A Holistic Approach To Teaching Evidence-Based Practice

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Articles pertaining to evidence-based practice have become increasingly visible in occupational therapy literature. Authors have defined and described evidence-based practice for occupational therapy (Lloyd-Smith 1997; Taylor 1997), identified resources that therapists can draw upon to inform their practice (Hayes & McGrath, 1998; Lieberman & Scheer, 2002), and articulated strategies to gather research evidence in practice (Tickle-Degnen 2000a; Unsworth, 2000). As associate editor of the American Journal of Occupational Therapy Evidence-Based Practice Forum, Tickle-Degnen has also written a series of articles that explain how to engage clients in the research process, and communicate research evidence to clients and families (1998, 2002).


Some authors have articulated the challenges of being an evidence-based practitioner (Dysart & Tomlin, 2002; Gervais, Poirier, Van Iterson, & Egan, 2002); others have described strategies that can be used to respond to staff resistance and systems constraints that may hinder evidence-based practice in clinical settings (McCluskey & Cusick, 2002). In addition, clearly written, easy-to-use resources are available to help therapists systematically review published research (Law, Stewart, Letts et al., 1998a, 1998b; Law, Stewart, Pollock et al., 1998a, 1998b). However, despite this broad range of discourse and the American Occupational Therapy Association’s emphasis on incorporating this content in occupational therapy education, (Accreditation Council for Occupational Therapy Education, 1999) aside from Tickle-Degnen’s (2000b) and Cope’s (2001) work, there are few articles that offer practical ideas for teaching evidence-based practice in occupational therapy academic programs.

Tickle-Degnen’s and Cope’s examples are somewhat similar. Tickle-Degnen (2000b) described evidence-based practice content as being woven into a research methods course. Cope (2001) described an extended class project that had students engage in a comprehensive evidence-based practice review for a specific clinical issue. Both reported positive outcomes from their course design. However, given the challenges involved in developing and sustaining the habits of being an evidence-based practitioner including time constraints, productivity demands, and difficulty in accessing and understanding research literature (McCluskey & Cusick, 2002), occupational therapy educators must offer a broader perspective on this topic by articulating the real challenges of evidence-based practice and help students develop capacities to anticipate and respond to these challenges in clinical settings. If we do not give voice to these realities, we run the risk of perpetuating yet another form of the “theory-practice divide.”

As occupational therapy educators continue to enhance the timeliness and sophistication of their educational methods, examples of how this is conducted
are needed. Stern (2001) articulated the importance of “. . . linking educational purpose with educational method” (p. 104). In this example, the course design and core teaching-learning activities of a qualitative research course simulated the real-life activities of doing qualitative research. The course outcomes were highly positive as students described an optimistic view of their ability to anticipate and respond to challenges of doing research (Stern, 2001). The purpose of this paper is to describe the format and outcomes of an evidence-based practice course that mirrored this educational philosophy and presented a holistic view of challenges, opportunities, and professional responsibilities inherent in being an evidence-based practitioner. A unique configuration of teaching-learning activities served as venues for an integrated exploration of the topic.

Course Description

During the summer of 2003, I designed and taught the course Evidence-Based Practice to 29 fifth-year master of occupational therapy (MOT) students. This 3-credit lecture and laboratory course was scheduled for 2 hours of in-class time and 3 hours of independent study per week for a total of 9 weeks. The overall course design consisted of assigned readings, in-class discussions, seven homework assignments, and an extended research project. Each facet of the overall course design was constructed to relate to each other and to the overall topic of evidence-based practice. In addition, careful attention was paid to integrate the principles of evidence-based practice with two other concurrent summer courses and the students’ Level II fieldwork experiences that were to begin the subsequent fall semester.

Students also complete courses in Community/World Health Care Issues and Administration during the summer session. These two courses are in and of themselves tightly organized and well-integrated. A major extended assignment that is coordinated between these two courses requires students to develop a program plan for a community agency in the local area that does not currently provide occupational therapy services. The program development project is an elaborate and sophisticated plan that fully integrates content and objectives from the two courses, and has in its own right been highly successful. However, over the past few years, feedback from community agencies has noted the importance of including research evidence to document the viability and outcomes of the various programs that students propose. This feedback provided an impetus for me to help students further integrate their educational experience by applying principles and activities of evidence-based practice to their program development project.

