

LEARNING/TEACHING

## Changing Educational Paradigms to Prepare Allied Health Professionals for the 21st Century

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**ABSTRACT Context:** *Inefficient and ineffective health care delivery has been of recent concern to most stakeholders in the process. Care provision systems will improve when care providers are educated to function as team members and to demonstrate competencies required for practice in diverse, demanding, and ever-changing environments.*

**Goal:** *In one School of Allied Health Sciences, faculty members from nine departments united to create an interdisciplinary curriculum designed to foster the achievement of common competencies essential for success in the workplace.*

**Approach:** *Members of a Curriculum-2000 Task Force collaborated to: (1) review current literature, (2) articulate a set of common competencies across several disciplines, and (3) produce a proposal for achieving and measuring competencies in an interdisciplinary manner.*

**Conclusion:** *Individuals from various disciplines can come to consensus about competencies that graduates should achieve. Such consensus is the first step in the direction of implementing a curriculum based on interdisciplinary competencies.*

**KEYWORDS** *Education, allied health, interdisciplinary education, competency, teamwork, workplace competencies.*

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## Introduction

### *Context: The Problem of the Health Care Workforce*

It is widely acknowledged that the health care system in the United States is in need of reform (Schuster *et al.*, 1998; Shortell, 2000). Changes are needed to improve access and use resources more efficiently. Vital to these changes is the health care workforce (US Public Health Service, 1993). Over the past decade, several commissions representing educators, employers, and consumers have identified these issues and recommended reforms in health professions education (Shugars *et al.*, 1991; Finocchio *et al.*, 1995; California Twenty-First Century Workforce Project, 1999). General agreement seems to indicate that improvements will come when health care providers work more effectively in teams and when they have the competencies to practice in increasingly accountable and technological environments.

Health professionals themselves feel insecure about their ability to deal with workplace challenges (Adamson *et al.*, 1997). Though confident in their clinical and technical skills, they often fault their education for inadequate preparation in their communications skills, knowledge of the health care industry, and coping and management skills in the workplace (Adamson *et al.*, 1997).

The inadequacies of health professions curricula to address emerging changes in the workplace were identified as early as 1989 when the Institute of Medicine (IOM) recognized areas where reform was needed. In 1996, the National Commission on Allied Health observed that curricula in allied health educational programs continued to lag behind changes in the nation's health care delivery system. Barriers to change identified by the Commission included inflexible curricula, rigid standards set by specialized accrediting agencies, licensure requirements, and longstanding disciplinary boundaries (National Commission on Allied Health, 1996).

### *Needed Reforms*

Throughout the 1990s, the Pew Health Commission (Shugars *et al.*, 1991; Finocchio *et al.*, 1995; O'Neil & the Pew Health Professions Commission, 1998) conducted several careful studies and concluded that significant reforms in health professions education were needed. The Commission was particularly vigorous in suggesting curricular changes to redefine courses by emphasizing core instruction and organizing educational programs around competencies. In its final report, the Commission identified 21 competencies for the 21st century (O'Neil and the Pew Health Professions Commission, 1998).

One of the most important general recommendations emanating from the 1998 Pew Commission Report was the need to work in interdisciplinary teams. To reinforce its importance, the commission observed that "health professionals must work interdependently in carrying out their roles and

responsibilities, conveying mutual respect, trust, support and appreciation of each discipline's unique contributions to health care" (O'Neil and the Pew Health Professions Commission, 1998, p. 39).

Wolf (1999) describes several barriers to teamwork and interdisciplinary education, including individualism and discipline barriers. She also reports predictors for teamwork including orientation toward group problem-solving, problem-solving confidence, and a positive self-efficacy toward group process. In Wolf's (1999) survey of allied health professionals, most were favorably disposed toward interdisciplinary teams after previous positive interdisciplinary experiences reinforced the respondents' attitude toward teamwork.

While respect for colleagues and concern for patients exist among health care providers, these have sometimes been insufficient to prevent self-defeating rivalries that have hindered or prevented improvements in health professions education. Overcoming such obstructions is rarely trouble-free. If it were easy, most health care education programs would have already developed and instituted successful interdisciplinary curricula.

### *Goal: A Vision for Reform*

We realized that it would take a bold and innovative curriculum to meet the criteria for reform set forth in the 1998 Pew Health Commission Report. It would require a learning environment that enabled students to acquire and demonstrate their abilities in many ways. Such an evolutionary learning environment would require that students be given clear expectations about the abilities they need to become competent health professionals.

