Efficacy of Research Curriculum in Educator Preparation Programs

Nicole Ralston, Ph.D.
Jacqueline Waggoner, Ed.D.
James B. Carroll, Ph.D.

University of Portland

Abstract

Responses were gathered from master's candidates in initial and advanced licensure teacher preparation programs. They were asked to discuss how completing a capstone research project contributed to their effectiveness as a teacher. Advanced candidates reported themes of improving practice, evaluating new school initiatives, and increasing collaboration with colleagues. Initial licensure candidates reported themes of using research to investigate specific topics, using research as part of assessment practices, and the importance of teachers as researchers. Conclusions suggested capstone research projects and the associated research experiences add value to teacher preparation programs and improve teacher self-efficacy.

Keywords: **master's candidate capstones, teacher researchers, teacher preparation, liberal arts**

The purpose of this study was to examine the perceptions of the impact of research-based capstone projects completed by teacher candidates at the master's level. Capstone projects as a requirement for program completion exist in many disciplines. What these projects entail varies widely, but in general, the purpose is to provide the candidate who is pursuing a degree with an opportunity to complete a performance-based activity that shows learning across courses in a program of study. At the master's level, these projects tend to be research projects that may or may not require the writing of a thesis to report on the research.

Teachers as Researchers

Teacher education programs, either at initial-licensure or advanced-licensure levels, are focused on improving practice. Preparation programs often do not emphasize developing teachers as researchers, although this may be changing with the current emphasis on data-driven decision making. Since 2009, for example, more than two-thirds of states have changed substantially the ways in which teachers are evaluated to include teacher impacts on student achievement (Center for Public Education, 2013). In many states and districts this requires setting a goal, working towards that goal, and measuring the impact on that goal; steps that are often synonymous with steps in the research process.

Both initial and advanced teacher preparation standards address the importance of teachers acquiring research competence. For instance, Performance 9c in Standard 9 of the Interstate Teacher Assessment and Support Consortium (InTASC) Standards says: "Independently and in collaboration with colleagues, the teacher uses…research to evaluate the outcomes of teaching and learning and to adapt planning and practice" (Council of Chief State School Officers, 2011). In addition, Domain II of the Teacher Leader Model Standards (Teacher Leader Exploratory Consortium, 2011) is "Accessing and Using Research to Improve Practice and Student Learning." Included in Domain II is the expectation a teacher leader: "Teaches and supports colleagues to collect, analyze, and communicate data from their classrooms to improve teaching and learning."

Despite these new trends, research methods are often seen as being in conflict with other program goals and in competition with other courses that are viewed as being more focused on helping all P-12 students learn (Honigsfeld, Connolly, & Kelly, 2013). Frankel, Wallen, and Hyun (2015) described how engaging in teacher research activities may be a poor use of teacher time and expertise. Consequently, research-based capstone projects, if seen at all in teacher preparation programs, are less likely to include comprehensive reports of a research study.

Alternatively, Cochran-Smith (2005) stated that teachers need to be able to conduct research about their own practices and programs. She suggested that an individual's research is improved based on the quality of the research preparation that the completer received in his or her teacher educator program. Research integration in education master's programs can range from meager to rigorous. Perhaps the most rigorous approach is used in Finland's teacher preparation programs, where all new Finnish teachers must complete a four-year master's program in one of eight university teacher preparation programs; all of which require the completion of a research thesis (Westbury, Hansen, Kansanenm, & Björkvist, 2005). The intent is for students both to understand the research basis for the work they are doing and to be able to conduct their own research. In most cases, this research work is based in clinical experiences over a two-year period of time. In an example in which the focus is more on candidate reflection, Brown and Benson (2005) described a culminating Capstone Exhibition in which candidates make oral presentations demonstrating knowledge of theories and practice in addition to knowledge gained through action research projects.

Benefits of Research Capstone Projects

Measures of the benefits of capstone projects are diverse. Boyd, Lankford, Loeb, and Wyckoff (2009) provided evidence that research capstone projects in educator preparation programs (EPPs) are correlated positively and significantly with P-12 student outcomes in the first and second years of teacher careers in New

York schools. Perry and Imig (2010) found that research capstone projects contribute to practitioner learning and that they provide a vehicle for understanding complex educational problems. McKinney and Day (2012) discovered positive effects of completing capstone projects, including "understanding and competence in doing a research project, interpersonal competence and confidence, and a sense of ownership and pride in the project" (p. 153). Van Zeer et al. (2006) described the positive link between teacher research and teacher leadership. Warren, Doorn, and Green (2008) found research experiences impacted teachers' sense of personal identity and their relationship with the school, including the conclusion that after research experiences, teachers were more likely to serve as a *catalyst for change*.

