difference might at least in part stem from where residents and faculty are located along a continuum from novice to mature expert.*

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Research on what constitutes knowledge and skills of effective teachers has reached a high degree of consensus. Essentially, effective teachers possess integrated content knowledge of their disciplines, general pedagogical knowledge, and discipline-specific pedagogical content knowledge.[1-3] Discipline-specific pedagogical content knowledge helps teachers represent and formulate a subject matter in a comprehensible manner and grasp learners' conceptions and misconceptions within the subject matter.

However, no consensus has been reached about how to assess individual teachers' growth in dispositions to teach: the values, commitments, and professional ethics that influence behaviors toward students, student learning, and the educator's own professional growth.[4-8] Unlike individuals who are developing skills in such domains as playing the piano, chess, and tennis, whose progress is closely monitored by their coaches, the skills development of teachers are not usually monitored by a coach.[9] Instead, they are commonly evaluated by their students through course ratings.[10] Although students do not coach teachers, student evaluation has often proved a resource for teachers' professional development. For instance, in 250 studies using student evaluations in medical education, students portrayed effective clinical teachers as the physician role model, the effective supervisor, the dynamic teacher, and the supportive person. Effective clinical teachers set clear and realistic expectations, model and teach to the learners' need, observe learners' performances and give specific feedback, encourage independent learning and reflection, create a positive learning environment, reflect upon and improve teaching, and strengthen assessment and feedback.[11]

Although student ratings could provide useful resources for teachers' growth in teaching behaviors, student ratings fail to describe teachers' dispositions or beliefs about teaching. Studies have shown that, during the course of expertise development in teaching, both behaviors and thinking of teachers change.[12,13] Award-winning psychology teachers became more student centered over the course of their quest to improve teaching.[1] Experienced teachers held themselves accountable

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for learner difficulties, whereas new teachers attributed students' learning difficulties to an individual student's characteristics and/or external factors.[14] Clinical faculty and residents shared a belief that clinical competence and enthusiasm are important attributes of effective clinical teachers. Faculty, however, believed more strongly that effective teachers should serve as a role model than did their resident counterparts.[15]

Learning vector theory by Stritter[16] contends that a given set of approaches to teaching that is optimal at earlier stages of development, along a continuum from novice to mature expert, is not necessarily optimal at later stages.[17,18] According to the theory, as learners mature professionally, they move from the initial stage where optimal learning is facilitated through exposure to information to the second stage that calls for application of new concepts and skills and to the last stage in which integration of concepts and skills is the focus. On this scale, most faculty members are probably at the last stage, while residents are most likely somewhere between the stage of application and that of integration.

The present study was planned to advance our knowledge about how residents and faculty in family medicine compare in their beliefs about ideal clinical teaching. It was our hypothesis that faculty and residents who are at different stages of development would differ in their beliefs about ideal clinical teaching, as they would seek different sets of approaches to teaching to optimize learning.

Methods

Participants

In 2008, we obtained a dataset that involved 2,418 individuals who completed the online version of a 28-item Clinical Teaching Perception Inventory (CTPI) between its launch in April 2001 and July 2008. As described previously,[19] CTPI online participants were widely recruited via mailings to deans/directors of graduate medical education offices, US residency program directors, and potential participants and their offices as well as via introductions of the CTPI at national conferences. The representativeness of CTPI online participants in the field of medicine in North America and Canada has been demonstrated.[19]

Although Morrison et al had a sample of 660 resident and faculty who completed the CTPI online between 2001 and 2003,[19] the steady increase in its participants gave us access to 2,418 respondents, including 1,600 residents and 818 faculty members. Among the 2,418 respondents, 205 residents (53.7% females) and 148 faculty members (56.1% females) specialized in family medicine. It is these 353 individuals in family medicine who constituted the sample of the current study. The research protocol of the current study was reviewed and approved by a human subjects committee.