Developing Skills of Inquiry

At the beginning of the summer term, students are assigned to program development groups for their Community and World Health Care Issues and Administration courses. These groups were maintained in the evidence-based practice course. Students completed half of their evidence-based practice course assignments within these groups, and half of their assignments independently. After an introductory class session where the students synthesized content from Barrows (1990), Bennett and Bennett (2000), Holm (2000), and Tickle-Degnen (1999), students completed their first homework assignment and worked within their evidence-based practice group to develop two descriptive, two assessment, and two intervention questions that reflected Tickle-Degnen’s (1999) delineation of overall types of evidence-based practice questions. The descriptive, assessment, and intervention questions reflected general issues pertaining to the community programs they were developing within their other two courses. These questions provided the foundation for the research that would be completed for each student’s evidence-based practice research paper and could be used to enhance the program that was being developed for the other two courses. Students received a grade for the paper in the evidence-based practice course only.

Students reviewed their questions in class the following week and made revisions based upon feedback from other students and myself. Within each group, each student then selected one descriptive, assessment, or intervention question to research independently (see Figure 1). As a result, each group had the opportunity to access research information on descriptive, assessment, and intervention issues that were related to the program they were developing. The pedagogy served two purposes. First students were using the inquiry, literature search and synthesis skills that are inherent in evidence-based practice. Second, students were accessing information that would contribute to their efforts in other courses.

Students were required to access six to eight peer-reviewed journal articles that addressed their evidence-based practice question. Clearly this was a challenge made even more difficult because of the dearth of research evidence concerning outcomes of community-based interventions (Hausman, 2002). Students found that they had to search for literature and venture out of their “comfort zones” of the American, British, and Canadian journals of occupational
Barrows (1990) discussed the importance of students developing skills of inquiry for clinical practice. Occupational therapy students must have opportunities to develop these skills and as part of that process, understand that the first question they ask, especially in research, is not necessarily the question that will yield the most substantive or relevant information. The above comments reflect students using skills of inquiry. Students participated in a research process that is “messy” as many of their original questions shifted and changed as they searched the literature and thought about their topic. Students also realized that they would not be able to find information on their specific program. They had to broaden their lens and look for overall descriptors, assessments, and intervention methods. They had to search for information on “youth at risk” or “well elderly” or “children who might benefit from early intervention services,” not the service or program that they were developing. Some students expressed frustration with the challenges of finding information about their topic. Others questioned the need to revise their questions. Some referred to the process as “busy work.” This minor grousesing was perhaps due to limited experience with the research process and a novice level of professional development in some students. However most realized the importance of fine-tuning research questions to access the most relevant literature for their inquiry.

Figure 1. Sample Questions for Students’ Evidence-Based Practice Papers.

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<th>Descriptive</th>
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<td>What are the general patterns and individual variations in the needs of adults living in a low income area that could be served by an adult wellness program?</td>
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<td>What are the general patterns and individual variations in the types of personnel who provide intervention at health promotion/wellness programs and their roles in these programs?</td>
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<td>What environmental factors have the greatest potential to put a child “at risk”?</td>
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<td>What are the characteristics of a “fatherhood program” that lead to a healthy relationship between a father and his children?</td>
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<th>Assessment</th>
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<td>What are the most reliable and valid ways of assessing occupational performance in the elderly?</td>
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<td>What assessments are most effective at evaluating home safety in the elderly who live in the community?</td>
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<td>What methods can be used to measure the effectiveness of a fatherhood program?</td>
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<th>Intervention</th>
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<td>What interventions are most effective at preventing falls from occurring in elderly persons living in the community?</td>
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<td>What are the most effective interventions for promoting wellness among adults in the community?</td>
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<td>What interventions are effective for preventing violence in at-risk youth?</td>
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<td>What are the most effective interventions for successfully re-integrating homeless women and their children back into the community?</td>
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<td>What are the effects of mentoring programs in reducing the contributing factors of at-risk youth?</td>
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therapy and access journals from nursing, psychology, education, community health, and social work. Initially, most students seemed to believe that once they had developed their question, they would have a stable “blueprint” for their research. However, during the semester, I received e-mails from many students articulating a decision to change or modify their question. For example:

As I have been researching my question, “What are the most valid and reliable methods of assessing school readiness among children with sensory processing difficulties?” I have . . . been able to find a lot of information about school readiness testing, but none is specific to children with sensory processing difficulties. . . . It seems to me that the same assessments are used to measure school readiness in all children who are at risk to have difficulty with school performance. . . . I think that I should revise my question. . . .” What are the most reliable and valid methods of assessing school readiness among children at risk for developmental delay?” would make more sense.

. . . I have been experiencing a great deal of difficulty locating articles relevant to the question I chose to research for the paper: “What is a typical day like for youth termed ‘at risk’?” I’m finding that most of the literature I have come up with deals (in some way) with causes of youth at risk. Therefore . . . I’m going to switch my question . . . to “What environmental factors such as family, community, and school potentially have the influence to put a child ‘at risk?’”
Gathering Real-Life Perspectives

Students read articles by Dubouloz, Egan, Vallerand, & vonZweck (1999), Dysart & Tomlin (2002), and Gervais et al. (2002) concerning challenges and opportunities for incorporating evidence into occupational therapy practice. In class we discussed the real-life challenges to being an evidence-based practitioner including time constraints, an emphasis on productivity, and therapists’ perceptions that research findings can be difficult to understand and may lack relevance to clinical settings. We discussed these issues in order to maintain a well-rounded, well-informed perspective.

A second homework assignment furthered our inquiry into this facet of evidence-based practice. The purpose of the assignment was for students to elicit therapists’ understanding of and participation in evidence-based practice. Students were required to develop a semistructured interview to administer to two occupational therapy practitioners. Although the interviews were developed within the existing evidence-based practice research groups, each student independently interviewed two occupational therapy practitioners. I received institutional review board approval from Duquesne University for the assignment, which enabled the students to contact and interview occupational therapists in the community. Students developed six- to eight-question interviews based upon the literature and their foundational knowledge of the “theory” and “practice” of evidence-based practice. Although each evidence-based practice research group developed their own interview, we compared students’ draft interview questions among the different groups as a way to enhance the substance and quality of their questions and insure some consistency within the class. This assignment reinforced the pedagogical emphasis on inquiry, as the students generated questions, critiqued and rethought first drafts, analyzed questions for substance and relevance, and made revisions based upon external feedback and self-reflection.

A total of 55 occupational therapy practitioners were interviewed, representing nine different types of practice settings. Students recorded their interviews as field notes and also wrote a summary of each interview. After the students completed their interviews, we spent a class session synthesizing and discussing their results. Results from the students’ interviews yielded information that was very consistent with the existing literature. Therapists described evidence-based practice as “a way to back up or show the effectiveness of treatment techniques and practices,” “treatment approaches based upon formal and informal research,” “how we explain what and why we do what we do,” and “a way to provide the best practice possible.” Therapists cited time constraints and ongoing clashes between valuing research evidence to guide practice and demands for productivity as major challenges to their practice.

In class, we discussed the implications of the findings to the students as individuals, as they would soon be transitioning to their Level II fieldwork. Our dialogue emphasized the valuable opportunity that fieldwork affords students to contribute to clinical and research excellence. We affirmed the importance of students entering into clinical fieldwork settings with a clear view of the challenges, opportunities, and rewards of being an evidence-based practitioner, their responsibility to develop this aspect of their professional self, and their unique opportunity to gently and appropriately influence clinical practice. Students commented:

Initially, I did not like the interview assignment. I thought that it would be difficult to get two OTs to take time out of their days to talk with me. Actually doing the interviews was very interesting. The OTs seemed very willing to talk about EBP [evidence-based practice], and it gave me a sense as to how EBP is used in the “real world.”

