

A Framework for Promoting Scholarship Productivity in Occupational Therapy Curricula

P. J. Scott, M. J. Justiss, A. A. Schmid, & T. F. Fisher

Occupational Therapy, Indiana University, Indianapolis, IN 46202, USA

ABSTRACT. This paper describes a curricular model to support the production of quality research and development of occupational therapy professional students, prepared to become leaders in the production and utilization of evidence for practice. This model is designed for programs with faculty challenged by the dual mandate of program excellence and expectations for scholarly productivity needed for tenure and promotion: typically programs at research universities. The essence of the model is the paralleling of research and competencies for clinical practice where faculty and students participate as a community of scholars. It is based on the literature that addresses the tensions between achieving excellence in research and scholarly productivity, and excellence in teaching. The experience of one university with this model over a five-year period of time is shared with the student-faculty productivity outcomes. These outcomes include dissemination of 55 collaborative peer reviewed products and faculty has generated support for 25 paid graduate assistantships. The combination of student outcomes and faculty support for their research has strengthened the ability of the faculty to excel in meeting the University mandate of scholarship while providing a high quality professional educational program.

KEYWORDS. Curricular design, professional education, research productivity, scholarly productivity

The ongoing discussion of need to produce additional evidence that supports occupational therapy practice remains paramount in the profession. Investigation of change in the nature of articles within journals that publish occupational therapy (Brown & Brown, 2005; Rodger, McKenna, & Brown, 2007), as well as occupational therapy authors in other literature has been produced (Andresen, Tang, & Barney, 2006). The results of this investigation support the need to produce more evidence to support practice (Brown & Brown, 2005), and outcomes research to support the efficacy of practice (Andresen et al., 2006). Two commonly suggested strategies include 1) mentoring of junior faculty by senior faculty; and 2) faculty clinician partnerships (Gutman, 2009; Paul, Stein, Ottenbacher, & Liu, 2002).

Address correspondence to: Dr. Patricia J. Scott, PhD, MPH, OT, FAOTA, Occupational Therapy, Indiana University, CF Suite 306, 1140 Michigan Street, Indianapolis, IN 46202-5119, USA (Email: scottp@iupui.edu).

(Received 00 2012; accepted 00 2012)

Gutman (2009) identified barriers for scholars mentoring new scholars in the production of evidence to support practice: “. . . competing responsibilities and time constraints encountered by faculty and clinicians; greater inherent difficulty in conducting effectiveness studies than basic studies” (pp.383). Gutman proposed several solutions, including the role faculty members at research universities have in balancing the education of entry-level contemporary occupational therapists with requirements to demonstrate research evidence when they apply for promotion with tenure.

The model described in this paper presents an approach that enabled faculty members at a university to establish a complementary relationship between research productivity and time devoted to teaching. This is made realistic because of the move to graduate level education, resulting in more students who are able to conceptualize their role in the building of evidence to support practice. The authors discuss a strategy for occupational therapy programs to support the development of occupational therapy professional students to become leaders in the production and utilization of theory and evidence in clinical practice. Underlying this strategy is the establishment of a community of scholars in the program where students work in partnership with faculty lines of inquiry.

CONTEXT OF THE ISSUE

The institutions needing a model to integrate teaching/research strategies are those where the programs are located at high or very high research universities as per the Carnegie classification, referred to hereafter as research universities (Carnegie Foundation, 2007). This classification is due to at least two important factors; first, the mission for these universities is congruent with faculty and student production of research; and second, there is an increase in research prepared faculty teaching in these occupational therapy academic programs.

The number of occupational therapy faculty with doctoral degrees has been increasing over time due to the changes in Accreditation Council in Occupational Therapy Education (ACOTE) standards, the move to graduate professional education, and the requirement for advancement in appointment/rank in institutions of higher education. ACOTE has required the program director to hold a doctorate for almost a decade, and since 2006, it has required that at minimum, half of the core faculty needs to hold doctorates (American Occupational Therapy Association, 2006). When ACOTE mandated professional occupational therapy programs transition from baccalaureate to post-baccalaureate entry, these programs became aligned with graduate and/or professional schools/colleges instead of undergraduate schools/colleges, within their respective institutions. This re-positioning resets the faculty research and scholarly productivity. Failure to meet these expectations threatens their status among their peers.

