Benefits of Student Engagement in Intervention Research

Jaclyn K. Schwartz, Roger O. Smith

OBJECTIVE. Accreditation standards require entry-level occupational therapy students to understand, critique, and design research. However, the extent to which students should be embedded in research projects is unclear. The purpose of this study was to understand the benefits of student immersion in research for student learning and research quality.

METHOD. Using a multiple case study design, the principal investigator trained six occupational therapy students to implement a manualized intervention with research participants. Learning quizzes, video analysis of research activities, a practical exam, student documentation, an exit interview, and an exit survey identified student learning and research outcomes.

RESULTS. Students successfully implemented the study protocols with good reliability (intraclass correlation coefficient = .89) and fidelity (99%). Students also reported improvements in comfort with client interactions, confidence in practice skills, self-efficacy in research, and clinical reasoning.

CONCLUSION. Student participation in hands-on research supports researchers in attaining their research goals and provides students with valuable learning experiences.

Research is essential to the profession of occupational therapy. Research develops consumer confidence, justifies the continued support of occupational therapy services to administrators and policymakers, and creates the foundation for clinical practice (Kielhofner, 2006). Not only is research emphasized in occupational therapy education, but it is also an essential function of the professorate. Potentially, students are an immeasurable resource to the occupational therapy profession. It is unclear how student–researcher teams can be leveraged to develop high-quality intervention research and successful learning experiences. In this article, we look at the process of engaging occupational therapy students in high-quality intervention research and examine the benefits to students and researchers.

Research was identified as a core part of occupational therapy education in Philosophy of Occupational Therapy Education (American Occupational Therapy Association [AOTA], 2007b), Blueprint for Entry-Level Education (AOTA, 2010), and Specialized Knowledge and Skills of Occupational Therapy Educators of the Future (AOTA, 2009). Specifically, the Accreditation Council for Occupational Therapy Education (ACOTE; 2012) stated that at a minimum, occupational therapy students must learn to understand, critique, and design research. Although the importance of research and the content of learning objectives are clear, educational institutions use different approaches to expose students to research. For example, theses, research projects, group projects, service projects, capstone courses, or coursework related to research are just a few ways that institutions meet research requirements. Unfortunately, limited literature informs instructors about which methods are the most beneficial for student success.
Because research is one of the main job responsibilities for occupational therapy educators, maintaining a line of scholarly inquiry is increasingly a condition of employment for faculty members. Faculty members are asked to provide evidence of success in research, such as acceptance of manuscripts by peer-reviewed journals, research presentations, and grant funding, to attain tenure. As productivity requirements increase, faculty members struggle to balance their duties across teaching, research, and service (McGrail, Rickard, & Jones, 2006; Milem, Berger, & Dey, 2000). Moreover, grant funding is shrinking as research is becoming more costly to conduct (Szabo, 2014).

Intervention research requires substantial funding, in part because of the need for “skilled personnel intervening in both treatment and control groups . . . . Thus, balancing costs with funding levels and necessary design elements is an ongoing challenge” (Gitlin, 2013, p. 181). By engaging students in research, faculty members have the opportunity to synergize teaching and research while managing the cost of skilled personnel. Unfortunately, faculty members have little guidance in how to best involve students in high-quality intervention research. It is unclear whether occupational therapy preservice training can implement research with the rigor needed by faculty to support publications and future funding.

As part of a larger occupational therapy intervention study, we were able to examine the benefits of the student–researcher partnership to both members of the team. The principal investigator (PI; Schwartz) developed a series of learning activities consistent with the Staged Self-Directed Learning (SSDL) model to help students learn the research protocols for a small randomized controlled trial (RCT; Grow, 1991; Merriam, Caffarella, & Bumgartner, 2007). In the SSDL model, students move across four stages of self-directed learning with the goal of becoming better self-directed lifelong learners. In this study, we moved through the stages as follows:

1. **Dependent**—Students learned the study manual. Learning was evaluated with online quizzes providing immediate feedback.
2. **Interested**—Students met as a group. The PI guided discussion of example cases and discussed student goals for the learning experience.
3. **Involved**—Students implemented all study protocols with the PI in a practical exam.
4. **Self-directed**—Students independently implemented the study protocols with research participants.

