Health Science Faculty Members' Perceptions of Curricular Integration: Insights and Obstacles

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ABSTRACT

The objective of this pilot study was to analyze the results of a survey of basic science and clinical faculty regarding the integration of their institution's health sciences curriculum. Forty-four basic and clinical scientists responded to our survey, providing information regarding their level of interest in a more integrated curriculum and the level of integration that they currently enjoy at their institutions and opinions on obstacles to integration. Results indicate that interest in integration of the curriculum is high, that individual faculty members are interested in increased integration, but that the current level of integration is not adequate. Clinicians are less positive about curricular integration than were their basic science counterparts. The main obstacles cited by survey participants include the lack of a reward system for faculty to put effort into integration and lack of time. In sum, although faculty members recognize that integrating the basic and clinical sciences into a more cohesive experience for students is of interest to them and of benefit to their students, there is currently not sufficient support in the form of faculty time or reward to move forward towards a more vertically integrated curriculum.

INTRODUCTION

Medical education is changing rapidly, with more than half of American medical schools engaged in curricular reform.[1-4] Many of these modifications focus on implementing horizontal and/or vertical curricular integration[5]. Horizontal integration blends either related basic science disciplines in order to enhance students' understanding of body systems[6-7] or related clinical sciences through interdisciplinary clerkships.[8-12] This form of integration is often accomplished by the elimination of departmentally-oriented teaching.[13] Horizontal integration has become the norm over the last ten years in many medical institutions in the form of problem-based learning.[14-17] Vertical integration refers either to the incorporation of clinical experience into the early part of the curriculum[5, 18-22] or to the reintroduction of basic science material in the clinical years.[5-6, 23-26] While early clinical exposure programs have become a widespread component of the undergraduate curriculum, integration of the basic sciences during the clinical years still remains a challenge for many schools.[25] Without vertical integration, a medical school curriculum may suffer from content gaps[5] that may prove problematic when students enter their clerkship experiences.[27]

While there is a plethora of studies documenting student perceptions of integrated medical curricula,[28-32] only a limited number of studies have addressed faculty perceptions of horizontal[31, 33-34] and vertical integration.[17] The present descriptive pilot study queried both basic and clinical science faculty regarding their attitudes toward integration in order to expose barriers to integration and to identify potential new mechanisms for facilitating implementation of integrated curricula.

MATERIALS AND METHODS

The study population consisted of 44 volunteer basic science and clinical educators in 2002. This group consisted of 34 clinicians from disciplines including allied health, nursing, medicine and pharmacy along with 10 basic science educators. Most faculty participants (32/44) were surveyed at the 2002 University of Kentucky statewide annual community-based faculty conference (Preparing Practitioners for the 21st century VIII: Piecing Together the Educational Experience). This meeting is a multidisciplinary community-based teaching conference intended to provide a forum for dialogue between campus-based and community-based faculty. The remaining 12 faculty members were surveyed at the 6th annual meeting of the International Association of Medical Science Educators (IAMSE) in Guadalajara, Mexico. IAMSE is an interdisciplinary organization that focuses on promoting integration within and between basic and clinical scientific disciplines.

A nine item survey was used to gauge the perceptions of these basic science and clinical faculty regarding curricular

Table 1. Survey items

1. Please indicate your gender:	Male		Female	
2. Do you consider yourself a:	Basic science educator		Clinical educator	Both
3. Do you hold a:	Ph.D.	M.D.	Both	Other:
4. Institutional affiliation:				
5. What do you view as the primary barrier of integration of the clinical and basic sciences at your institution?				
On a scale from 1-5, with 1 being low and 5 being high, please answer questions 6-8:				
6. To what degree do you currently integrate basic and clinical science instruction of students?				
7. Rate your interest level in working with basic scientists or clinicians to enhance integration in education.				
8. Rate your interest level in participating in future dialogues/efforts toward enhanced integration of basic and clinical education for health profession students.				
9. List 1-2 specific ways that you feel basic science educators might better prepare students for their clinical education.				

integration in their program (Table 1). The instrument probed their program's current level of integration, their individual interest level in increasing integration, perceived obstacles to successful integration and potential solutions that could help increase integration.