The survival of occupational therapy educational programs housed within research universities is dependent on their ability to generate evidence, and produce and disseminate research. Carnegie rankings are based on a number of factors, including external research dollars, doctoral degrees offered, and faculty productivity. Faculty members are expected to secure extramural funding through research, publish in journals with high impact factors, participate in peer reviewed professional

and academic forums, and sustain national and/or international professional reputations (Carnegie Foundation, 2007). Approximately, 26 percent of the accredited professional programs in occupational therapy are in high or very high research universities (AOTA, 2011).

At universities where expectations for research exist, there is a potential tension to balance time devoted to teaching with time necessary to engage in research. The implications of occupational therapy programs are twofold. Unlike general education, the professional programs have unique courses, usually taught once a year, unlike teaching three sections of the same history course. Thus, even having a typical teaching load compromises the expectation for research, possibly resulting in faculty members not receiving promotion with tenure. This can result in a high turnover of faculty and the subsequent instability in the department/program. The second implication is placing research as a higher expectation than teaching threatening the quality of education and perhaps accreditation status. A common solution to this is to use adjunct or clinical track faculty members for teaching courses in order to free departmental faculty members to do research and associated publications. However, the overuse of this solution may threaten a synergy between the researchers, the adjunct or clinical track faculty and the students. The overuse of adjunct faculty members possibly threatens the socialization of students into the research/clinical practice model unless these adjuncts also support the use of evidence. Additionally it may alter the cohesiveness of the faculty members, thus compromising interpersonal dynamics supporting the myth that faculty members don't know practice, furthermore allowing adjuncts to be the primary force addressing the practice needs of the next generation of occupational therapists.

The strategies introduced in this paper are informed by literature which addresses the challenge for tenure track and tenured faculty in research universities to meet expectations for scholarly productivity, successfully teaching students, and providing service (Akroyd, Bamberg, Wilson, & Jones, 2001; Cuban, 1999; Elton, 2001; Gray & et al., 1992; Marsh & Hattie, 2002). Both Marsh & Hattie (2002) and Massy & Wilger (1995) discuss how faculty members at research universities come to view the dual mandate of scholarly productivity and teaching as either competing, complimentary, or a combination of the two. This model holds teaching effectiveness and research productivity not only as complimentary but as the key to increasing productivity and utilization of evidence to support practice.

EVOLUTION OF STRATEGIES DEVELOPED

To be successful, the program director recruited faculty who would integrate the competencies needed for both, the research component of scholarly productivity and the educational component for professional education. These individuals were recruited over time as openings were available. These changes allowed the department to satisfy the ACOTE research standards and the university research expectations for tenured and tenure-track faculty. The outcome is a cadre of faculty and students, working as a community of scholars active in the production of research and promotion of evidence based practice.

Integrating research and teaching is referred to as *linking* (Elton, 2001). Elton describes linking as the importance of having a clear and logical relationship

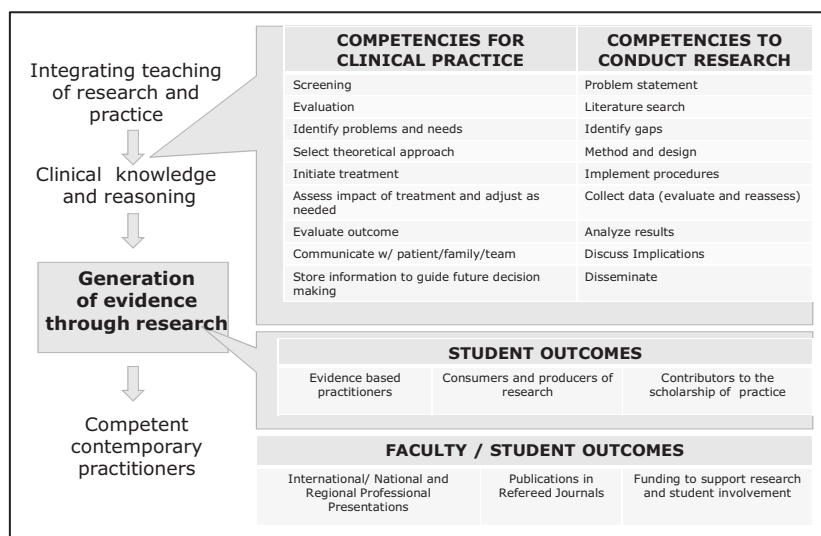


FIGURE 1. Identification of the specific relationship between clinical practice and the research process that enables this curricular design to create a research prepared, competent contemporary practitioners.