Instrument (CPTI)

In 1979, an effort was initiated to develop a self-rating instrument to assess family medicine faculty's perceptions of clinical teaching and comfort with teaching. In 1980, a sample of 34 family medicine faculty guided a selection of 28 descriptors of clinical teachers. In 1988, responses to the 28-item inventory within a sample of 159 clinical teachers in family medicine revealed a three-factor structure of the inventory reflecting a uniform perception of the ideal clinical teachers. The test-retest reliability of this inventory in this sample of 159 clinical teachers was at .82.[20]

For almost 2 decades after its development, the CTPI has been used for faculty development in family medicine[21] and other disciplines. Morrison et al demonstrated the applicability of the CTPI to faculty development for multidisciplinary resident and faculty teacher, beyond the original norm group of family medicine faculty.[19]

In April 2001, the CTPI was made available online at the Residents' Teaching Skills Web site (www.resident-teachers.com) by the University of California, Irvine, College of Medicine in association with the Graduate Medical Education Section of the Association of American Medical Colleges (AAMC). The Web site informs its visitors that the data collected on the Web site would be recorded anonymously for research purposes. While using the Q-sort technique, a forced-choice, rank-order methodology originally developed by Stephenson,[22] the CTPI quantifies respondents' perceptions of clinical teaching with the measure "My Ideal Teacher."

In completing this measure, participants rank 28 single-word descriptors that characterize clinical teachers along a 7-point scale ranging from "least like my ideal teacher" to "most like my ideal teacher." A figure of seven columns consisting of 28 boxes guides participants' decisions. The first column on the left was labeled "least like my ideal teacher," and the seventh column on the right "most like my ideal teacher." The columns were configured in a symmetric pyramidal manner, with two boxes in the lowest and the highest columns, three boxes in the second and the sixth columns, five boxes in the third and fifth columns, and eight boxes in the middle column. The specific task of the participants was to determine an appropriate box for each of the 28 descriptors, while rank-ordering them along the continuum from "least like my ideal teacher" to "most like my ideal teacher." Each of the seven columns were assigned a score ranging from one (for the first column) through seven (for the seventh column), and the scores of the 28 descriptors depended on the columns where they were assigned (see Morrison et al[19]). Higher scores indicated more ideal characteristics of a clinical teacher.

Data Analysis

The analyses were directed at comparing residents and faculty in family medicine on their beliefs about ideal clinical teaching. After computing means and standard deviations of the 28 items in "My Ideal Teacher" separately for residents and faculty, we used Spearman's rho correlations to examine how the rankings of 28 descriptors compared between residents and faculty. The Spearman's rho is a non-parametric measure of correlation that determines the magnitude and direction of the association between two rankings.

Next, to investigate possible differences between residents and faculty in their perceptions of ideal clinical teachers in detail, 28 Pearson chi-square analyses, based on 2x2 contingency tables, were carried out with the Bonferroni adjustment to set the alpha at .001. Before the chi-square analyses, the original scores of one through seven for the 28 items were collapsed into three categories: (1) Not Ideal (scores 1–3), (2) Neutral (score 4), and (3) Ideal (scores 5–7). Due to the pyramidal configuration of the CTPI's template, 10 descriptors each were allocated for "Not Ideal" and "Ideal" and eight descriptors for "Neutral." The chi-square analyses determined how residents and faculty compared on their beliefs about clinical teachers' "Ideal" characteristics and "Not Ideal" characteristics, while excluding the category "Neutral" from the analyses.

Power analyses indicated that, with the alpha level at .001, a sample size n=284 will be sufficient to have the power=.80 in a comparison between two proportions in the magnitudes of .40 and .65.[23] The sample size of 353 in this study appeared appropriate.

