Providing interprofessional learning through interdisciplinary collaboration: The role of “modelling”

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Abstract
Faculty from four disciplines at a small Liberal Arts College in an American Midwestern city collaborated on an interdisciplinary pre-service project. Students in nursing, physical therapy, social work and special education voluntarily participated in one of two group methods of teaching. The purpose of this study was to examine whether students learn interprofessional teaming more effectively from (i) discussion of research, faculty modeling and role-playing, or from (ii) discussion of research and role-playing. Results from the evaluation suggested both groups benefited from discussions and role-playing related to interprofessional team meetings. A significant difference between students who observed faculty modeling and those who did not was found. The paper discusses the importance of preparing college students for interprofessional collaboration in light of current research.

Keywords: Interprofessional education, interprofessional collaboration, modeling, evaluation

Introduction
Public schools across the United States are faced with challenges arising from students in need of specialized services, often related to health care. Research suggests these challenges often go beyond the scope of “teaching” (Bronstein, 2003). Health care professionals may find themselves teamed with educators in care-planning for young clients in school while also addressing the needs of families, schools and communities. Educators in professional programs struggle with the necessity to advance college curricula to keep pace with societal, financial and cultural changes (Brown et al., 2003; Duchardt et al., 1999). It is now apparent that the biomedical model of health care has given way to a broader definition, and provision of care may be needed from a variety of sources (Dyer, 2003; Irvine et al., 2002; Richardson & Montemuro, 1999). Proactive educational changes are needed to acquaint students in education and health care professions with the potential for working collaboratively toward quality outcomes as part of interprofessional teams (Atwal & Caldwell, 2002; Cobin et al., 1997; Freeth & Reeves, 2004; Gilbert et al., 2000).
This paper describes preliminary results from an interprofessional pre-service project at a small, Liberal Arts College in a medium-sized Midwestern city in the United States. Originally two faculty members in nursing and special education recognized their shared learning goals for their pre-service and entry level students, effective communication and collaboration skills. Through informal conversations, the faculty members began to envision a potential interprofessional educational experience, as defined by Barr (2002) where two or more professionals come together to learn from and about each other to improve collaboration. Colleagues from two additional disciplines (physical therapy and social work) were recruited to the project with the idea that these disciplines might share similar student outcomes. The faculty felt that although professional roles of the team members could be taught, modeling the actual roles and interaction amongst members would demonstrate the learning to and from each other. Without funds or release time for the faculty, an evening program was organized and student volunteers were recruited from all four of the disciplines; education, nursing, physical therapy and social work. This initial project exposed students to a “model” of a school-based interprofessional team meeting as presented by the instructors from these disciplines. In other words, the faculty members modeled an Individualized Education Plan (IEP) meeting for a hypothetical elementary-aged student with a traumatic brain injury. The college students were then asked to discuss what they had witnessed and how they might professionally apply the information. Discussions took place in small groups where disciplines were equally represented.

The IEP meeting refers to any gathering of school or district employees where children with disabilities (those who meet eligibility criteria or who are being evaluated for eligibility) for special education services are discussed (Iowa Department of Education, 2005). In the US and most European countries, laws concerning the rights to an education for children with disabilities include specific requirements concerning how meetings are conducted and who must be present. According to US federal law, the Individuals with Disabilities Education Act (IDEA), attendance is required for persons knowledgeable about the child and areas of suspected need in such meetings (Office of Special Education Programs, 1997). Therefore, the authors’ meeting included professionals from the various disciplines as a realistic way to address the hypothetical student’s special educational needs.

The success of this project was first realized when, after three hours of volunteer time, students verbally expressed disappointment with having to discontinue discussions; they wanted more time to continue to talk within their groups. They openly expressed a desire to have the opportunity to be more involved and suggested that in the future students might conduct a simulation of a team meeting amongst themselves. From this experience arose the concept of a future interdisciplinary teaching experience to assist students in developing skills of communication and collaboration.