This model complements occupational therapy education in which educators advance pupils from the role of student to that of independent practitioner.

The purpose of this study was to answer two research objectives. First, we wanted to identify how students benefit when they engage in hands-on research. Did the students’ participation in this project help them become better practitioners? Second, we wanted to identify the benefits of student engagement to the research. Were students able to implement study-related protocols with enough rigor and effectiveness to support the researchers’ needs?

**Method**

The PI recruited student volunteers to participate as interventionists and evaluators in a Phase I two-group RCT to test a novel occupational therapy intervention for medication adherence for adults with a variety of chronic health conditions (Schwartz, 2015; Schwartz & Smith, 2015a, 2015b). This article discusses the experiences of the student volunteers using a multiple case study approach with mixed-methods data collection. During the fall 2014 semester, students completed training on research procedures, implemented protocols with research participants, and gave feedback to the PI about their experiences in the study.

**Student Recruitment**

The PI recruited students from the occupational therapy program at the University of Wisconsin–Milwaukee. The university had five cohorts of occupational therapy students, including a master’s program and a combined bachelor’s and master’s program. The university institutional review board reviewed and approved this study. At the beginning of the fall 2014 semester, the PI invited all returning occupational therapy students (who had completed at least 1 yr of occupational therapy coursework) to participate as a research assistant (RA) in return for 1 credit of independent study, valuable learning experiences, and the opportunity to engage in related conference presentations and publications. The PI met with interested students to discuss the nature of the study, explain the time commitments, and have them review and sign the written informed consent paperwork.

Six occupational therapy students across three cohorts enrolled in the independent study and engaged as an RA for the fall semester. All the students were women (average age = 23 yr). The PI recruited 2 students from the master’s program and 4 students from the combined bachelor’s and master’s program. All students had completed coursework that was necessary to their success as RAs in this study. Five of the 6 students had completed most of their program coursework and after the fall semester began Level II fieldwork.
Specifically, all students had completed two semesters of the course “Evidence,” in which they learned research methods, measurement, and the scientific process, in addition to “Foundations of Professional Practice in Occupational Therapy” and “Adult Physical Rehabilitation I,” which provided a basis for the evaluation and treatment of adults with chronic conditions. All students had received training on the group process (including motivational interviewing), and 5 students had completed “Occupational Therapy in Psychosocial Practice”; this training and the course contributed to students’ abilities to engage in discussion of health behaviors and behavior change, which were widely used skills in the research study.

The PI was a doctoral student at the university completing her dissertation research on the larger intervention study. For the semester, the PI’s workload focused on research but also included teaching half of a 3-hour lecture course, mentoring the 6 students in their research-based independent study, and serving on two committees. The PI was an occupational therapist with several years of clinical experience across settings working with adults and children with chronic health conditions. She had supervised 12 fieldwork students in the clinic, taught occupational therapy coursework, and received advanced training and mentorship in teaching and learning in higher education. The PI benefited from her diverse skill set to help mentor the students through a rewarding research experience.

Research Manual

The PI created a comprehensive manual to facilitate students’ learning of the complex intervention and evaluation protocols (Medication Management Research Project, 2014; Schwartz, 2015; Schwartz & Smith, 2015a). The manual described the background and need for research, administration, and interpretation of the 13-part assessment battery; administration of the treatment intervention; and administration of the standard care intervention. Because it was anticipated that the RAs would include students spread across cohorts with little availability to meet face to face as a group, the materials were developed for students to complete through self-directed study. The manual included written descriptions; images; videos; checklists for all study procedures; and information about research study logistics, such as managing audio–video equipment and strategies for skilled intervention. RAs were responsible for implementing a combination of treatment interventions, the standard care intervention, and follow-up evaluations, making it necessary for the RAs to thoroughly learn protocols to avoid contamination between treatment groups.