From this range of potential benefits of capstone projects, it appears that, more generally, teacher self-efficacy may be improved. An examination of the possibility that teachers may gain a measure of self-efficacy around using research entails both looking at teachers' beliefs of their ability to complete or use research strategies in their work—research efficacy— but also an examination of teachers' beliefs about whether that ability will translate into a positive impact on their classroom or school—outcome expectancy (Bandura, 1994).

Methodology

All of the respondents in this study ($n = 83$) were enrolled in the School of Education in a small, liberal arts university in the Pacific Northwest. Forty-four respondents (53%) in the investigation had recently completed a 36-credit hour Master of Education (M.Ed.) teacher leadership program. These were licensed teachers in cohorts on the main campus ($n = 8$), in a satellite campus in Edmonton, Alberta ($n = 24$), and in a residency program for teachers working in Catholic schools throughout the northwest ($n = 12$), including Alaska. The number of years the respondents had been teaching varied between 2 and 18 years. The remaining 39 respondents (47%) had completed a 36-credit hour initial teacher licensure program culminating in a Master of Arts in Teaching (MAT) degree.

All candidates in the study completed a capstone project that was a research-based investigation into a topic of the candidate's choosing. The candidates' investigations were conducted in the classroom or school where the respondent worked or where he or she was placed in clinical experience. Before the capstone research course in the M.Ed. program, candidates completed two, three-semester-hour research methods courses—one qualitatively oriented and one quantitatively oriented. In the MAT program, candidates completed a single research methods course covering both quantitative and qualitative methodologies prior to engaging in the capstone research project. After the research methods courses, the capstone project was completed as a three-semester-hour project during which candidates worked independently with the guidance of a faculty research advisor. The reports on these projects were five chapters, APA formatted, and were approximately 30 to 40 pages in length.

Data were gathered in two forms. The first set of data was from master's candidate reflections on their experience during their program. These data were generated from three prompts related to the program as a whole, with one prompt focused specifically on the research component of their program. The prompt for the research component was: *In what specific ways have you learned to use educational research? Describe ways these skills contributed to your ability to analyze and improve your own practice and the environments in which you work.*

The second set of data was from candidates' reflections about a required formal research presentation to the faculty of their school. Although the reflection included a summary of the presentation and the questions they were asked at the end of the presentation, the responses analyzed in this study were from the prompt: *What did you learn from giving the presentation?*

Data were analyzed iteratively. First cycle coding included in vivo and descriptive strategies (Saldãna, 2013). Second cycle coding was carried out as axial coding. The observed coding categories and exemplars were reviewed by two authors to check that the categories were comprehensive and inclusive.

Results

Because the advanced program and initial licensure candidates were at different levels of their teaching careers, the responses were disaggregated by level and examined for differences after themes had been identified in each set.

Advanced Program M.Ed. Candidates

Although there was some overlap between the responses to the two prompts, the responses mostly coded into two categories: one related to how the candidates learned to use research and a second related to the interaction with colleagues that candidates had experienced as a result of making a presentation of their research at their school sites.

In regard to the specific ways the candidates learned to use educational research, two predominant themes appeared in these responses. First, many of the respondents thought that having had these research experiences would improve the work they did. It was stated explicitly by three of the respondents that the research would *make me a better teacher*. More generally, many of the respondents talked about their new practice of using research when making decisions in their schools and classroom. Typical comments related to this theme included:

- *I have challenged myself to continue to support professional decisions I make in my classroom with research.*
- *Using educational research has allowed me to do my own research on the topics I teach, instead of depending on textbooks.*
- *Now that I have solid evidence on what works or what doesn't, I can take action based on it.*

Associated with this idea of improving the work of these teachers and administrators, eight of the respondents indicated that they were now more confident in the decisions they made in their classrooms and schools.

The second theme that appeared concerned evaluation and caution surrounding new initiatives and external mandates. Typical

comments in this theme included:

– *If a new initiative or project is being implemented it is important to have data to support the decisions that we are making to support if we should continue.*
– *Our ability to determine the validity of a project is essential to deciding if the idea is worth implementing or eliminating within our schools*
– *This course taught me to analyze the information carefully in order to ensure that what I am being told is actually supported by data.*
– *As teachers, we are consistently exposed to and encouraged to try new initiatives in our classrooms and schools. Before I would take the information given to me at face value and wouldn't necessarily dig deeper into the 'why' behind this program. Now I have the skills needed to bring up and support questions and concerns that I may have.*

Candidates were asked about what they learned from making a presentation of their research to their colleagues. This prompt generated responses that focused both on the candidates' personal growth and on the candidates developing a changed understanding of the environments in which the respondents worked. Categories in these areas addressed the difficulty in publicly presenting the research to others, the need to explain their research methodology, and the experience of sharing information with colleagues.

Many of the respondents were struck by the **difficulty in presenting** to their colleagues.

