The Graduate Research Experience: Successes and Failures

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Abstract: The purpose of this study was to investigate methodologies that can be employed in a research methods course that will help graduate students understand and appreciate the role that research can play to improve their teaching and to lay the foundation for future inquiry. This study builds upon previous research that investigated student reflections on their perceptions of research, their self-assessment as researchers and their view of the connection between teaching and research. Upon recommendations from this prior study, some of the methodologies employed were frequent student conferences and greater instructor awareness on making the case for the connection between research and teaching. Results showed a marked maturation of student perceptions of research and confidence in their research abilities from the beginning to the end of the course but indicate further research is required to better bridge the gap between research and teaching.

Introduction

A research experience is commonly included in the curriculum of teacher education masters programs. There is good reason for the prominence of this research experience. The ultimate goal of education is to create an environment that encourages students to learn and to develop their talents so they can become informed and productive citizens. To achieve this goal, it is not sufficient to train teachers “how to teach.” Instead, teachers must learn from their teaching by being aware of ongoing research, being able to critically analyze the work of other researchers and experimenting to incorporate best practices into their classrooms. In short, research and teaching are irrevocably intertwined and understanding their connection is a crucial element in being an effective teacher. Albert Shanker, a former president of the American Federation of Teachers (AFT), reiterated the critical role that research plays in education at an AFT Conference: “In an enterprise such as education . . . research is the best hope we have of distinguishing between fads and facts, prejudices and informed judgment, habits and insights . . . Without good research, we will continue on an endless cycle of mistakes, . . . and, in the end, the same faltering school system” (Simmons et al., 1999, p. 931).

In today’s lightning-paced society, research can inform teachers of the myriad pedagogical strategies and initiatives that can be effective in understanding the changing ways that students now learn. The area of research in educational technology is one of particular relevance because it directly confronts the inescapable reality that students today live, play, and learn in a highly advanced technological world – one that may be foreign to previous generations but one where teachers must, of necessity, become as comfortable and as savvy as their students if they hope to communicate and interact with the younger generation.

The challenge of faculty members engaged in research courses is to convince graduate students of the value and importance of research in their lives after they leave the classroom. Too often, students view research as just another “requirement” to complete their degrees without the realization that continued involvement with the research community, as a consumer or participant, should play a central role in their professional lives. The purpose of this study was to investigate methodologies that can be employed in a research methods course that will help graduate students understand and appreciate the role that research can play to improve their teaching and to lay the foundation for future inquiry. This study builds upon previous research done by the author (Bailie, 2004). To encourage students to understand the vital connection between research and teaching, the former study collected student reflections on their perceptions of research and how they viewed themselves as researchers. The results revealed their fear and hesitancy on conducting research and a narrow concept of research as focused mainly on completing a course requirement. It appeared that until these issues could be addressed that students would find it extremely difficult to embrace the more far-reaching benefits of research. The recommendations of this study were twofold: 1) to use frequent student conferences to allay student fears, build confidence, and guide them to formulate a viable research proposal and 2) to enhance the course curriculum with concrete examples of how research can inform teaching. This current study sought to implement these initiatives to determine if they could instill in students the confidence essential to conducting research and thereby gain a deeper appreciation of the connection between research and teaching. To this end, the author continued to gather student reflections and surveys for three
offerings of the course and used the data to evaluate the effectiveness of these initiatives and to discover other methodologies that might help students bridge the gap between teaching and research.

**Literature Review**

The majority of research undertaken by graduate students is more properly defined as “action” research because its focus is on a practical problem that has arisen in the classroom and has limited ability to generalize the results. Most graduate students are not prepared to undertake more scholarly research that might involve testing an educational theory using random sampling with the intent to apply the theory to a wider population. The literature review that follows uses the term “action” research. All references to research in this paper relate to “action” research.

There is fairly wide agreement that the purpose of action research undertaken by teachers is the solution to local problems (Dinkleman, 1997). Topping defines action research as “systematic, intentional inquiry about teaching, learning, and schooling carried out by teachers in their own school and classroom settings” (Topping & Hoffman, 2002, p. 20). This somewhat narrow definition of action research minimizes the more far-reaching benefits of research activities for teachers. We could suggest four areas that action research can influence: 1) teaching 2) personal development 3) collaboration and 4) professional development. The effects on teaching are perhaps the most obvious and tangible. Lessons learned from a teacher’s own research and from evaluating the studies of others can be incorporated to improve teaching practice and classroom strategies (Szabo, Scott, & Yellin, 2002, Price 2001, Ravid & Leon, 1995). Research results can provide opportunities to increase student learning in the classroom by adopting effective and innovative programs found in the research literature (Ravid & Leon, 1995). It has been suggested that research can deepen personal development by encouraging teachers to be more critically reflective of their teaching processes (Dinkleman, 1997). Research also has the potential to foster collaboration with other teachers and administrators by sharing experiences and also to increase communication with pupils and their parents (Dinkleman, 1997). Lastly, research experiences can enhance professional development and lay the foundations for lifelong learning (Carboni & McGuire, 2007, Szabo, Scott, & Yellin, 2002, Price, 2001, Dorfman & Lipscomb, 2005).