As much as the interview was kind of a pain to do, I really learned a lot from doing it and it helped to make me realize the importance of the research project I’m doing.

Practicing the Habits of an Evidence-Based Practitioner

Literature search and review assignments are ubiquitous in occupational therapy education. Two such homework assignments were included in this course. The first assignment directed students to access and review one qualitative and one quantitative research article related to their upcoming Level IIA fieldwork, the second directed students to access and review articles related to their Level IIB fieldwork. Students were directed to access any articles that were of interest to them and that were relevant to their fieldwork site. They completed Law, Stewart, Letts et al.’s (1998a) and Law, Stewart, Pollock et al.’s (1998a) qualitative or quantitative review forms for each article they reviewed.

At this point in their academic career at Duquesne University, the students are highly skilled at searching the literature. They had little difficulty accessing and summarizing the articles and they were adept at using the structured review forms. However, the emphasis for these two homework assignments was on developing and advancing the habits of being evidence-based practitioners not on searching and recapitulating the literature. Specific skills and behaviors included inquiry, high quality discourse, evaluating research for clinical utility, and leadership.

During the two class sessions that were devoted to discussing the various articles, students were placed in small
groups that reflected the overall type of fieldwork settings for their Level II A or Level II B fieldwork; for example, acute care medical, pediatrics, rehabilitation, home health, or psychosocial rehabilitation. Students were advised to discuss the research articles they had reviewed in a way that would be similar to a journal club in a professional setting. The rationale for this instructional strategy was twofold. First, students were practicing a professional behavior that they had read about in the literature but not really practiced, as journal clubs are one strategy that has been cited as a viable contributor to infusing evidence-based practice in clinical settings (Tickle-Degnen, 2000a). Second, students were being encouraged to think about how they could demonstrate leadership and actively contribute to their Level II fieldwork site. In searching literature that was relevant to their fieldwork placement, students could contribute new information that was pertinent to the clients they would encounter and serve at the site. Students were encouraged to retain and share these articles with their fieldwork supervisor and demonstrate the self-directed, independent learning skills that are so important in clinical practice.

There were marked differences in the quality of the small group discussions between the first set of articles and the second set of articles. During the first session, students had noticeable difficulty in sustaining a high-level, professional discussion, despite having completed the qualitative and quantitative review guides for each article. Many students articulated a “been there, done that” attitude as they had read “countless” other articles for other courses. They presented and discussed their articles quickly and then became distracted by unrelated conversation. We discussed my observations at the beginning of the second session and I hypothesized to the students that there was a “disconnect” between the level of professional development I assumed existed and the actual level that the students were at with this particular behavior. The “disconnect” related to the overall issue of inquiry that I had been emphasizing throughout the course. Students found it difficult to structure and sustain a collegial, professional discussion. They needed help generating questions and in being curious without someone telling them what they should be curious about. As a result, we spent time reinforcing the value of reading for one’s personal and professional development, and the importance of their sustained effort towards developing this habit. We also brainstormed numerous questions that they could use to guide their own exploration and discussion of content (see Figure 2). Giving voice to the students’ novice level of professional development and adding a basic structural element seemed to address the students’ difficulties. There was a notable difference in the level of discourse between the first and second session.

Considering the six to eight different articles that were discussed in your small group:

- How did the research that was presented in one article support or refute the research that was presented in another similar or related article?
- If two students independently located and reviewed the same article, were their summaries and impressions of the research consistent? What different impressions and understandings, if any, emerged?
- How useful would the research that was presented in each of your articles be in the clinical setting you are going to for Level II fieldwork?
- How consistent were the results of each study with any prior clinical experience you have had? Discuss and give examples.
- What were the most interesting aspects of each article? Identify more than one per article.
- What could have been improved in any of the articles?
- How well written were the articles? How do you decide for yourself whether an article is well written? What did the author do well? What suggestions do you have to improve the article?
- How did each of the articles contribute to your knowledge and professional development? What connections can you make between the content presented in these articles and previous readings you’ve done in the program, in other courses?
- In what ways did you enhance, reevaluate, or change your thinking about the topic that was presented in the research?