Treatment Intervention

The treatment intervention was a 30-min occupational therapy intervention to promote medication adherence. It was a manualized three-step process in which the RAs encouraged research participants to reflect on past performance of medication management, asked participants to set a medication management goal, and helped participants generate strategies to reach their goal. During strategy generation, the manual required RAs to use motivational interviewing to help participants self-generate strategies across six topic areas: (1) activity alteration, (2) advocacy, (3) education, (4) assistive technology, (5) environmental modifications, and (6) securing of timely refills. The RAs were required to discuss all six types of strategies in some capacity, but the amount of time and specific strategies were to be determined by the RA’s clinical reasoning and tailored to the participant’s needs. For example, if a participant demonstrated an accurate understanding about his or her medication regimen but reported being forgetful, the RA may have spent less time assisting the participant in finding educational materials and more time exploring different types of reminder technologies.

Standard Care Intervention

RAs were required to implement a 30-min standard care (control) intervention in which they reviewed the pamphlet “Managing Your Medicines” by the American Heart Association and American Stroke Association (2013). They were allowed to discuss only information found in the pamphlet and engage in active listening.

Follow-Up Evaluation

RAs completed follow-up evaluations with participants in which they administered a packet of surveys, a medication knowledge test, and an exit interview. Each evaluation lasted about 45 min.

Self-Directed Study and Online Learning Quizzes

RAs learned the research manual and protocols through self-directed study. They were given 2 mo to master the materials at their own speed and then asked to demonstrate comprehension through a series of competency-based online quizzes. The PI developed three quizzes on the research manual: evaluation (19 questions), treatment intervention (20 questions), and standard care intervention (10 questions). RAs took the quizzes before and after reviewing the manual to quantify learning. They were required to score a minimum of 90% on all three quizzes before moving on to the next step in the training process and could retake quizzes until they received a passing score.

Team Meeting

When all RAs had completed the self-directed study, the PI held one 90-min team meeting planned to accommodate RAs’ schedules. The team reviewed questions that
aroze during self-directed study, analyzed case studies, and discussed logistics such as scheduling and managing resources. The PI presented the RAs with case studies that included portions of an assessment battery from simulated research participants. RAs were asked to interpret the assessment and identify appropriate intervention strategies through group discussion. The goal of the team meeting was to increase consistency in treatment recommendations among team members.

**Practical Exam**

After the team meeting, RAs were required to demonstrate competence in a 1-hr, one-on-one practical exam with the PI. Each RA implemented an evaluation session, a standard care session, and an occupational therapy treatment session with a simulated research participant. Before the practical exam, RAs received documentation they would typically be given before seeing a research participant. For example, for the occupational therapy treatment session, RAs received baseline evaluation data of the simulated participant. The PI role-played the simulated participant for all RAs, answering similar questions consistently across RAs.

**Fidelity and Reliability**

During the practical exam, the PI evaluated RAs on their fidelity to the research protocols and the reliability of their intervention recommendations. Fidelity to the protocol was measured as percent adherence to a checklist matching the research protocol (Figure 1). The intervention protocol suggested six different types of intervention strategies to help participants improve their medication regimen: (1) activity alteration, (2) advocacy, (3) education, (4) assistive technology, (5) environmental modifications, and (6) securing of timely refills. The PI instructed the RAs to apply their clinical reasoning to identify the most appropriate intervention recommendations, using as few as one or as many as six of the intervention strategies. At the conclusion of the simulated intervention session, each RA documented whether she identified intervention using any of the six strategies. These dichotomous data (recommendations vs. no recommendations) were entered into IBM SPSS Statistics (Version 21; IBM Corp., Armonk, NY) for Macintosh for the identification of the intraclass correlation coefficient (ICC) to depict the reliability of intervention recommendations among raters.