RESULTS

The survey results elucidated several interesting trends in basic science and clinical faculty members' views on the process of integrating the health science curriculum. Figure 1 displays the participants' opinions on their program's current degree of integration, their interest in increasing integration and their interest in a dialogue on this topic. These items were rated on a Likert scale (1-5), with 1 indicating low interest and 5 representing high interest. Regarding the current level of integration in their program, the clinicians reported less integration (3.3/5) than the basic scientists (3.7/5). Basic scientists had a stronger interest in increasing integration of clinical materials (4.4/5) than did clinicians in reintroducing basic science topics into their clerkships (4/5). Moreover, basic scientists showed more interest in initiating a dialogue with clinicians (4.1/5) than did their clinical counterparts (3.6/5).

Faculty participants provided many comments regarding obstacles to integration and insights to improved integration. Table 2 demonstrates themes identified in response to survey questions 5 and 9. The primary obstacles to integration included lack of faculty time and incentive to participate in the integration process. Interdepartmental conflict and limited opportunity for interaction between basic scientists and clinicians were also common barriers cited. Responses to question 9 (suggestions) closely paralleled the obstacles identified above, including a formal mechanism for faculty reward and acknowledgement for efforts toward integration as well as increasing communication between basic scientists and clinicians. Some of the more novel ideas included enhancing basic science faculty clinical exposure as well as establishing integrated planning teams for curricular redesign.

DISCUSSION

Basic science and clinical educators alike recognize the need for greater integration in the health sciences curriculum.[24, 27, 35-36] Many faculty respondents in our study expressed an interest in increasing the level of integration at their institutions and wish to open an ongoing dialogue on the topic of increasing integration. Our finding that basic science educators were more positive about curricular integration than their clinical counterparts is consistent with the 2 other studies that address this topic.[17, 34] We can only speculate as to the source of this discipline-specific difference in enthusiasm for curricular integration. Schmidt's[5] observation that it is "easier to bring clinical relevance to the basic sciences than to reinforce basic science in the clinical years" may provide some insight into the observed differences. In addition, Vernon and Hosokawa[30] have shown that faculty attitudes and opinions vary by degree and type of participation in integrated curricula and this is consistent with the fact that many of our clinical faculty respondents noted a current lack of integration in their programs. Negative faculty attitudes can present a significant barrier to integration[37] and an open line of communication between basic science and clinical disciplines may combat the perception that basic sciences are irrelevant to clinical practice and encourage vertical integration.[5]

Other insights into advancing integration efforts identified in this study were consistent with those mentioned by Tresolini

Table 2. Obstacles to Integration and Suggested Strategies for Improved Integration

Obstacles:

1. Lack of faculty time to prepare integrated courses
2. Little faculty incentive to prepare integrated courses
3. Institutionalized 'turf' issues associated with integration
4. Lack of standardized level of student 'base' knowledge
5. Limited opportunity for interaction between basic scientists and clinicians

Suggestions:

1. Increase communication and increased contact between basic science educators and clinicians
2. Establish integrated planning teams
3. Increase use of 'case based' presentations
4. Increase basic scientists' clinical exposure and experience
5. Increase faculty reward and acknowledgement for efforts

and Shugars[37] and included strong administrative leadership, faculty development programs and an enhanced faculty reward system for participation. Overcoming departmental barriers and "turf" issues also presents challenges for our faculty participants as well as others.[5-6, 27, 38] In order to move forward with the integration of the basic and clinical sciences throughout the health science curriculum, interested schools should offer better faculty and departmental incentives and establish mixed teams of educators consisting of clinicians and basic scientists when planning for course redesign.

CONCLUSIONS

Certain limitations of the study must be noted. Seventy-two percent of the faculty participants in this study were from the state of Kentucky, with the remaining sample drawn from nine different US states and from Mexico. The small faculty sample precluded us from examining attitudinal trends between disciplines within the basic science and clinical science faculty categories. Plans are underway to recruit more faculty participants across a wide range of disciplines in order to determine if a relationship exists between professional specialty and attitude toward curricular integration.

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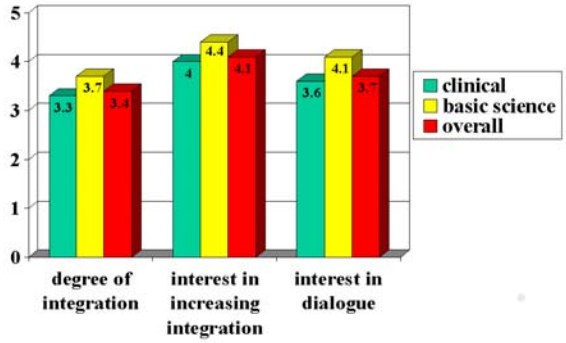
Figure 1. Faculty participants' views on curricular integration (1 indicates low interest, 5 represents high interest).



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