between the two. Therefore students see the connection. The strategy was to follow the lead of Brew (2003) and Elton (2001) and integrate the conceptual relationship between teaching and research. Figure 1 illustrates the strategy. Associating components of practice with components of the research process, while involving students in the faculty-mentored research early in the curricula, the integration of teaching and research were achieved, preparing students to be competent and contemporary entry-level occupational therapists.

This strategy began with the conceptualization of creating a community of scholars, where students are actively engaged in the research process from the beginning (second semester in the program), while supporting the faculty lines of inquiry. Thus, this is a fourfold venture with recruiting and selecting faculty who: 1) have research competence (e.g., PhDs), 2) have a portfolio supporting peer-reviewed publications and scholarly presentations, 3) are supportive of the research mission of the academy, and 4) are collaborative and possess the skills and knowledge to be team players in graduate professional education. These characteristics enable the program to successfully achieve a complimentary relationship between expectations for faculty research and scholarship as well as the preparation of competent contemporary entry-level occupational therapists.

The key challenge is to influence students predisposed to enter occupational therapy professional programs with the goal of developing the qualifications to enter clinical practice. Even when students apply to specific programs based on the reputation and achievements of the program faculty, research courses and related activities are often viewed by students as irrelevant or of less importance to practice and less worthy of their attention. Socialization to view the importance of research to occupational therapy practice in both traditional and emerging areas must start in the first semester and continue throughout the curriculum.

The literature stresses the importance of having faculty members teach in the content area they research. This strategy supports the work of researchers who found teachers that engage in self-directed study find this inquiry satisfies their intellectual pursuits and enables them to understand the material so well it literally transforms their teaching effectiveness (Cochran-Smith & Lytle, 1990; Marsh & Hattie, 2002). They further report that students appreciate the authenticity of teachers who have conducted the research they present. Brew (2003) also found that teachers who engage in research are more likely to be on the cutting edge of their discipline. Faculty members who gravitate toward research contend that being active in both research and teaching creates a mutually reinforcing symbiotic relationship and adds to their credibility with the students. Reciprocally, students who actively engage in research during their academic experience are more likely to pursue higher degrees after graduation (Brew, 2003). Therefore, a curriculum designed to capitalize on faculty research while responding to student learning needs will yield scholars in the discipline.

The redesigned curriculum allowed faculty members to comply with accreditation standards, while socializing students to the research process. On the left side of Figure 1 is a box that states “generation of evidence through research.” This box is a figurative representation of how the program promotes students to be practitioners that value and use research. Students are mentored in the research process by both didactic classroom coursework and engagement in ongoing faculty research. This model allows faculty members to be productive in research, while providing students a quality research experience (Massy & Wilger, 1995). Thus, a complimentary and equitable balance is established between teaching and research expectations.

Three of the curricular themes are related to this integration of research and teaching, specifically, professional communication, reflection and reasoning. The reasoning theme is designed to develop the students’ ability to process information and make decisions needed to deliver evidence-based practice and engage in high quality research. Reasoning also bridges the student learning about the rationale and theoretical underpinning (i.e., clinical reasoning) essential to delivering evidence-based interventions, while supporting scholarly inquiry (i.e., scientific reasoning). The explicit connection made for students between clinical practice and research allows the students an understanding of the parallels between the two and improves how they value the role of scholarship in their curriculum and the need in practice.