Background

College and university faculty are challenged with ongoing pressure to ensure undergraduate and post-graduate students achieve outcomes based upon practical skills. This is compounded by increasing amounts of information to be included in curricula as the result of evidence-based practice and technological advances (Bronstein, 2003; Hall & Weaver, 2001; Mogensen et al., 2002). Traditionally, teachers and allied health professionals have been trained in specialized skills within defined areas. Traditional curriculum relies on profession-specific content with little emphasis placed on interprofessional problem-solving. Knowledge of how and why specialized teams of professionals function is stressed during didactic learning (Erickson et al., 1998; Richardson &
Montemuro, 1999). This may be particularly true with institutions that have difficulty establishing relationships with collaborative community practices or settings. Instruction in multidisciplinary collaboration and communication is further complicated by a lack of interaction amongst different disciplines prior to field practicum or clinical training.

In Britain, Canada and the United States, educators are aware that students becoming teaching specialists require exposure to health care providers and their diverse services to better understand how individual students’ special needs may be met (Annadale et al., 2000; Dyer, 2003; Gilbert et al., 2000; Tucker, 2002). In addition, allied health students need to understand educational systems to be better able to offer appropriate assistance. The more exposure to other disciplines, the greater the knowledge of each others’ professions and of specific roles each can play in students’ lives. The value of interprofessional teams working together has been established (Richardson & Montemuro, 1999; Ryan, 2001). Overall, interprofessional teams working toward common goals may provide a better overall quality of service delivery (Fosnaught, 2002; Freeth & Reeves, 2004; Lymbery, 1998).

What makes an effective service providing team?

Being an effective team member involves experiencing and participating in collaboration. According to Olson (2003), collaboration is the ability to reach goals that cannot be reached by working alone within one’s singular discipline. Berg-Weger & Schneider (1998) define interdisciplinary collaboration as an interpersonal process with participants from different disciplines contributing and agreeing upon a common goal or product. Interdependence, flexibility and collective ownership of goals are participant characteristics within interprofessional collaboration (Bronstein, 2003). Moving from parallel relationships as service providers to active collaborators from differing backgrounds often involves challenges. These can include lack of understanding with regard to service providers’ abilities, experience, values and organizational missions. In addition, team collaboration may be slowed as a result of perceptions of power imbalance and an underlying sense of competition, rather than cooperation between providers (or organizations).

Various research has shown that establishment of effective, interprofessional teams involves gaining knowledge of other team members, and validating each other’s roles, dealing with conflict, and working with other professionals to provide care for others (Anderson-Butcher & Ashton, 2004; Barr, 1998; Olson, 2003; Soler & Shauffer, 1993). Creating team collaboration invites practice in establishment of trust and respect outside one’s own professional group. Communication skills must be in place to encourage connectedness between team members. This environment allows for awareness of equal power and fosters shared decision making, responsibility and authority. Successful teams ultimately focus on establishment of common goals. Such focus demands flexibility of team members as to how such goals will be achieved. Overall, putting aside individuality to achieve positive outcomes for service users requires an interprofessional approach that is characterized by learning with and from other professionals (Barr, 2002).

Teaching students interprofessional awareness and collaboration through appropriate communication has been left, in the past, to clinical or field experience and exposure (Atwal & Caldwell, 2002; Bronstein, 2003). Effective clinical models for teaching teamwork are not always available (Strohschein et al., 2002). Experiential learning appears to be the most positive, as opposed to traditional classroom lecture; however, clinical experience may not always be available due to time constraints and/or environmental limitations.
Evaluation

The project was evaluated by the use of a pretest and posttest quasi-experimental design in which students were randomly assigned to receive two different interprofessional teaching approaches. The evaluation aimed to address the following question: “do students learn interprofessional collaborative teaming more effectively from (i) discussion of research, faculty modeling and role-playing or from (ii) discussion of research and role-playing alone?”

The first interprofessional teaching approach consisted of students (Group A) reading three articles on interdisciplinary collaboration (Anderson-Butcher & Ashton, 2004; Ries, 2002; Tucker, 2002) prior to coming together; they discussed the articles in small groups, with each discipline being represented, and then observed an interprofessional team meeting in which faculty “role modeling” occurred. Team members consisted of faculty members from the four disciplines involved in the study; Nursing, Physical Therapy, Social Work, and Special Education. The students subsequently role played a second case (representing their individual disciplines as a team member). The second approach, consisted of students (Group B) reading the same articles on interdisciplinary collaboration prior to coming together, discussing the articles in a group, and then role playing as a team member without observing an interprofessional team meeting demonstrated by faculty members.