## **Approach**

### *Successful Interdisciplinary Education of Health Care Professionals: A Literature Review*

We reviewed the MEDLINE literature from 1966 to the present for "interdisciplinary training or education for health care professionals or providers" as part of our planning process. Many health care professionals agree that incorporating interdisciplinary experiences into education is important for improvement of health care delivery (Dworkin, 1992; National League for Nursing, 1998; Silver *et al.*, 1999; Wolf, 1999; Cohen, 2000). Ray referred to this new emphasis on training as "shared borders between two professions" (1998, p. 1371).

Reforms, though, have been slow and universities have addressed the challenges of the commissions to different degrees with varying strategies (Larson *et al.*, 1994). Although some programs have revised mission statements and written learning objectives, few have set benchmarks and standards that all students must attain before graduation. Seifer (1998) reports that other programs have chosen core or common entry-level curricula across disciplines.

Some institutions have added "capstone" courses that allow application of theories and patient care discussion in an interdisciplinary environment. Still other educators have emphasized "community-based learning" and "problem-based" learning, both of which are believed to contribute to positive changes in trainee attitudes toward diverse populations and disciplines, and increase skills in teamwork (Higgs & Hunt, 1999).

Below we chronicle some successful examples of incorporating interdisciplinary learning into health professions curricula that informed and influenced our attempts at reform. Wolf (1999) described the pivotal role that positive experience with other health professionals plays in encouraging successful interdisciplinary skills in allied health professionals. The National League for Nursing (1998) has identified interdisciplinary skills in a consensus report on skills needed for health professions education and relationship-centered care. A population health MS/PhD program at the University of Wisconsin–Madison evaluates multidisciplinary determinants of health, including environmental, social, physiologic, behavioral, and economic factors (Noren, 1997). The Medicine/Public Health Initiative promotes community-oriented primary care (COPC) in which both medicine and public health can work together to strengthen the cooperation between these two disciplines (Cashman *et al.*, 1999). These medicine/public health partnerships are needed worldwide, including the Stop TB Initiative, being implemented by the World Health Organization (2001).

Medical education is undergoing a similar metamorphosis (Racine *et al.*, 1998; Feldman, 1999; Schaad *et al.*, 1999). Bulger (1995) says academic centers must make a commitment to education that fosters patient-centered care and interdisciplinary teams of health care professionals. Mensah (1999) described an approach to hypertension in which interdisciplinary teams were more effective in reducing rates of hypertension than were physicians alone. Collaborative efforts between primary care physicians and psychiatrists allow patients with referrals to be seen that day instead of waiting for another appointment (Schuyler & Davis, 1999).

The Interdisciplinary Professional Education Collaborative (IPEC) enrolled students from five universities (Gordon *et al.*, 1996; Bellack *et al.*, 1997; Horak *et al.*, 1998). The IPEC allowed students to participate in learning activities *before* beginning patient care activities. Groups of students implemented service learning community projects, including diabetes education, programs to reduce missed appointments for well-child care, and interventions to reduce the rate of hypertension among African Americans. These projects require more planning than traditional course work, but each benefits the community and serves as a model to graduates.

One IPEC report identified the "direct CI [continuous improvement] experience as more valuable than learning from vicarious experience, which is in turn more valuable than didactic classroom experience" (Gordon *et al.*, 1996, p. 976). Additionally, "providing just-in-time learning is better than 'front-

loading' students with knowledge'' (Gordon *et al.*, 1996, p. 976). Another important facet of interdisciplinary education highlighted by a second IPEC project "...suggests that students who are in the early stages of their program tend to be more flexible in their thinking and more open to working as partners with other disciplines'' (Horak *et al.*, 1998, p. 29). Bellack and others (1997) identified multidisciplinary and multiethnic balance among health care teams and clients/patients as important in the Rural Interdisciplinary Training Project, an outgrowth of the IPEC.

Health profession educators provide experiences that range from classroom to clinical settings. They begin with the theoretical and end in clinical settings in which teams of health care students and professionals are working together to provide patient care. Though the literature contains descriptions of many problems inherent to providing interdisciplinary training and care, these success stories and others helped us plan similar experiences at our school.