IMPLEMENTATION OF THE INTEGRATED MODEL

The desired outcome included students being reflective, thoughtful, scientific thinkers, committed to lifelong learning. Students begin the research process in the second semester of the curriculum, and complete it in the sixth semester. Each student is required to demonstrate competence in each aspect of the research process, with the culminating product being a research project completed in small groups (no more than four). These research projects are thesis caliber, and students are matched with topics based on expressed interest; however the topics are proposed by faculty, and closely mentored by faculty.

There are explicit guidelines for the research projects and theses in a document used by the Department of Occupational Therapy. This is a document appended to the Student Handbook, which each student is given when they matriculate into the program. In addition, the guidelines are disseminated and explained in detail by the instructor during the first research course in the second semester of the program. This document provides a guide for students in terms of the research expectation throughout the program. By the third week of the semester in the research course, a panel of faculty who supervise research, presents specific research topics to the students. After the panel presentation, students rank their top three areas of interest. The course instructor analyzes the choices and assigns four students to each of the topics. This method of assignment, giving students the opportunity to choose, is consistent with the student-centered approach. Over the most recent four-year period, all but six of 140 students were assigned to one of their top three choices. It is our experience that having groups of more than 4 students diminishes the quality of the mentorship and the experience for the students.

The evolution of research knowledge and understanding is enhanced during the third semester through two courses: *Evidence-Based Practice (EBP)* and *Reflective Seminar I*. The EBP course is where students refine their skills in searching for evidence about a clinical topic. They use the Population, Intervention, Comparison, Outcome (PICO) approach (Paynter, 2009), and learn the evidence pyramid and the process of critical appraisal. This work is done in collaboration with local practicing clinicians who are able to guide them in relevant clinical questions and provide practical feedback (Scott, Altenburger, & Kean, 2011). In response, the students summarize their evidence findings in poster form and present the posters at the participating facilities. This presentation builds their confidence in their skill to describe the evidence about practice to practicing clinicians

Parallel to the EBP course, the *Reflective Seminar I* course provides a platform where students meet with their primary faculty research advisor to develop a research prospectus of their intended research project. With faculty guidance, the student groups develop their research design, identify the methodology, timeline, etc. Human subject's paperwork is filed during this semester to allow adequate time for approval and subsequently, implementation of research.

Building from the prospectus, in the Fall semester of the second year (see Figure 2), students participate in a research proposal course to develop the first three chapters of their Group Research Project including the introduction, comprehensive literature review, and methodology. The completed proposal is formally presented to the faculty, classmates, first year occupational therapy students, second advisors, participants in the studies and others from the campus community. This presentation mirrors the process of a formal proposal defense including a media presentation and questions from the audience. The presentation is evaluated by all present at the proposal defense. A summary of the evaluation is provided to the primary advisor who shares the information with the research group. Students reflect on the comments in order to enhance their study and refine their presentation skills for the final product.

The final semester of the research process includes a research course, completing the scholarly product. It focuses on the results, discussion, and conclusion. The results address utility to occupational therapy practice and/or health in general.