Figure 2. Sample Questions for Journal Club Discussion.

Leadership in Evidence-Based Practice

Another homework assignment was designed to promote students’ professional development as they prepared for Level II fieldwork. Students worked independently or with one or two classmates who were scheduled to complete Level II A fieldwork in a similar practice setting (see above description of how students were placed in literature review groups) to design a 45-minute in-service on evidence-based practice that they could conduct while on fieldwork. The students’ in-service plans included content on evidence-based practice, at least one teaching-learning activity, suggested or required readings for the practitioners to complete, and a list of supplemental readings. The rationale for this assignment was that many fieldwork sites require or request students to design and give at least one in-service training session as part of their fieldwork program. This
homework assignment provided a way for students to synthesize all they had learned about evidence-based practice during the summer, design an educational session that would be interesting and relevant to the occupational therapists at the fieldwork site, and organize and prioritize the content in a way that was manageable for them to communicate to others.

These students will return to the academic program for a final series of courses after they complete their two level II fieldwork experiences. At that time those who had the opportunity to give the in-service they designed will have a chance to share the outcomes of their efforts.

Wearing a Different Hat: Peer Review

The final homework assignment emphasized an aspect of scholarship that challenged the students’ abilities in a different way. Students were required to submit a first draft of their evidence-based practice paper during the 6th week of the 9-week session. The homework assignment directed students to complete a blind, anonymous, peer review of another classmate’s draft paper, and submit their written critique within 3 days of receiving the paper. Students submitted their papers to me, and I matched reviewers with draft manuscripts. Author and reviewer were anonymous in this assignment.

Initially, this assignment promoted a good deal of anxiety among the students. Students expressed concerns that their review might adversely affect the grade a classmate would receive on their final paper, that they were not qualified to provide such important feedback, that they “wouldn’t know what to write.” To quell some of their anxiety, in class we discussed Chilton’s (1999) suggestions for writing high-quality peer reviews. I also provided students with an outline of overall things to consider for each section of the paper (see Figure 3). Students were also reminded that the purpose of the assignment was for them to practice skills of formal review and critique. They were being graded on the quality of their critique; their critique would not affect the final grade that their classmate received on their paper.

Students submitted two copies of their written critique and their marked-up copy of the draft paper that they

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**Suggested Guidelines for Critiques**

Following are some suggested guidelines to help you focus your critique. However, this is not an exhaustive set. You will likely consider other aspects of content and writing style.

**Title:** Interesting? Concise?

**Introduction:** Sets the scene, makes a compelling, interesting case for what will follow, explains why the review was undertaken, addresses what we know, what we don’t know about the topic.

**Objective/Question(s) Addressed:** Interesting? Meaningful? Clearly stated.

**Literature Search:** Clearly explains how the literature was searched, explained Database searches, what years, key words, How else did the author search? Was the search process extensive to convince the reader that sufficient effort was made? Were any terms not searched that could enhance the process?

**Inclusion/Exclusion Criteria:** What criteria were used? Did the author sufficiently explain what criteria were used to include or exclude studies from their review. Did this make sense, was it logical?

**Review Method:** How well did the author explain how they organized the review? What were they looking for? How did they differentiate if they had qualitative and quantitative reviews?

**Results:** Do the results address the question? There are different ways to summarize. Was each article summarized individually? Did the author pull the information together? Did the method for providing results seem logical?

**Summary Table:** What did the author choose to include in the summary table? Is information provided so that an interested consumer could get an easy reference to what was reviewed, and the most important features? Is the table well organized? Clearly labeled, easy to read?

**Recommendations:** Does the author make recommendations based upon evidence? How clear? Specific? Does the author go beyond “more research is needed”?

**Summary:** Ties the previously presented work together.

**References:** Six to eight journal articles, APA [Publication Manual of the American Psychological Association] citation format.
reviewed. One copy of the critique identified the student-reviewer by name and was graded as a homework assignment, the second copy without their name was returned to the original author, along with the marked-up paper. Students then had 2 weeks to complete their final evidence-based practice paper, using the feedback from the critique as they saw fit.