Most action research is undertaken at the graduate level. Teacher educators often meet with resistance when attempting to encourage graduate students to see beyond the narrow focus of research as another assignment to appreciate the many advantages that the research experience can bestow. Among the hurdles that graduate students face is a general lack of knowledge about research skills and accessing online resources (Winicki, 2006). Most students are not in the habit of reading professional journals and are hesitant to evaluate research studies (Winicki, 2006, Topping & Hoffman, 2002). The statistics segment of a research methods course is often viewed with trepidation, especially by students who profess a “math phobia” (Winicki, 2006). An overarching problem is convincing students that they are capable of conducting research. Most are of the mind that they cannot function as researchers since research is done only by professionals (Dorfman & Lipscomb, 2005, Topping & Hoffman, 2002). Once teachers complete their graduate studies and become involved in the daily challenges of their profession, there is often little time or energy remaining to conduct research (Ravid & Leon, 1995).

Because of the many advantages that research can offer to teachers, many researchers have attempted to identify variables that can predict or are related to involvement in research. The investigation of research interest is grounded in social-cognitive theory, particularly in the areas of research self-efficacy and outcomes expectation. Biesche, Bishop, & Garcia (1993) developed a self-efficacy scale to help identify those factors that inhibit a student’s interest in research with the goal that their results would inform graduate curricula (Biesche, Bishop, & Garcia, 1993). Another study using the self-efficacy scale by Bishop, Biesche, & Garcia suggests that interest in research is influenced by the number of years in graduate school and involvement in research activities. Although greater interest and involvement in research has been linked to higher research self-efficacy, it may be more strongly related to outcomes expectation, defined as the goals one hopes to achieve as a result of certain behavior (Bard, Biesche, Herbert, & Ebertz, 2000).

There have been numerous studies investigating the relationship between characteristics and perceptions of graduate students with regard to their research experience and how this experience has affected them. For example, Szabo, Scott & Yellin (2002) conducted a study of preservice elementary school teachers engaged in action research and found that research helped the students become better teachers. In a similar study, Breidenstein, Liberatore, & Lioi (2001) examined the outcomes of a group of preservice teachers who conducted a qualitative research project. Students reported that the major outcome of their research was that they became better inquirers: in the classroom with their students, with their colleagues, with respect to the curriculum and their pedagogical techniques, and with
regard to themselves as reflective self-inquirers. Price (2001) maintains that a well designed research course can exert a significant impact on teaching practice. His qualitative investigation of three teacher candidates revealed that research can be a critical tool to evaluate teaching, to promote professional development and ultimately to bridge the gap between theory and practice.

Dorfman & Lipscomb (2005) studied a group of graduate music students in a research methods course to determine if the coursework could change their attitudes towards research. They compared students’ perceptions of research at the start and conclusion of the course. Results of the study were mixed. On the negative side, students reported that research was not central to their graduate education. Since students could not make the connection between research and teaching, there was no impact on their teaching practice. Furthermore, students did not envision research as a permanent activity of their professional lives. However, students reported that the course enhanced their understanding of the connection between research and teaching and provided them with a stronger connection to the research community. Some students considered incorporating their research results into their classroom teaching.

In a similar study, Warren, Doorn, & Green (2008) were interested in how a graduate research course influenced the role of research in teachers’ professional lives. Their investigation centered on the impact that research may have on teachers and how they think of themselves as teachers. Results indicate that students’ concept of research changed as a result of the course as they began to consider research as an active process. As a consequence of the research courses, it appeared that students developed more effective instructional strategies, improved communication with pupils, parents and colleagues and came to a deeper understanding of professional development.

**Method**

The subjects of this research study were graduate students enrolled in a Research Methods course, the first in a two-part capstone experience in an Educational Technology Masters Program at a private suburban college. In this course, students investigate various research models, discuss current journal articles, study statistical methods for data analysis and develop a research proposal. The actual research is conducted in the second course of the capstone. Prior to this course, students have had limited exposure to research methods and have read little of the research literature. The study spanned three course offerings and involved 23 students. The methodology was based on a prior study (Bailie, 2004). At the beginning and end of the course, students reflected on their concept of research, their role as researchers and their thoughts about the connection between teaching and research by recording their thoughts in a journal. Journal entries were anonymous. The specific questions posed were: 1) What is your concept of research? 2) How do you think of yourself as a researcher? 3) What do you think is the connection between research and teaching? 4) How prepared do you feel to do your research? At the end of the course, students were surveyed to evaluate the extent to which their research experience would influence their future teaching practice and professional development.