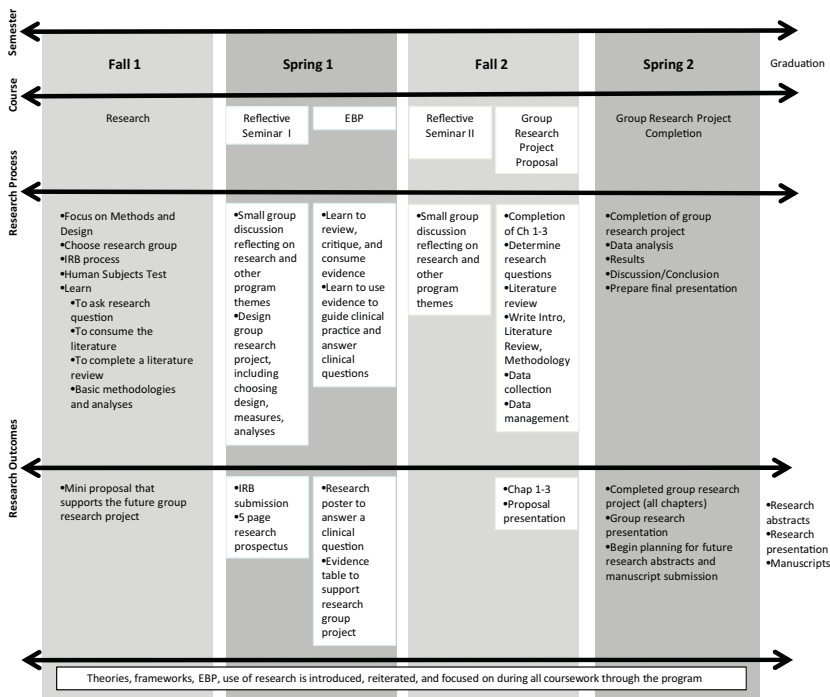


FIGURE 2. The four semester curricular content which supports the integrated program design.

The outcome for this semester is the presentation of the group research project in a formal presentation style similar to a national conference paper presentation. Students prepare an abstract formatted according to the requirements of the American Occupational Therapy Association conference to facilitate submission and acceptance at a later date.

OUTCOMES AND RECOMMENDATIONS

The issue of shared outcomes was emphasized by Elton who described how they served to connect the relationship between research and teaching for the students (Elton, 2001). The potential outcomes are explained to the students in the first semester. Fortunately, the students have the opportunity to observe more advanced students and graduates producing research, submitting abstracts, and presenting at local and national conferences, motivating the beginning students to engage in the process. Through mentorship of students on scholarly products, faculty members have the opportunity to build their own track record on scholarly dissemination which is necessary for tenure and promotion. This opportunity is perhaps most opportune for junior faculty who may not have established an independent research agenda.

Since the curriculum redesign in 2006, there have been six student cohorts. Each year there have been six to nine groups completing their group research project. Through the collaborative research processes described, there have been a total of

TABLE 1. Dissemination of Faculty Mentored Research Projects ($n = 55$) and Research Assistants Funded Through Mentored Research ($n = 25$)

Year ($n = \#$ Students)	2007 ($n = 23$)	2008 ($n = 32$)	2009 ($n = 32$)	2010 ($n = 36$)	2011 ($n = 36$)	2012 ¹ ($n = 36$)
Funded research assistants	1	2	8	6	3	5
Peer-reviewed publications						
Journals ²		2	2	0	8	5
Book chapter					1	
Published abstracts			1		2	2
Peer-reviewed (competitive) conference presentations						
International	–	–	–	1	1	3
National	1	2	3	2	6	7
Regional	–	2	2	–	2	–
Total peer-reviewed products	1	6	8	3	20	17

¹2012 is a partial year.

²Journals with published manuscripts or abstracts include (but are not limited to) American Journal of Occupational Therapy; Occupational Therapy in Health Care; British Journal of Occupational Therapy; Work: A Journal of Assessment, Prevention, and Rehabilitation; Medicine and Science in Sports and Exercise; International Journal on Health and Human Development; International Journal of Yoga Therapy; Journal of Cancer Education; Neurology; Topics in Stroke Rehabilitation; Journal of Rehabilitation Research and Development.

55 peer-reviewed products and 25 graduate research assistantships (see Table 1). These peer-reviewed products include 22 publications and 32 conference presentations (six regional, 21 national, and 5 international levels). The number of disseminated products has steadily increased since the first graduating cohort in 2007. These products are credited to the year they are presented or published, so that the numbers do not actually correspond to the project year, however the increasing trend is apparent. Importantly, the nature of the progression, specifically with 13 full-length research publications and 17 national and international presentations in 2011 and 2012, is projected to continue in 2012, although the data are incomplete. The types of journals reflect the range and quality of publications both within and outside of occupational therapy. All publications have the first author as the faculty member, as this research is faculty mentored. However, there is one student in a recent cohort who chose to complete an independent thesis; thus, this manuscript was submitted with the student as the first author.

An interesting dynamic has been observed during the second year of the program. There is a subtle competition between groups as to which groups have more rigour in their research. Additionally, the standards and expectations of the faculty are debated between the students. This dynamic appears to have strengthened the pride and increased the professionalism of the final work. Students, who participate in the knowledge creation process, are also eligible to submit their work in poster or oral presentation to the university and apply for grant support to obtain start-up funds and attend professional conferences, along with the possibilities for funding as graduate research assistants. These departmental, school, and university opportunities, consistent with published research, aid in retention of the brightest and best students (Nagda, Gregerman, Jonides, Von Hippel, & Lerner, 1998).