### *The Process and Leadership of the Task Force*

The dean of the School of Allied Health Sciences (SAHS) held two meetings in April 1998 to form the Curriculum-2000 (C-2000) Task Force and communicate his charges to the group: (1) identify common competencies for all educational programs, (2) develop strategies for acquiring these competencies, (3) identify strategies for competency demonstration, (4) determine substantive evaluation and correction, and (5) recommend a plan for implementation. Included in

**Table 1.** Health workforce competencies identified by the Pew Health Commission, 1998

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- Embrace a personal ethic of social responsibility and service
  - Exhibit ethical behavior in all professional activities
  - Provide evidence-based, clinically competent care
  - Incorporate the multiple determinants of health in clinical care
  - Apply knowledge of the new sciences
  - Demonstrate critical thinking, reflection and problem-solving skills
  - Understand the role of primary care
  - Rigorously practice preventive health care
  - Integrate population-based care and services into practice
  - Improve access to health care for those with unmet health needs
  - Practice relationship-centered care with individuals and families
  - Provide culturally sensitive care to a diverse society
  - Partner with communities in health care decisions
  - Use communication and information technology effectively and appropriately
  - Work in interdisciplinary teams
  - Ensure care that balances individual, professional, system and societal needs
  - Practice leadership
  - Take responsibility for quality of care and health outcomes at all levels
  - Contribute to continuous improvement of the health care system
  - Advocate for public policy that promotes and protects the health of the public
  - Continue to learn and help others learn
-

these meetings were essential players who assumed leadership at two levels: sponsors and chairs. The dean acted as one sponsor; the chair of the Faculty Assembly as co-sponsor. The sponsors attended meetings of the C-2000 Task Force and met regularly with the co-chairs of the Task Force.

The dean appointed as co-chairs one faculty member in the last year before retirement and another with extensive experience in teaching multidisciplinary courses. The co-chairs and dean selected a non-chair representative from each of the nine departments to serve on the Task Force. The co-chairs conducted meetings, organized the work, gave periodic reports, oversaw the work of an administrative assistant, and served as liaisons among Task Force members, co-sponsors, and faculty-at-large members. One chair took the lead in conducting meetings and the other reported to the faculty-at-large.

This group was highly task-focused. First, we intended to compose a set of common competencies that allied health graduates need in the workplace along with strategies for achieving and measuring them. The complementary goal of

**Table 2.** Membership and work of the C-2000 Task Force

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<p>From the SAHS:</p> <ul style="list-style-type: none"> <li>● Co-sponsors: Dean and Faculty Assembly Chair</li> <li>● Co-chairs: two faculty members appointed by dean</li> <li>● Associate deans for research and academic affairs</li> <li>● Administrative assistant</li> <li>● Eight faculty representatives from all disciplines and divisions within the SAHS</li> </ul> <ol style="list-style-type: none"> <li>1. Review and elaboration of the five charges to the Task Force and a timeline for their completion</li> <li>2. Planning for a meeting with the university president to discuss interdisciplinary education and the university's vision statement</li> <li>3. Review and discussion of prior relevant work in the SAHS including:             <ul style="list-style-type: none"> <li>● <i>Global Recommendations of the Academic Futures Task Force</i></li> <li>● Report from the SAHS Interdisciplinary Studies Work Group</li> <li>● Report from a SAHS leadership retreat</li> </ul> </li> <li>4. Discussion of interdisciplinary efforts elsewhere on campus</li> <li>5. Review of a <i>Proposal for Action</i> drafted by the faculty co-sponsor</li> <li>6. Discussion of mechanisms for keeping faculty at large in the SAHS fully informed about the aims and work of C-2000             <ul style="list-style-type: none"> <li>● The creation of a web site for ongoing faculty commentary and questions</li> <li>● The preparation of a presentation to the Faculty Assembly by the co-chairs</li> </ul> </li> <li>7. A discussion of themes and journal articles related to interdisciplinary education including:             <ul style="list-style-type: none"> <li>● Generic abilities of health care workers</li> <li>● Interdisciplinary education in place at other institutions/universities</li> </ul> </li> <li>8. Barriers to and benefits from interdisciplinary education in SAHS</li> </ol>	<p>From external faculty-at-large:</p> <ul style="list-style-type: none"> <li>● One member from School of Nursing</li> <li>● One member from School of Medicine</li> <li>● One member from Graduate School of Biomedical Sciences</li> </ul>
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**Table 3.** Membership and work of the C-2000 Work Group (all SAHS departments and divisions were represented on the C-2000 Work Group)