Despite their initial anxiety, the students’ reactions to this assignment were uniformly positive. Students commented on the utility of the experience in a variety of ways. Many commented that prior experiences in giving constructive feedback had “made them feel bad” but that providing and receiving feedback in this manner had helped them understand that “the information is not meant to be mean, it is just meant to help.” In addition, students expressed having gained a valuable perspective and added confidence in their own professional development. “At first I was not sure what I was going to write, but as I read through the paper, I noticed things that just didn’t seem to make sense. A connection was missing. I offered suggestions that I thought would help make that connection.” Students also reported that the feedback they had received was “very helpful and constructive,” and that reviewers “pointed out some things I would not have thought about.” In addition, students found the reviews “helped improve my grammar and word choice” and used reviewers’ feedback to “add more depth” and “adjust the content.” Clearly, the students took their role and responsibility as a reviewer very seriously. An unsolicited e-mail summarized what appeared to be the dominant reaction to the assignment.

I just wanted to let you know that I really got a lot out of this last assignment. I liked the whole process. I was surprised at how easy it was for me to critique somebody else. It was kind of like I was an editor or something. I have to admit that at first it was a little difficult to get so much constructive feedback, and although some of it I didn’t agree with, other suggestions reconfirmed thoughts I already had. We have never done anything like this before, it was a great experience.

Students had 2 weeks to make final revisions to their paper. Most made substantive changes based on the reviewer’s feedback. At the same time, they were completing their program development projects for their two other courses. The timing of the assignment afforded students an easy opportunity to integrate research evidence into the program development plan. Students submitted their evidence-based practice final paper during the 9th week of the session. Most commented that they had used information from their research paper to enhance their program development project in some way, either by gaining a richer understanding of the persons who would use the program, contributing to needs assessment, developing program elements, and/or evaluating outcomes.

Conclusion
At the end of the summer session, I asked students to provide anonymous, written feedback to several questions concerning the various assignments and projects they had completed during the course, as well as their overall perspective on evidence-based practice in occupational therapy. We had spent 9 weeks exploring the topic from a variety of perspectives, and I was curious about how they had begun to internalize the content. The students’ comments reflected the complex factors that have been articulated in the literature and are evident in clinical practice. The importance and challenge of developing habits of being an evidence-based practitioner seemed to resonate for some students as they noted that evidence-based practice “is an ongoing and time consuming process that is not correctly being utilized in today’s occupational therapy practice” and that “it is misunderstood and extremely difficult in the health care system—reimbursement system in traditional OT today.” Many, however articulated their professional responsibility to contribute to the process as “it’s misunderstood!” and “there is a need for it and it would be beneficial to the OT profession if we as future practitioners would contribute to EBP.” I was, in fact, pleased with these comments as they reflected an “eyes wide open” perspective that was nonetheless energized and idealistic.

The individual assignments and teaching learning activities that were implemented in this course reflected a comprehensive perspective on the complex phenomenon of evidence-based practice. My goal was to design a course that was tightly integrated and holistic in its conceptualization of and approach to the topic. In doing so, the whole value of the course design and assignments became greater than the sum of the individual parts. It is no longer sufficient for occupational therapy educators to be facile in their approaches to course design and educational activities. Occupational therapy educators must think carefully about the rationale for their pedagogy and consider how they communicate this through course design. The challenge then, is to then craft that rationale into an integrated pedagogical structure, clearly communicate the rationale for that structure to the students, and use a holistic set of teaching-learning activities that connect theory to practice.

As the occupational therapy profession grows and clinical practice becomes increasingly sophisticated, so too, must our conceptualization of occupational therapy education. Educational philosophy, course design strategies, and teaching-learning methods need to reflect the growing
maturity of our profession. This does not mean education needs to be more complicated. We do, however, need to be more sophisticated in how we impart information to students so that they can understand the things that occupational therapists need to know and do in clinical practice at a level of synthesis that is sufficient for them to become leaders in clinical practice. ▲

References