Sampling

A sample of convenience was utilized for the study with the goal of identifying ten students per discipline, a total of 40 students, who met the minimum requirement of junior (third year student) standing or above. The students were then invited to attend an evening meeting. Students were randomly assigned by their profession to two groups (A or B) and placed at a table with students from other disciplines. There were 19 students in Group A and 18 students in Group B, totaling 37 students who completed the study.

Data collection and analysis

Students completed a pretest at the beginning of the evening asking them to give their understanding of each of the four professions. Using a Likert scale, they were asked to what extent they agreed that the articles were helpful, that interprofessional collaboration was valuable to their preparation for their chosen profession, and to what extent they agreed that they felt prepared to participate in an interprofessional team meeting. Students were then given a post-test to complete at the end of the evening’s activities. The pretest and posttest instruments were not validated as this was seen as a first step in understanding student experience of collaboration. Data were analyzed using the statistical package for the social sciences (SPSS).

Results

Thirty-seven students participated in the study. Thirty-two percent (n = 12) of those who participated in the study were nursing students, 30% (n = 11) were physical therapy students, 22% (n = 8) were social work students, and 16% (n = 6) were special education students. One hundred percent of the students strongly agreed or agreed that reading research articles prior to the evening was helpful in their understanding of interprofessional
collaboration and 73% strongly agreed and 26% agreed that the topic of interprofessional collaboration was valuable in their preparation for their chosen profession (see Table I).

Using Chi-square as a test of significance there were no differences between Group A (the group that experienced the team modeling by faculty members) and Group B (the group that did not experience the team modeling by faculty members) in participating in the role-playing and in the discussion related to the articles. Both groups strongly agreed that the role-playing and the discussion was helpful in their understanding of interprofessional collaboration. However, Group A felt more prepared to participate in a team meeting than did Group B (Chi-square = 23.49, df = 2 p < 0.01) (n = 37). Sixty-seven percent of group A strongly agreed that they felt prepared to participate in a interdisciplinary team meeting, while only 33% of group B strongly agreed that they felt prepared to participate in an interprofessional team meeting (see Table II).

The articles, discussion, and role playing were equally helpful to both groups. The group that experienced the modeling of an interprofessional team meeting by faculty members felt more prepared to participate in a team meeting than those who did not experience the modeling. A qualitative analysis of the perception of each others’ profession both prior to the meeting and at the end of the meeting is currently underway. It is hypothesized that Group A will be able to articulate the depth of others’ roles after observing the faculty model an interprofessional team meeting.

As part of the questionnaire, students in Group A were provided with an open-ended question asking for their impression of the modeling. Overwhelmingly, their comments reflected a deeper understanding of the importance of bringing together multiple perspectives. One student responded: “I learned how important it is for collaboration among the team members. Each discipline had something to offer about the child”.

Another student used the metaphor of a puzzle to describe the dynamics of the faculty modeling an interdisciplinary meeting: “with one piece (discipline) missing, you might not get the results you wanted; kind of the same way a puzzle works, it’s not complete”. Several students mentioned the issue of terminology and the need to “be on the same page”. They also expressed an increased sensitivity to using “language that all members can

<table>
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<th>Frequency (n)</th>
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<td>Total</td>
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<th>Feels prepared</th>
<th>Group A</th>
<th>Group B</th>
<th>Total</th>
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<tr>
<td>% (n)</td>
<td>% (n)</td>
<td>% (n)</td>
<td></td>
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<tr>
<td>Strongly Agree</td>
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<td>28 (5)</td>
<td>38 (14)</td>
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</tr>
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<td>Total</td>
<td>100 (19)</td>
<td>100 (18)</td>
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understand”. The comments from these students suggest their observation of an interdisciplinary meeting provided them with an opportunity to “see how each team member contributes”. These students were therefore given one more avenue (beyond the reading of articles and discussion) for learning how interdisciplinary team meetings might play out, and this avenue might have contributed to their higher confidence level in their own preparation for participating in such meetings than those in Group B who did not observe the role play.