This study attempted to incorporate two suggestions derived from the earlier study. First, it appears that students need constant reassurance as they embark upon the formulation of a research proposal and so frequent conferences with the researcher/instructor were scheduled into the course to allay their fears and provide guidance. In the early conferences, students were often unsure of how to find a topic so they were encouraged to discuss their teaching environment, their access to technology, their vision of how they would like to improve the learning experience through technology. Students were provided with guided instruction from research librarians to help them search for scholarly references related to their topic. Later conferences focused on how to limit their topic and formulate a reasonable hypothesis for their research. Students wrote drafts of each section of their proposal that were reviewed and critiqued during conferences. Second, students seem to require concrete examples of how research can inform their teaching and so greater emphasis was placed on studying research reports on a variety of topics in educational technology to see how the research results could be employed in their own classrooms. The instructor introduced examples of published research from different research models. The articles were assigned to student groups who then reported back to the class to discuss the implications of the research for their teaching.

**Results**

**Question #1: What is your concept of research?** Reflections on the concept of research at the start of the course indicate that 15 students (about 65%) defined research as a process of searching for information, preferably from multiple sources. This rather simplistic view of research is consistent with students’ lack of research
experience. Only one student came close to a more global concept of research and remarked, “Research drives the
business of education.” By the end of the course, eight students related their concept of research to the enormous
and sometimes overburdening amount of time it consumes. Others recognized the difficulties and challenges in
doing research and decided it was best to leave it to the professionals. Several others made statements indicating that
their concept of research had become more defined. For example: 1) “Research is the objective analysis of
observations that may lead to the development of theories to predict an event.” 2) “Research is not only searching
for information that is already out there but also collecting new information and analyzing the results.” 3) “[In
research you] compare your results to the work of others and draw conclusions.” 4) “Research can reveal whether a
particular method of teaching is more or less effective than another method.”

Question #2: How do you think of yourself as a researcher? At the beginning of the study, nine students
considered themselves adequate researchers and seven students had doubts about their abilities, citing poor statistical
skills, inadequate writing skills, and views of research as boring, tedious, and stressful. At the end of the course, 14
reported more confidence in their abilities as researchers but five adamantly declared that research was the same as
at the start -- boring, tedious, and stressful.

Question #3: What do you think is the connection between research and teaching? At the start, four
students viewed the connection between research and teaching in light of looking for good sources to deliver lesson
plans for the classroom. The majority of the students appeared to maintain a deeper connection. Many students
realized that research can improve teaching by learning from others, elucidating best practices, and discovering
factors that influence performance. Two students were particularly clear on this question: 1) “Teaching passes along
knowledge that comes from prior research.” 2) “Teaching is molded by research.” Remarks at the end of the course
did not differ substantially from those at the beginning. However, some ideas were more refined, such as, “One
cannot exist without the other.”

Question #4: How prepared do you feel to do your research? At the outset of the course, only three
students expressed confidence in their ability to do research. Seven students were somewhat prepared but needed
guidance, and the remaining reported serious doubts. By the end of the course, almost every student felt better
prepared than when they started, although many recognized that they still needed support.

The student conferences were well received by the students. Since they had little or no experience with
research prior to the course, they were grateful for the opportunity to receive personal reassurance that they were on
the right path. The early conferences were valuable in forcing students to confront the most difficult step in the
process – selecting a topic and narrowing it to a feasible yet worthwhile project that could be completed in the
allotted time. In drawing them out, the instructor was able, in most cases, to convince the students that their ideas
were promising and they truly had the ability to find the answers to their research questions. Sessions with a
research librarian were welcomed by the students, many of whom had never received formal instruction in using
online databases and other pertinent resources. These skills enabled them to locate journal articles to support their
research topic. While reviewing proposal drafts, the instructor challenged students to defend their ideas and
methodologies, thus enabling them to refine their hypotheses and better articulate their plans. The student
conferences showed the expected natural progression from hesitation and trepidation at the thought of doing a
research study to a gradual acceptance of competence and the potential for success. Despite repeated reassurance
and interventions, a few students failed to gain the confidence that they could repeat this process without assistance.
Nonetheless, the majority of students found that these conferences greatly facilitated the research proposal process
and gave them the confidence they needed to proceed.