The efforts of the program are consistent with that of Marsh in that the faculty engage in research, involve the students in research, and bring examples from their research into the classroom. It is designed to help students value the role of

research in their professional preparation and establish their competency to critically evaluate research and later engage in clinical research themselves. Evidence of this outcome is supported by responses from the 2009 alumni survey. In this survey, program graduates were asked, "Are you involved in research related to occupational therapy practice?" Twenty-five percent of respondents reported being involved in current research. When asked if they plan to be involved in research related to practice in the future, 55% answered yes, with the remaining undecided. No respondent indicated they would not plan to get involved in research. One of our graduates is employed by a campus research institute to complete the occupational therapy research funded through a federally funded project, and another graduate is given release to work half-time on a faculty funded research project. This data is encouraging in that one of our most important indicators of success is in predisposing students to be clinical practitioners who are consumers and producers of knowledge.

LIMITATIONS

There are, of course, limitations to this implemented model. The methods described here worked because of the ongoing involvement in research and scholarship by the entire faculty. Faculty mentorship of these small groups (4:1 ratio) is time consuming. A department with fewer faculty involved in active lines of research may find this approach challenging. Faculty members with larger groups found the quality of the research experience for all students hard to manage. An intriguing option for faculty without an ongoing research agenda may be to pair a faculty member with a clinician interested in finding the answer to a clinical question.

There are requirements that assured the success of this approach that are worth mentioning. First and foremost was the explicit commitment of the administrator of the department as well as the rest of the faculty members. In fact, in this department, a faculty member who taught in the prior undergraduate program chose to leave rather than engage in the process while another chose to move to an adjunct position and work in the clinic. Secondly, faculty members often have different foci, notably research, service, and teaching. The University expectation is that faculty will be active in scholarship in their area of focus, and achieve a minimum of 'satisfactory' ratings in all three areas. Therefore, all faculty members have found that mentoring students in their area of research and scholarship assists them in meeting the productivity expectations of the university.

CONCLUSION

Two significant challenges, the scholarship expectations of faculty for tenure and promotion, and demands to train contemporary occupational therapists to use evidence upon which they make their practice decisions, were highlighted in this paper. Success is dependent on the commitment of faculty members to a complimentary relationship between their roles as researchers and teachers. This allowed for an environment where faculty and student research collaboration is possible and a community of scholars is developed. In this paper, we presented a vision, mechanism and strategy to meet these challenges. Specifically, we have articulated how

occupational therapy programs at Carnegie research universities can create and promote utilization of evidence in our profession through the creation of a community of scholars between the faculty members and students. This approach integrates strategies to support faculty members in maintaining expected levels of research productivity in addition to providing a high quality educational experience. The underlying philosophy is to capitalize on the curricular theme of 'reasoning' and create a synergistic relationship between competencies for clinical practice and competencies to conduct research. This strategy allowed us to leverage faculty member expertise, supports the literature which says departmental attitudes are highly influential, and reinforces the positive relationship between research and teaching (Cochran-Smith & Lytle, 1990; Marsh & Hattie, 2002). We believe that this model is unique in that we are: (1) demonstrating the research process from conceptualization to dissemination, (2) working in small groups of no more than four, (3) supporting the faculty member's line of research with the expectation of dissemination with peer-reviewed presentations and/or publications, and (5) achieving significant outcomes of success (e.g., 55 peer reviewed publications and peer reviewed conference presentations).

In conclusion, this approach that creates a parallel between competencies for research and practice, has potential for increasing the mounting need for academic programs to produce evidence that supports practice while meeting the ACOTE standards. A complimentary relationship between the dual mandates of research and teaching can both, prepare competent contemporary practitioners socialized into the research environment and enable faculty to meet the performance expectations required for tenure and promotion. We encourage other programs experiencing a tension between the dual mandates of teaching and scholarly research productivity to consider similar curricular strategies. The outcome can be a mutually beneficial system that allows for enhanced faculty productivity while preparing research savvy graduates to enter the profession with a solid grounding to use evidence in clinical practice.