– *The presentation also taught me the importance of organization and practice. I was quite nervous beforehand, and I wished I had reviewed it a few more times before giving my final presentation to my audience.*
– *Given the feedback on my presentation, I know that I have some work to do on the presentation before I can feel fully confident in it.*
– *Before presenting this information, I was worried about talking*

about this project with others, especially about presenting in front of a larger group.

More specifically, a number of respondents discussed the need to explain **research methodology** to their audience.

- *The teachers I was presenting to had no idea what "significantly strong" r values meant… Sometimes we have to adjust our data and our information to a simpler form to our audience in order to get our point across.*
- *I learned how to explain the data analyses we performed in Microsoft Excel to others who are not familiar with it. I realized this is a difficult task!*
- *I thought it pragmatic to present the material from a researcher's point and then define any language through verbal, face-to-face interaction. It was harder than expected to remove myself from the research process I have been enveloped in for the last 10 months. Additionally, not all my colleagues are up-to-date with research concepts and terminology.*
- *A large portion of the teaching population run their classes off of the subjective rather than the empirical. Often times, this subjective assessment has basis or connections with scientific and research basis although that is usually realized after the fact.*

Consistently the respondents discussed the importance of sharing with colleagues.

- *I especially liked the fact that it sparked conversation with all of us about what we can do as a school to improve student learning.*
- *There is a real need for continuing education, professional development, and inter-staff sharing of ideas and best practices.*
- *We should continue to discuss what we are doing in our classrooms and continue to look at the research in order to make mindful, data driven decisions.*
- *I look forward to having further discussions and talking about successful practices and challenges in engaging staff.*

– *It's important for all of us to evaluate how and why we teach in addition to what we teach and it seemed that my presentation was able to spark that in many of my coworkers.*

Initial Licensure MAT Candidates

The MAT candidates were not required to make presentations of their work to colleagues. Analysis of MAT responses was solely from the research prompt of the reflective exit paper (In what specific ways have you learned to use educational research?). Responses coded into three categories: investigating specific topics, the use of research in assessment practices, and teacher as researcher.

Some of the candidates were appreciative of the opportunity to practice the application of the topics they were studying in their capstone research. These included instructional strategies such as Growth Mindset (Dweck, 2010) using music as a behavioral tool, or use of *reading buddies*. In a similar vein, candidates appreciated how the tools of research could assist in their work. The most frequently mentioned were library and literature review skills, and Excel—especially statistical analysis tools within Excel.

Candidates discussed the use of the research skills they had learned in assessment practices in a variety of ways.

– *I've worked collaboratively with colleagues to analyze assessment data in order to inform whole class activities focusing on subjects where students need the most supports.*
– *I plan to use pre- and post-assessments to collect affective, achievement, and performance data from my students. This data will help me determine if my initial styles of management and planning are effective and whether I am reaching all of my students in an equitable fashion.*
– *Concrete data gives you a clear picture of what each student understands and what they do not.*
– *It seemed daunting at first, but now I understand that data is important, and it's crucial to have all your practices and instruction be backed up by solid research.*

Additionally, candidates spoke more broadly about the importance of research to the practice of teaching.

– *I think my greatest take away is that research is a very important component of being a good teacher.*
– *Performing research can help guide your instruction and see if a particular strategy is achieving the desired outcome.*
– *I have gained an immense appreciation for not only those who have done research in my field in order to improve teaching my subject, but I have learned how I can incorporate research into my practice.*
– *I have come to realize just how important it [research] is in my own teaching, helping me to make improvements that benefit my instruction and my students, as well as in collaborating with other teachers to share results that may help in other classes.*

Conclusion

In Bandura's (1994) terms, the advanced program respondents discussed an increased ability to *complete tasks* or use research effectively. They discussed this as both improving their own practice in classrooms and schools and also in their ability to evaluate mandates imposed on them externally. Additionally, they discussed achieving *outcome expectancies*, or their ability to reach goals in their work, particularly with their faculty colleagues. Of particular note is the number of respondents who discussed how the activity of sharing research emphasized the need for faculties to discuss their own work with each other.

For the initial licensure candidates, the responses were generally more focused on their immediate application of what they had learned; of how they could apply the instructional strategies and assessment practices that they had learned about. Encouragingly, they also discussed the importance of research to their teaching and to working with colleagues.

These findings are consistent with McKinney and Day's (2012) observations of participants' feelings of interpersonal competence and confidence, and a sense of ownership and pride. Additionally, many of our respondents discussed how they hoped to continue

using their understanding of research to help their schools improve. This is also consistent with Warren, Doorn, and Green's (2008) findings that teachers with research experience became *catalysts for change*. More broadly, developing an understanding of research, not only within teacher work but as a set of skills necessary for citizenship is part of the liberal arts tradition. Kimball (2013) described this as a *moral and prudential* justification for teacher preparation in liberal arts colleges. Becoming a catalyst for change is likely to be applicable beyond the class or school.