To illustrate the practical applications of research in the classroom, students read and discussed a wide
variety of published research as well as studies done by former students. Students worked in groups to prepare an
evaluation of the studies that were presented to the class. The articles demonstrated different research models and
allowed students to debate the advantages and shortcomings of the studies. These discussions not only provided
many examples of successful studies but also indicated how the results might be applied in their own classrooms to
enhance student learning.

At the end of the course, students completed a survey that asked them two questions relevant to this study:
1) Do you think that you can use the results of your research in your teaching? 2) To what extent do you think you
will seek out research results to improve classroom strategies? Thirteen students planned to use the results of their
research in their teaching, with three contemplating but not certain. Three students were certain they would not use
their research results. When asked about seeking out research results in the future, students were much more
guarded in their responses. Only one student responded positively and six thought perhaps they would use research
if the proper situation arose. Five students had no intentions of ever referring to research results once the course was
over. Despite the mostly negative response to this question, one student remarked, “Research helps a teacher to
grow.”
Discussion

The purpose of this study was to investigate methodologies that can be employed in a research methods course that will help graduate students understand and appreciate the role that research can play to improve their teaching and to lay the foundation for future inquiry. The specific methodologies used were those suggested by a previous study, namely 1) to use frequent student conferences to allay student fears, build confidence, and guide them to formulate a viable research proposal and 2) to enhance the course curriculum with concrete examples of how research can inform teaching. In addition, data was gathered from student reflections to monitor their progress on viewing themselves as researchers and on integrating teaching and research. The initial thoughts of students in this study regarding research and their role as researchers are in keeping with past studies. They were focused on completing the course as a requirement (Dorfman & Lipscomb, 2005); they held a somewhat low-level view of research as “looking up facts” because of their severely limited experiences with research (Winicki, 2006, Topping & Hoffman, 2002); they doubted their ability to do research (Dorfman & Lipscomb, 2005, Topping & Hoffman, 2002); many claimed the role of research in teaching was to find useful lesson plans online (Dorfman & Lipscomb, 2005). Despite these negative factors, the evidence indicates that most students experienced a renaissance of sorts by the end of the course. Over half the students reported a substantial increase in their ability as a researcher and almost every student felt better prepared and more confident. Students’ concept of research as a discipline evolved to a more sophisticated level. Statements such as, “Research is the objective analysis of observations that may lead to the development of theories to predict an event” indicate a realization of why we engage in research. It was encouraging to discover that over half the students in the study planned to employ strategies learned from their research in their future teaching. In fact, by the end of second course, some students had already enthusiastically incorporated their research results into their classroom. Whereas some students appeared to see the deep connection between research and teaching (e.g., “One cannot exist without the other), almost none of the students saw research as playing a major role in their professional lives in the future (Ravid & Leon, 1995). This somewhat disappointing result seems to indicate that further work is required in this area.

Overall, there certainly appeared to be a shift in students’ perceptions of the connection between research and teaching from the start of the course to the end. However, it is difficult to attribute this change to any specific factors. Frequent student conferences were clearly advantageous in calming students’ fears and assuring them they were on the right track. They were also instrumental in catching errors in methodology early on to avoid more serious problems in the future. Students enthusiastically acknowledged their gratitude for these frequent conferences, so one could justifiably assume that they had some impact on improving students’ confidence as researchers. Throughout the course, the instructor attempted to illustrate the vital connection between teaching and research through examples from the research literature. Students held numerous lively discussions of research articles, noting their methodologies, limitations and results. These classroom discussions were often cited by students as one of the most beneficial and interesting aspects of the course.

Conclusion

This study highlights the importance of continued research in this area to identify other possible factors that can improve graduate students’ understandings of research and the intrinsic connection between research and teaching. Students are grounded in practicality: They need specific examples that they can directly relate to their own situations. One possible way to accomplish this might be to establish a forum for educational research with participants drawn from former graduates of the program who had positive experiences incorporating research results into their teaching as well as faculty engaged in educational research. Informal discussions of the rewards and difficulties of using research in the classroom could be an invaluable asset in driving home the reality of how research can inform teaching in a meaningful way.

As we have seen, the research methods course has the potential to broaden students’ concepts of research (Price, 2001) as well as to help them become better teachers (Szabo, Scott, & Yellin, 2002). The data from this and other studies seems to indicate that when graduate students appreciate that research can add a new and deeper dimension to their teaching, they feel empowered and confident in the classroom and thus can provide an enhanced learning environment for their own students. And so, we must continue to explore other initiatives to highlight the importance of research for graduate students and lead by the example of our own enthusiasm and passion for the research process.
References