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- Conduct or update a literature review on each competency area
  - Reach agreement on the identification of common competencies via examination of accreditation guidelines, other discipline-specific documents, and polling of faculty
  - Consolidate numerous competencies into 11 competency areas and create a four-column template for presenting the findings
  - Form subgroups for in depth work on one to two specific competencies including further literature review, drafts of suggested learning and evaluation strategies on the approved template, and circulation of subgroup work to other work group members and faculty-at-large
  - Reach agreement on strategies presented for acquiring and demonstrating competencies
  - Reach agreement on substantive evaluative and corrective measures
  - Produce a final document
  - Create recommendations and a written report of C-2000's work to faculty
- 

generating support for this interdisciplinary effort demanded equal attention to process issues such as inclusion, clear communication, and the resolution of divergent opinions. These issues had been identified previously by other multidisciplinary curricular planning efforts at our university.

#### *The Membership and Work of the Task Force*

Six C-2000 Task Force meetings occurred between June and December of 1998, during which time members completed the work outlined in Table 2. In these larger sessions, the process followed a typical format of brief presentations interspersed with question-and-answer periods and discussions. Most decisions were based on group consensus rather than formal vote.

As conceptual and logistical discussions ended, the work of creating the C-2000 document moved to the top of the agenda. In January 1999, the co-chairs met with selected members to complete this task, naming them the C-2000 Work Group. This smaller group discussed its tasks, examined a timeline that targeted document completion by July 1999, and met biweekly to complete the work outlined in Table 3.

The C-2000 Work Group met periodically with the larger Task Force to keep them informed. Individual members met regularly with faculty in their disciplines to get responses on work sent to them electronically. When the Work Group met, contributions from these sources produced animated conversations that related to recurring questions about (a) the comprehensiveness and specificity of the document, (b) the prescriptiveness of the document, (c) the degree of measurability of the competencies, (d) the possibility of divergent emphasis on some competencies given disciplinary differences, and (e) the kind of competency monitoring that might ensue in the school.

Group members discussed how best to address these questions, used many venues to allay concerns, and encouraged faculty to read memos, attend

presentations, and review segments of the document. At the end of the allotted time, the final document consisted of a composite of the parallel work of subgroups. The document reflected individual differences in length, terminology, depth of literature review, and the manner in which each competency would undergo substantive evaluation and correction.

## Outcomes

Two other relevant events occurred during the time that the Task Force met: the first involved the development of an interdisciplinary learning activity and the second involved the development of a school-wide committee that could address curricular issues, especially those that crossed disciplines. The learning activity consisted of an interdisciplinary "Grand Rounds" experience in which representative students from the various disciplines in the school reviewed the care plan of an actual patient and elaborated on the role that each health care professional played, or should have played, in the management of that patient. Faculty mentors were assigned to each student group to facilitate the planning and presentation that has occurred each semester, beginning in the fall of 1998.

The formal restoration of a school-wide Curriculum Committee occurred during the spring of 1999. This committee, along with many other school committees, had been dissolved four years earlier when the school's

**Table 4.** Action plan presented by C-2000 Work Group

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- Achieve agreement on the format of the common competencies document
  - Maintain a link between the C-2000 Task Force and the newly established SAHS Curriculum Committee to provide a mechanism for implementation and follow up
  - Conduct two faculty retreats (one for departmental chairs and Curriculum Committee members; one for all SAHS faculty) to plan implementation strategies
  - Support the SAHS Grand Rounds activity by requiring attendance at least twice a year and dedicating time for this activity in all class schedules
  - Plan new learning activities (as opposed to new courses) and modify existing activities to allow students to have more interdisciplinary interactions
  - Initiate a process for certifying that all SAHS graduates have attained common competencies via documentation on transcripts and/or completed portfolios
  - Initiate faculty development workshops designed to build collaborative relationships in teaching, research, and clinical care
  - Expand collaborative education efforts to include all four schools within the university (Schools of Allied Health Sciences, Nursing, Medicine, and Graduate School of Biomedical Sciences)
  - Develop a process for informing current and prospective students about the required competencies
  - Design and maintain a continuous quality improvement (CQI) process for demonstration of the competencies via responses from faculty, alumni, and employers
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**Table 5.** Competencies for Curriculum-2000

Upon successful completion of a degree from the University of Texas School of Allied Health Sciences at Galveston, the graduate shall demonstrate competence within the following areas:

1. Legal, ethical, and moral actions
2. Cross-cultural
3. Establishment of a caring environment
4. Critical thinking
5. Professional role development
6. Knowledge of health care delivery systems
7. Management
8. Research
9. Documentation
10. Communication\*
11. Foundational knowledge

\*The interdisciplinary aspects of communication necessary for teamwork are included in this competency.