**Coaching and Role-Playing**

During the practical exam, the PI assessed RAs in five domains: (1) confidence, (2) demeanor, (3) appropriateness of intervention recommendations, (4) motivational interviewing skills, and (5) appropriateness of prompts (during evaluation). After the practical exam, the PI coached RAs on strengths, areas for improvement, fidelity to the protocol, and any missed protocol items. The PI and each RA then engaged in role-playing to incorporate feedback until the RA could successfully complete the practical exam. After successfully completing the practical exam, the RA was allowed to begin engaging with research participants as part of the research study, with each RA responsible for her own research participants. At this point, the PI did not provide any further coaching or guidance (e.g., on identifying research participant barriers, intervention ideas). However, the PI was readily available to answer questions about the protocol or the process during the RAs’ direct interaction with participants.

**Fidelity With Research Participants**

Each RA saw an average of 3 research participants (for standard care or occupational therapy intervention) and 3 follow-up evaluation research participants. Together, the RAs completed 20 interventions and 19 follow-up evaluations for a total of 39 sessions with participants. Sessions occurred in a shared lab space at the university during business hours and were video recorded. The RAs called or emailed participants to schedule mutually convenient sessions. The PI reviewed the video recordings and RA documentation throughout the study to calculate fidelity to the protocol using the same checklists used in the practical exam. If an RA’s fidelity fell below 90%, the research study protocol mandated that the RA engage in training until she could again administer the protocol with good fidelity.

**Research Participant Experiences**

When the RAs administered the follow-up evaluation protocol with research participants, they also administered an exit interview. During the exit interview, the RAs asked the participants about their experiences in the study and self-perceived improvements. Participants’ experiences and outcomes are reported in detail elsewhere (Schwartz, 2015; Schwartz & Smith, 2015b). This article briefly describes participants’ results and their comments about their experiences with the RAs as another outcomes perspective.

**Exit Survey and Exit Interview**

After the RAs completed all interactions with the research participants, they took an exit survey and engaged in an exit interview. The PI entered all grades for the independent study before exit activities so the RAs would
know that their feedback would not affect their grade or standing with the faculty. The exit survey was administered on a computer so RAs could answer anonymously. The 46-item exit survey asked about the RAs’ thoughts about and experiences during the training and perceived learning outcomes (Figure 2). The survey presented statements about training or learning outcomes, and the RAs rated their agreement with each statement using a 5-point Likert-type scale (see Figure 2). The survey was used to quantify the RAs’ learning experiences and to provide feedback to the PI on the training process as part of the larger pilot study. In this article, we discuss only student learning experiences (Section 4 of the survey). Survey responses were assessed with descriptive statistics using IBM SPSS Statistics (Version 21).

The RAs also engaged in a face-to-face exit interview with the PI during which they were asked about their likes and dislikes about the training, likes and dislikes about the intervention, and perceived learning benefits. The exit interview took approximately 15 min. The exit interviews were transcribed and analyzed using grounded theory with NVivo (Version 10.1.2; QSR International, Doncaster, Australia). The research process is summarized in Figure 3.

Results

Student Outcomes

In both the exit surveys and the exit interviews, RAs reported that their participation as an RA was a valuable
experience. In the anonymous exit survey scored using a 5-point Likert scale (5 = strongly agree, 4 = agree, 3 = neither agree nor disagree, 2 = disagree, 1 = strongly disagree), they reported gains in knowledge about medication adherence, comfort interacting with clients, confidence in their occupational therapy skills, understanding of the research process, occupational therapy intervention skills, knowledge about chronic disease management, self-efficacy as a researcher, and clinical reasoning (Table 1).

In addition, all RAs reported a positive experience and would recommend participation in hands-on research to a classmate.

The RA exit interviews revealed four themes. The first theme was comfort with client interactions. All six of the RAs reported feeling “more comfortable with client interactions and talking to people.” They appreciated the practice in talking to new people with different backgrounds and chronic health conditions.