Discussion

Academic settings in the United States are continually challenged to provide competent professionals in the fields of education, nursing, physical therapy and social work. Delivery systems within many environments demand interprofessional collaboration and appropriate communication. These are areas alluded to, but not often experienced during academic learning. A range of strategies for teaching young professionals the art of collaboration and communication are now under investigation to prepare graduates for team-based work environments.

In this evaluation, college students entering the fields of nursing, physical therapy, social work and education were exposed to learning situations dealing with collaboration and communication in an experiential format. Prior to the evening of research, students were assigned to read articles related to interdisciplinary teaming. They were encouraged to discuss information prior to role playing as team members. All students who were involved felt they would be better able to participate in an interprofessional team meeting, during a clinical rotation or practicum placement, more than they did previous to the start of this project. Students, who participated in Group A, experiencing “modeling” as a means of teaching, appeared to be more confident and felt more prepared in their ability to participate in interprofessional groups. In addition, initial analysis of open-ended questions suggests qualitative gains have occurred for all participants.

The value of modeling can be expanded by use of variety in scenarios. In the present research, the “model” demonstrated learning of each others’ roles, elements of mutual respect, active listening, compromise, client-centered concern, and client-centered goals. Scenarios might be conceived to show the exact opposite or to bring out specific hurdles faced in an assortment of situations. Different dimensions of the “model” might be created by utilizing faculty from other professions (or disciplines). Adding “family members” to the team could also create other opportunities for student learning.

Further investigation and evaluation of timeliness is necessary as to when this sort of training might occur within various curricula. There is evidence that early exposure to interprofessional learning is beneficial (e.g., Cooper et al., 2001). We questioned whether students benefited from early exposure to the concept of interprofessional teaming or should some clinical/field experience have taken place prior to this experience? Do students benefit as a result of additional knowledge near the end of their academic training or are professional stances already entrenched nearing the end of didactics? The question of adding information at any point becomes important when curricula are already experiencing severe time constraints.

One of the challenges in using “modeling” as part of curriculum is the initial time commitment needed for creating appropriate scenarios. Weekly planning sessions were helpful and necessary in keeping the team on track as was email communication about many of the details connected to the learning experience. Initial discussions positioned planning based on hierarchical categorizations of learning, yet without scenario details (Beck et al.,
Once detailed information was created, less meeting time was necessary, although ongoing assessments and revisions took place via emails and brief face to face discussions. Another addition to this project might have been follow-up studies done by all disciplines to discover the value of the readings, discussion, modeling, and team role-playing events to students during actual clinical rotations. Ideally, transfer of learning (knowledge, attitudes, skills, beliefs) into results (effects within an environment) occurs as students grow professionally (Beck et al., 1988; Cooper et al., 2001). Repeated use of modeling scenarios as a teaching tool would most probably be necessary to enable licensed entry level professionals faced with adverse relationships within a team situation to be equipped to work toward greater collaboration. Follow-up with students exposed to ‘modeling’ learning could show such transfer. Of course, the proximity of the learning experience to actual practical application for students after graduation would be a consideration in longitudinal follow up studies. Any such efforts at tracking would be appropriate for future projects undertaken to determine significance of pre-licensure education to the students professionally.

Conclusion

“Modeling” may be a way to introduce interprofessional interactions. A minimum of one exposure to interprofessional teaming prior to actual graduation appears valuable for a smoother transition to post-graduate work experiences. Additional learning situations of the same type could reinforce learning. This evaluation indicates students’ desire to experience interprofessional collaboration within the academic setting in preparation for entry into their individual professions. Although the requirements for professional disciplines continue to increase, the importance of interprofessional collaboration cannot be minimized. This research identifies one strategy for teaching such collaboration. On-going research is indicated to explore the further use of “models” integrated into already existing curricula.

References