We see these results as reinforcing the value-added nature of helping teachers become researchers in their own right. Including research capstones in preparation programs extends the abilities of these teachers beyond solely being able to conduct a research study. It helps them to become better teachers in their classrooms and in the educational communities in which they work.

References

Bandura, A. (1994). *Self-efficacy*. New York, NY: John Wiley & Sons, Inc.

Boyd, D. J., Grossman, P. L., Lankford, H., Loeb, S., & Wyckoff, J. (2009). Teacher preparation and student achievement. *Educational Evaluation and Policy Analysis, 31*(4), 416

Brown, A. H., & Benson, B. (2005). Making sense of the capstone process: reflections from the front line. *Education, 125*(4), 674–692.

Center for Public Education. (2013). *Trends in teacher evaluation: How states are measuring teacher performance*. Retrieved from http://www.centerforpubliceducation.org/Main-Menu/Evaluating-performance/Trends-in-Teacher-Evaluation-At-A-Glance/Trends-in-Teacher-Evaluation-Full-Report-PDF.pdf

Cochran-Smith, M. (2005). Teacher educators as researchers: Multiple perspectives. *Teaching and Teacher Education, 21*(2), 219-225.

Council of Chief State School Officers. (2011, April). *Interstate Teacher Assessment and Support Consortium (InTASC)*

model core teaching standards: A resource for state dialogue. Washington, DC: Author.

Dweck, C. S. (2010). Even geniuses work hard. *Educational Leadership, 68*(1), 16-20.

Frankel, J. R., Wallen, N. E., & Hyun, H. H. (2015). *How to design and evaluate research in education* (9th Ed.). New York, NY: McGraw Hill.

Honigsfeld, A., Connolly, M., & Kelly, S. (2013). Demystifying teacher action research: Lessons learned from a graduate education capstone experience. *The Delta Kappa Gamma Bulletin*, 15-21.

Kimball, B. A. (2013). Do the study of education and teacher education belong at a liberal arts college? *Educational Theory, 63*(2), 171-184.

McKinney, K., & Day, M. D. (2012). A multi-institutional study of students' perceptions and experiences in the research-based capstone course. *Teaching Sociology, 40*(2), 142-157.

Perry, J. A., & Imig, D. G. (2010). *Final report: The Carnegie project on the education doctorate 2007-2010*. Retrieved from http://perryjil.pairserver.com/files/Final%20Report%20(2010).doc

Saldaña, J. (2013). *The coding manual for qualitative researchers* (2nd ed.). Los Angeles, CA: Sage.

Teacher Leader Exploratory Consortium. (2011). *Teacher leader model standards*. Retrieved from http://teacherleaderstandards.org

Van Zeer, E. H., Valli, L., van Zee, E. H., Rennert-Ariev, P., Mikeska, J., Stacy Catlett- Muhammad, S., & Roy, P. (2006). Initiating and sustaining a culture of inquiry in a teacher leadership program. *Teacher Education Quarterly, 33*(3), 97–114.

Warren, S., Doorn, D., & Green, J. (2008). Changes in vision: Teachers engaging in action research. *The Educational Forum, 72*(3), 260–270.

Westbury, I., Hansen, S., Kansanen, P., & Björkvist, O. (2005). Teacher education for research-based practice in expanded roles: Finland's experience. *Scandinavian Journal of Educational Research, 49*(5), 475–485.

• • •

Dr. Nicole Ralston is an assistant professor in the School of Education at the University of Portland in Portland, Oregon. She received her Ph.D. in educational psychology with an emphasis in measurement, statistics, and research design from the University of Washington. An elementary school teacher at heart, she now teaches educational research and assessment courses to undergraduate and graduate students and advanced quantitative statistics to doctoral students. She researches in the areas of diagnostic assessment, algebraic thinking, and teacher coaching models. Nicole also co-directs the Multnomah County Partnership for Education Research.

Dr. Jacqueline Waggoner is a tenured Professor in the School of Education at the University of Portland in Portland, Oregon. She received her bi-university Ed.D. from the University of Oregon and Portland State University in Public School Administration and Supervision and teaches graduate research and doctoral Research for Evaluation and Planning. Research areas are teacher education, measurement, instrumentation, assessment, and data-driven decision making. Jacqueline also co-directs the Multnomah County Partnership for Education Research.

Dr. James B. Carroll is a tenured Professor in the School of Education at the University of Portland. He received his Ph.D. from the University of Washington in Educational Administration and Supervision. James has written in the areas of assessment in teacher preparation and educational technology. He teaches graduate courses in educational research, has co-authored a book on that topic, and teaches an introduction to doctoral research course.