The second theme was applying clinical skills. RAs reported that they benefited from the opportunity to deliver interventions and assessments, engage in motivational interviewing, and practice even basic skills such as reviewing a chart. Although RAs had completed several courses reviewing these skills, they reported that they liked practicing the skills with people with chronic health conditions because it felt “more real world than class.”

The third theme was applying research skills. Some RAs noted that they learned several research concepts in the curriculum but that being engaged in a research study

Figure 2. Exit survey.

Note. RA = research assistant.
helped them better conceptualize research ideas. For example, 1 RA reported that participation in the research study helped her “apply things I already knew.” Another said, “You talk about that [blinding] in stats and stuff, and you’re like, OK, sure, but it makes a lot more sense actually seeing it.” RAs also reported being better able to understand the difference between baseline and intervention and feeling more knowledgeable about managing research participant privacy.

Finally, RAs reported feelings of success after completing their research experience. For example, 1 RA reported that she enjoyed engaging in the intervention because “you just got a sense of, you’re helping someone.” This feeling of meaningfulness enhanced the RAs’ sense of accomplishment at the end of a semester, particularly more than a lecture-based course would. To validate these findings, we used the member checking procedure. We shared these themes developed using grounded theory with 2 RAs. Each RA verbalized agreement with these themes as reported.

Research Outcomes

Quizzes. The RAs successfully learned all research protocols. They engaged in self-directed study for an average of 87 min to learn the evaluation materials, 93 min to learn the intervention materials, and 36 min to learn the standard care materials for a total of 3.6 hr of self-directed study. Their scores on three quizzes indicated comprehension of the research materials. For the evaluation quiz, the RAs required an average of 1.3 attempts to pass. Their average score increased from 56% to 100% after self-directed study. For the intervention quiz, they required an average of 1.2 attempts to pass. Their average score increased from 53% to 98% after self-directed study. For the standard care intervention, all of the RAs completed the quiz successfully after only one attempt, and they increased their scores from an average of 65% to 97% after self-directed study.

Practical Exam. The PI tested RAs for synthesis and application of learning through the practical exam. All RAs passed the practical exam with 100% fidelity to the protocol (with the aid of checklists). They demonstrated strong clinical reasoning and professional behaviors but required some minor coaching on confidence and motivational interviewing strategies. During the practical exam, the RAs demonstrated strong reliability in intervention recommendations, evidenced by an ICC of .89.

Fidelity. During interactions with research participants, the RAs implemented the treatment protocol with 97% fidelity, the standard care protocol with 100% fidelity, and the follow-up evaluation protocol with 100% fidelity. With a checklist of each protocol on their clipboard, they were able to maintain high fidelity across session type.

Research Participant Experiences. The RAs were able to implement the protocols accurately and successfully. A majority of research participants (55%) in the occupational therapy treatment group self-reported improvements in their medication management compared with participants (30%) in the standard care intervention group (Schwartz, 2015; Schwartz & Smith, 2015b). In addition, during the exit interview, several participants (in both the treatment and standard care groups) noted the highly skilled research staff (Schwartz, 2015; Schwartz & Smith, 2015b).

Table 1. Exit Survey Learning Outcomes (N = 6)

<table>
<thead>
<tr>
<th>Area of Improvement</th>
<th>M (SD)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Knowledge about medication adherence</td>
<td>4.67 (0.52)</td>
</tr>
<tr>
<td>Comfort engaging with clients</td>
<td>4.33 (0.82)</td>
</tr>
<tr>
<td>Confidence in their occupational therapy skills</td>
<td>4.33 (0.52)</td>
</tr>
<tr>
<td>Understanding of the research process</td>
<td>4.33 (0.52)</td>
</tr>
<tr>
<td>Occupational therapy intervention skills</td>
<td>4.20 (0.84)</td>
</tr>
<tr>
<td>Knowledge about chronic disease management</td>
<td>4.17 (0.98)</td>
</tr>
<tr>
<td>Self-efficacy as a researcher</td>
<td>4.17 (0.75)</td>
</tr>
<tr>
<td>Clinical reasoning</td>
<td>4.00 (0.63)</td>
</tr>
</tbody>
</table>

Note. M = mean; SD = standard deviation.
2015b). The RAs were identified in 7 of 19 exit interviews as being “knowledgeable,” “respectful,” “caring,” and so forth, and 1 participant said, “I would say that every single one of the team were professional, friendly, [and] seemed to be truly interested in helping.”