**Table 6.** Example of a cross-cultural competency

Common competency	Strategies for acquiring competency	Strategies for demonstrating competency	Substantive evaluation strategies
Provide health care delivery based on health knowledge, attitudes and behaviors to different race/ethnic populations in a culturally sensitive and relevant manner.	Give examples of culturally specific health values, beliefs and behaviors related to health care delivery through the use of a variety of sources.	Allow students to respond to case studies depicting culturally specific values, beliefs, or behaviors that diverge from a western health model.	Assess students' performance using a critical incidence technique in their fieldwork, practicums, preceptorships, or clinical affiliations.

governance system was reorganized. After several months of debate and bylaw revisions, the Curriculum Committee was resurrected a few months before the C-2000 Task Force completed its work. Because many Task Force members recognized the importance of continuity, most of them agreed to serve as departmental representatives to the newly formed Curriculum Committee. One of the designated responsibilities of this committee was to "identify general competencies for graduation and standards for demonstration of such" (SAHS Faculty Assembly Bylaws, 1999).

In July 1999, the Work Group presented an action plan to the entire C-2000 Task Force that included the recommendations found in Table 4. A

formal report of this action plan was presented at the Faculty Assembly meeting the following month. This report summarized the 11 competency statements and presented a list of recommendations for implementing these competencies across the school's curricula (see Table 5). Using the cross-cultural competency as an example, a member of the C-2000 Task Force demonstrated what types of teaching and learning activities might be used to *acquire* this competency, processes by which students could *demonstrate* their competence, and strategies that could be used to *evaluate* the process and its outcomes (see Table 6). A video demonstration of a simulated learning activity was included.

Much of the discussion that followed the presentation to the Faculty Assembly focused on the role of the Curriculum Committee in implementing these recommendations. Questions arose regarding who would be responsible for designing and implementing the recommended curricular changes. To address these concerns, the dean organized a planning retreat and invited members of the C-2000 Work Group, departmental chairs, officers of the Faculty Assembly, and the associate deans to identify the systems needed to support and maintain the new curriculum.

After the retreat, the school embarked on a process to integrate the C-2000 recommendations into each department's curriculum to allow interdisciplinary activities among students in our school. This process ultimately involved every faculty member, and we have encountered many of the obstacles noted by others as they implemented similar curricula. The process requires diligence and patience in bringing groups together, especially with respect to discipline-specific constraints that might hamper cooperation. We are poised to begin with one to two activities per semester with the intention of integrating modifications in the process as necessity dictates. We hope to report on our progress in about 2 years.

## Lessons Learned

Those involved in the process of developing C-2000 have collectively summed up lessons learned during the process. These may serve as suggestions for others interested in completing similar projects elsewhere:

1. Begin early to solicit ongoing support from departmental chairs and other faculty so that there is considerable "buy in" when the proposal is ready to implement.
2. Decide on more specific or formulaic ways of producing all documents or ask someone to edit all documents, so that diverse writing and thinking styles create less variability in the final products. Having a template or grid does not assure that individuals working parallel will complete it in similar ways.

3. Use committee meeting times and faculty meetings to quickly sum up major events and decisions within the committee. Do not assume that e-mail communications or paper memos alone will keep everyone informed.
4. Make sure that all "opinion leaders" are involved in the process. Simple representation from departmental units or disciplines is not sufficient to ensure adoption and implementation.
5. Never underestimate the amount of time it takes to gain consensus across disciplines that aim to preserve and protect domains of practice and have been socialized into emphasizing differences and distinctions rather than shared values and goals. With the identification of common competencies comes the threat of diminished disciplinary identity, particularly in a national milieu in which multi-tasking has been suggested by hospital administrators.
6. To overcome inertia in the implementation phase, plan to use incentives to encourage players to consider alternatives to the status quo. For students, this means that recognition and credit must be given for participation. Relying on good will or an appreciation that there is value added for team-oriented approaches is insufficient to produce enthusiasm for the additional effort required. Similarly, for faculty, there must also be incentives and rewards, in the form of recognition for promotion and tenure and additional compensation for effort viewed as additional workload.

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