Results

Table 1 shows the rank-ordered means and the standard deviations of the 28 descriptors for residents and faculty. While residents rated "Encouraging" the highest, faculty rated "Stimulating" the highest. "Controlling" had the lowest mean in both groups. The same characteristics appeared in both groups' top 10s, with the exceptions of "Patient" (rated fifth in residents and 12th in faculty) and "Innovative" (rated seventh in faculty and 12th in residents). A strong positive correlation (r_s=.95, P<.05) showed that residents and faculty shared a quite consistent view of the ideal clinical teacher. Despite such similarities, the results from the Pearson Chi-square analyses manifested that participants' ranks in family medicine (ie, residents versus faculty) and their decisions (ie, "Ideal" versus "Not Ideal") were associated for "Probing" (χ^2=11.52, P<.001) and for "Innovative" (χ^2=20.16, P<.001). As shown in Table 2, faculty were more likely to rate "Probing" and "Innovative" "Ideal" than residents, while residents were more likely to determine "Probing" and "Innovative" as "Not Ideal" than faculty.

Discussion

Contrary to our hypothesis, clinical faculty and residents in family medicine held a shared view of the ideal clinical teacher, regardless of their stages in the profession. As shown in Table 1, both residents and faculty believed that ideal clinical teachers are stimulating, encouraging, competent, and communicating and are not conventional, cautious, or controlling. This view of the ideal clinical teacher closely overlapped that found in a study by Morrison et al with a sample of 660 multidisciprinary faculty and resident teachers. However, as hypothesized, some differences between residents and faculty were also revealed in this study. We showed that (1) 145 residents (equivalent to 70.73% of the 205 resident participants in this study), compared to 70 faculty members (equivalent to 47.30% of the 148 faculty participants), believed that being probing is a "Not Ideal" characteristic of a clinical teacher, and (2) 89 faculty members (equivalent to 60.14% of the total faculty participants), compared to 75 residents (equivalent to 36.59% of the total resident participants), believed that being innovative is an "Ideal" characteristic of a clinical teacher. Thus, residents were more likely to have adverse feelings toward a probing teacher than their faculty counterparts, and faculty were more likely to value an innovative teacher than do their resident counterparts.

These differences could reflect different roles that faculty and residents play. The difference in probing might be attributed to faculty's role as a supervisor who signs off on residents' care of patients and who is legally responsible for the care provided by residents whom they supervise. Faculty in this role would find it necessary to thoroughly explore residents' understanding on the topics discussed in a lesson to ensure high quality of care that their residents will provide. Conversely, residents would not have any equivalent need.

More importantly, our understanding on this difference can be facilitated by Stritter's learning vector theory.[16] The theory suggests that residents and faculty are at different stages of development, with the former being at the stage in which learning is optimized through application of concepts and skills and the latter being at the stage where establishment of professional integrity is the primary goal. Faculty who aim at integration might believe that teachers should inquire into students' understanding deeply and thoroughly to facilitate their integration of concepts and skills. On the other hand, residents who are probably about to complete the application stage would find it important that teachers support a self-regulated learner who deliberately try out acquired knowledge and skills in new settings. Indeed, according to Buchel et al,[15] residents believe that effective teachers should respect students' autonomy and independence as clinicians.

Table 1

Rank Ordered 28 Descriptors of the Ideal Clinical Teacher Within the Groups of Residents (n=205) and Faculty (n=148)