Declaration of interest: The authors report no conflict of interest. The authors alone are responsible for the content and writing of this paper.

ABOUT THE AUTHORS

The authors are all faculty members at Indiana University. Collectively they have extensive experience in teaching and in the dissemination of research and scholarship. Scott and Fisher each have experience at two other universities prior to coming to IU. The four authors together have over 50 years of academic experience and have published over 100 peer reviewed articles.

REFERENCES

- Akroyd, D., Bamberg, W. R., Wilson, S. L., & Jones, H. P. (2001). Differences in attitudes regarding teaching and research orientations between allied health faculty and administrators in academic health centers. *Journal of Allied Health, 30*(2), 61-67.

- American Occupational Therapy Association. (2006). *Accreditation background on review & revision of the ACOTE standards*. Retrieved July 10, 2010 from <http://www.aota.org/educate/accredit/standardsreview/38107.aspx>
- Andresen, E. M., Tang, J. J., & Barney, K. F. (2006). The importance of occupational therapy contributions to health services research. *OTJR: Occupation, Participation and Health*, 26(3), 108.
- AOTA. (2011). *Academic programs annual data report, academic year 2008–2009*. Bethesda, MD: American Occupational Therapy Association.
- Brew, A. (2003). Teaching and research: New relationships and their implications for inquiry-based teaching and learning in higher education. [Article]. *Higher Education Research & Development*, 22(1), 3.
- Brown, G. T., & Brown, A. (2005). Characteristics of the Occupational Therapy Journal of Research: The first twenty years. *Occupational therapy in health care*, 19(3), 73–92.
- Carnegie Foundation. (2007). The Carnegie classification of institutions of higher education. Retrieved October, 12, 2007.
- Cochran-Smith, M., & Lytle, S. (1990). Research on teaching and teacher research: The issues that divide. *Educational Researcher*, 19(2), 2.
- Cuban, L. (1999). *How Scholars Trumped Teachers: Change without Reform in University Curriculum, Teaching, and Research, 1890–1990*. Williston, VT: Teachers College Press, PO Box 20, 05495-0200 (\$28.95).
- Elton, L. (2001). Research and teaching: Conditions for a positive link. *Teaching in Higher Education*, 6(1), 43–56.
- Gray, P. J., Froh, R., & Diamond, R. A National Study of Research Universities on the Balance Between Research and Undergraduate Teaching, Syracuse University. Center for Instructional Development, Office of Evaluation and Research. 1992.
- Gutman, S. A. (2009). Why Haven't We Generated Sufficient Evidence? Part II: Building Our Evidence. *The American Journal of Occupational Therapy*, 63(4), 383.
- Marsh, H. W., & Hattie, J. (2002). The relation between research productivity and teaching effectiveness: Complementary, antagonistic, or independent constructs? *The Journal of Higher Education*, 73(5), 603–641.
- Massy, W., & Wilger, A. (1995). Improving productivity: What faculty think about It—And it's effect on quality. *Change*, 27(4), 10–20.
- Nagda, B., Gregerman, S., Jonides, J., Von Hippel, W., & Lerner, J. (1998). Undergraduate student-faculty research partnerships affect student retention. *Review of Higher Education*, 22, 55–72.
- Paul, S., Stein, F., Ottenbacher, K. J., & Liu, Y. (2002). The role of mentoring on research productivity among occupational therapy faculty. *Occupational Therapy International*, 9(1), 24–40.
- Paynter, R. (2009). Evidence-based research in the applied social sciences. *Reference Services Review*, 37(4), 435–450.
- Rodger, S., McKenna, K., & Brown, T. (2007). Quality and impact of occupational therapy journals: Authors' perspectives. *Australian Occupational Therapy Journal*, 54(3), 174–184.
- Scott, P., Altenburger, P., & Kean, J. (2011). A collaborative teaching strategy for enhancing learning of evidence-based clinical decision-making. *Journal of Allied Health*, 40(3), 120–127.