Practical and Logistical Outcomes

Although the RAs implemented the intervention and evaluation, they required the PI’s support with logistical aspects of the research. The PI completed about 30 min of such support for each session for a total of 19.5 hr throughout the study. Logistical support included providing the RAs with the proper paperwork, securing the paper and electronic research participant files, completing paperwork for participant reimbursement, and reviewing the RAs’ paperwork at the end of a session for completeness and compliance. With the PI providing logistical support, the RAs were better able to focus their time (and learning efforts) on working with people with chronic health conditions.

Despite the need for logistical support, the use of student RAs provided several benefits. The RAs completed 20 intervention sessions over a 2-wk period and 19 follow-up evaluation sessions over another 2-wk period. Together, the RAs completed approximately 24 hr of face-to-face time with research participants and about 13 hr of prep time (which included scheduling participants, reviewing charts, and setting and cleaning up). In addition, multiple RA–participant pairs were able to meet simultaneously, which allowed for a substantial amount of data to be collected within the 2-wk window. Moreover, because we wanted RAs completing the follow-up evaluations to be blinded to each research participant’s group assignment, RAs were paired with participants whom they did not see during intervention.

The PI also benefited from the strong motivation that students brought to the project. Five students required overload permissions from the university to participate in the independent study. To prepare for research participants (particularly those receiving the treatment intervention), the RAs would commonly arrive 30 min to 1 hr early to review charts and prepare materials. Because of the RAs’ successful engagement in and dedication to the research study, the PI was able to leverage the $2,000 research budget to complete a 20-participant Phase I RCT in approximately 6 wk.

Discussion

The purpose of this study was to understand whether we could successfully involve occupational therapy students in high-quality research. As part of a larger occupational therapy intervention, we trained occupational therapy students as RAs and had them complete a series of learning experiences based on the SSDL model. The project culminated with the RAs implementing research protocols with participants. Using a multiple case study approach, we investigated the outcomes for both students and the research.

Student Outcomes

To be successful, future occupational therapy practitioners must learn how to understand, critique, and design research and master many other practice-related skills. This study demonstrated that students engaged in a hands-on intervention research study gained valuable skills. Students not only developed expertise in specific content areas (i.e., the areas of medication adherence and chronic disease management in this study) but also gained comfort with client interactions, confidence in practice skills, self-efficacy in research skills, and clinical reasoning ability.

Students’ experiences did not compete with their academic curriculum, but instead complemented previous coursework in research and practice skills by bringing complex ideas to life. In addition, their experiences demonstrated that they were able to transition from student to self-directed learner. After completing the series of self-directed learning activities, students were able to independently administer evaluations and interventions in a research context. Although this study did not compare different types of instruction, it demonstrates the benefits of hands-on research experiences and suggests that exposure to research solely through classroom-based instruction may deprive students of many of the advantages reported in this study.

Research Outcomes

Students’ participation in this study not only benefited the students but also furthered the research. This study indicates that with the appropriate supports, senior occupational therapy students can learn research protocols (evidenced by a 41-percentage-point increase in learning quiz scores) and implement intervention reliably (ICC = .89) and with good fidelity (99%). There are many reasons why a Phase I research study may not demonstrate positive results, but the fact that most research participants found the treatment intervention to be effective is a testament to the RAs’ skills.