	Resident			*Faculty*		
Rank		Mean	SD		Mean	SD
1	Encouraging	5.78	1.20	Stimulating	5.76	1.27
2	Competent	5.47	1.29	Encouraging	5.70	1.16
3	Communicates	5.43	1.19	Competent	5.61	1.16
4	Stimulating	5.22	1.32	Communicates	5.36	1.14
5	Patient	4.99	1.13	Well read	4.95	1.19
6	Well read	4.89	1.33	Open-minded	4.91	1.09
7	Open-minded	4.86	1.15	Innovative	4.88	1.18
8	Organized	4.77	1.18	Organized	4.86	1.02
9	Compassionate	4.77	1.20	Compassionate	4.76	1.21
10	Practical	4.53	1.28	Practical	4.70	1.24
11	Empathetic	4.46	1.11	Observant	4.66	1.03
12	Innovative	4.25	1.14	Patient	4.57	0.93
13	Observant	4.25	0.98	Empathetic	4.35	0.97
14	Amiable	4.10	1.34	Accepting	4.22	1.21
15	Accepting	4.08	1.27	Assured	3.99	1.06
16	Initiates	3.98	0.94	Secure	3.91	0.93
17	Secure	3.95	1.10	Amiable	3.82	1.14
18	Assured	3.83	1.21	Initiates	3.74	0.91
19	Gentle	3.59	1.20	Probing	3.66	1.39
20	Feeling	3.42	1.01	Feeling	3.42	0.88
21	Extraverted	3.36	1.08	Gentle	3.34	1.03
22	Assertive	3.15	1.30	Extraverted	3.17	1.09
23	Directive	2.92	1.44	Assertive	2.96	1.08
24	Correcting	2.82	1.25	Correcting	2.64	1.22
25	Probing	2.74	1.50	Directive	2.56	1.20
26	Conventional	2.64	1.00	Conventional	2.31	0.93
27	Cautious	2.42	1.14	Cautious	1.97	0.86
28	Controlling	1.37	0.89	Controlling	1.23	0.69

Table 2

2 x 2 Contingency Tables for Descriptors That Have Significant Pearson Chi-Square

	Probing			*Innovative*		
	Not Ideal	Ideal	Total	Not Ideal	Ideal	Total
Resident	145 (85%)	25 (15%)	170 (100%)	47 (39%)	75 (61%)	122 (100%)
Faculty	70 (68%)	33 (32%)	103 (100%)	12 (12%)	89 (88%)	101 (100%)
Total	215 (79%)	58 (21%)	273 (100%)	59 (26%)	164 (74%)	223 (100%)

Such quest for self-regulated application of knowledge and skills could underlie the decisions of 70.73% of residents to rate "Probing" a "Not Ideal" characteristic of a clinical teacher.

The difference in being innovative, on the other hand, could reflect a contrast between faculty's commitment to provide stimulating educational experiences to their students and residents' commitment to advance their knowledge and skills in caring for patients and have their patient treatment plans reviewed and approved by their teachers. Recent studies have shown that innovation is an essential element in one's instruction. Schwartz et al[24] maintained that optimal instruction for promoting deep understanding of materials should involve cycles of two approaches, one aiming at efficiency and the other focusing on innovation to facilitate adaptive problem solving. Efficiency is crucial for rapid and accurate retrieval of knowledge and skills and application of what is retrieved in problems at hand. Although efficiency induces high-quality problem solving, equivalent levels of high-quality performances are not necessarily guaranteed when unfamiliar types of problems or information are given to the same individuals. When faced with new types of problems or information, adaptive experts can rearrange environments and thinking to optimize their performances.[25-27] Development of adaptive experts, or adaptive problem solvers, is strongly sought in the field of medicine where education is directed at cultivating future doctors who will make diagnoses for many people exhibiting a wide range of symptoms of same or different diseases.[28] Faculty who value innovative aspects of instruction might have attained the understanding that clinical teachers should instill innovation in education to increasingly generate adaptive doctors in the field of family medicine.

Limitations

This study has two important limitations that should be considered when interpreting the results. First, as this study did

not provide participants with detailed definitions of the 28 descriptors, different participants could have interpreted a same descriptor in a different manner. The development of a more reliable and valid instrument is dependent on our continuing efforts to select and validate representative behaviors that cluster under a rubric of one-word descriptors.

Second, the data in the present study were obtained in a sample of volunteers. Applicability of the findings to a large population of residents and faculty in family medicine as well as to their counterparts in other medical specialties should be examined in the studies that follow.

Conclusions

The findings from this study may help guide future faculty development efforts in the field of family medicine. Despite some differences, faculty and residents in family medicine shared a consistent view of ideal clinical teaching. The goal of future faculty development in family medicine, then, would be to help both faculty and residents become the ideal clinical teacher they already perceive.

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