The RAs also provided logistical advantages. Although the PI provided about 8 hr of direct student training and about 19.5 hr of logistical support, the help of RAs enabled the use of more advanced research
methodologies (e.g., blinding), a more compressed data collection schedule, and time savings for the PI. Overall, the RAs were able to implement the research protocols with the rigor needed by publications and funding agencies.

**Limitations and Future Research**

This study indicates positive outcomes when students participate in research. However, several factors limit the widespread use of this methodology for future research. First, this study describes the experiences of only six occupational therapy students and one occupational therapy researcher at one university, which is a small and unique sample. Second, the PI spent many hours of preparation, training, staging, and running this research project. This intensive workload may not be easily replicated without similar resources used for this study. Therefore, this approach may not be readily generalized to students in other occupational therapy programs. However, the information from the study may be used by occupational therapy educators and researchers to help develop studies to add to the occupational therapy education literature. Third, all tools were pilot tested and fine-tuned before use by students, but the tools lacked formal psychometric testing, which may have contributed to measurement errors. However, the study used several data points for each RA and a variety of measures using both qualitative and quantitative techniques. The results across instruments, time points, and perspectives demonstrated foundational validity.

This study defined and articulated several unique and replicable features that made it successful. First, the RAs were a sample of students who volunteered, indicating a selection bias of students who were motivated and excited about the topic. Second, the evaluation, intervention, and standard care scenarios were thoroughly manualized, which is uncommon in occupational therapy research (Blanche, Fogelberg, Diaz, Carlson, & Clark, 2011). The manuals were targeted specifically for students and entry-level practitioners and provided example prompts, images, and videos of experts implementing different techniques. Third, the PI designed specific features to create a receptive atmosphere to support the students. For example, the PI provided several checklists, included many reminders (e.g., notes, emails), and helped with the logistical burden of research. Finally, the PI had a unique skill set that included occupational therapy research, practice, teaching, and fieldwork education. These competencies helped the PI integrate teaching, research, and practice while also developing rapport to successfully mentor students. The process was effective but used motivated senior students, a skilled PI, and a highly manualized process.

**Implications for Occupational Therapy Education and Research**

The results of this study have the following implications for occupational therapy education and research:

- **Student participation in hands-on research** has benefits such as increases in confidence, clinical reasoning, and self-efficacy; therefore, educators should incorporate hands-on components into their occupational therapy research curriculum.

- **More research is needed** for occupational therapy to become the evidence-based, science-driven profession envisioned by the leadership (AOTA, 2007a). Provided with the right supports, occupational therapy students can reliably and successfully implement skilled research approaches. Researchers should better leverage student partnerships to meet societal and professional research needs.

- **Manualizing research interventions** has many well-known benefits (Blanche et al., 2011). In this study, a manualized intervention enabled occupational therapy students to successfully implement complicated approaches, further supporting the use of and need for manualized interventions in occupational therapy.

- The RAs transitioned from being dependent learners to independently administering a skilled intervention. Therefore, this research supports the use of the SSDL model in occupational therapy education, particularly to involve students in research.

**Conclusion**

Standards continue to rise for occupational therapy faculty and students alike. Research is one of the main components contributing to raising the bar. Not only are students required to understand research, but as future practitioners in a complex medical society they are also expected to critique, design, and participate in investigations. Students, therefore, need academic experiences that support their ability to fully participate in research. Similarly, faculty are expected to spend an increasing amount of time engaging in both research and teaching (Milem et al., 2000). Because time is a finite resource, faculty members need to learn how to work smarter.

Students and researchers are natural partners, and as this study demonstrates, they can have a symbiotic relationship. This study identified and delineated specific design strategies for successfully administering a Phase I pilot study using entry-level occupational therapy students. With training and supports, the students were able to successfully implement skilled and complicated research protocols. This experience provided a natural learning environment for the students...
with myriad educational benefits while helping the PI achieve her research and teaching goals. When students and researchers collaborate, it can be a win–win situation. ▲

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