

## **Process over Product: Using Undergraduate Research to Prepare Preservice Teachers for Teaching Inquiry in the Secondary Classroom**

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### **Abstract**

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*Undergraduate research opportunities and initiatives hold promise in helping preservice teachers develop strong research skills to become reflective practitioners. These experiences also have the potential to assist preservice teachers in teaching their own secondary students about research with a focus on the process of inquiry, rather than a final product.*

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### **Perspectives: The Past Informs the Present**

As a high school English teacher for close to two decades, I was the school villain who assigned the dreaded senior research paper. This yearly ritual was so revered (by those in charge at least) that the student handbook included a page that dictated the weight of the grade and the consequences of missing the submission deadline. In my early years at the helm of senior English, I followed the path of my predecessors, so students chose from selected controversial topics and were allotted approximately nine weeks of instructional time to compose this behemoth paper worth 50% of the semester grade.

As standards began to change, I questioned my approach and attempted to breathe life into the process by recreating the traditional paper, adjusting the length and the time dedicated to it, and even lobbied for the freedom to assign my own weight to the grade. I attempted more creative endeavors such as the multi-genre research approach inspired by Tom Romano (2000) and autobiographical projects. However, I was missing the forest for the trees as the focus continued to remain largely on how to quote properly, use in-text citations, create a works cited page, and adhere to MLA format. At that time I spent days on end explaining the correct procedure in numbering note cards to correspond with the outline they created.

One day I literally threw my hands in the air and said “I give up” when one of my students couldn't complete the outline because she said she didn't have Roman numerals on her keyboard. My students and I were so focused on the product, the research paper, that we lost sight of the importance of the process of research. In pursuit of learning how to properly cite our findings, we neglected the importance of intellectual curiosity and exploration. The senior research paper was less about cultivating deep learning through synthetic thinking and inquiry and more an exercise in torture through teaching structure and format. Organization and documentation are important, yet they shouldn't have become the focus. Even the rubric reflected the idea that formatting was as important as what was discovered, examined, and discussed.

The problem with this model was that very little research actually took place. Yet, these projects mirrored the types of research and writing I had done in my own undergraduate program of study. These research papers, both the ones I had composed as a college student and the ones I was assigning as a teacher, failed to be what research is really about- investigating something you are deeply interested in and finding gaps that can be explored. Even the name “research paper” puts the emphasis on the product, the paper itself, rather than the process, the process of inquiry and investigation.

### **Current Issues: Process Versus Product**

Focusing on the product instead of the process, along with teaching research as we were taught, is not unusual. As Lather (2002) says, we continue in our research practices not “out of some sense of the great sufficiency of what we have done, but rather out of our puzzlement as to how to proceed differently” (p. 209). We see the limitations of our current models, but are unsure as to how, or where in the educational process, to change. Educators know that research is a tool for engagement, emphasizing “process, method, correction, [and] change,” based in lived experiences and in pursuit of solutions to practical problems (Deising, 1991. p 75). In many ways, the way we currently teach research, a product-oriented approach, limits its applicability to practical problems encountered in our daily lives. For teachers and teacher educators, these practical problems frequently focus on how to increase student learning (Sagor, 2000). One of the ways in which teachers investigate how to increase learning and achieve desired student outcomes is by engaging in action research in their own classrooms. Action research, that which is conducted by practitioners for the purpose of improving their performance, is useful to educators because it can be done in their classrooms with a focus on the needs of their unique situations (Sagor, 2000). Action research experiences have the capacity to cultivate teachers who are “more skilled at reflecting on and evaluating the consequences of their practice for children” Colucci-Gray, Das, Gray, Robson, & Spratt, 2013, p. 142), and as such, are important in the training and development of our teachers of tomorrow.

After several years as a secondary English teacher, I transitioned to a university position in secondary teacher education. My students take a block course in which they learn management and pedagogy and apply those in field experiences where they plan and teach lessons to high school students. As part of program requirements for assessing student-learning outcomes, my students and I participate in various forms of data collection. Preservice teachers in our program conduct pre and post assessments to determine teacher efficacy during their field experiences; however, these experiences in data collection and reporting lack the components that effectively determine if preservice teachers can act on what their data reveals. The process of research is obfuscated further as our preservice teachers are largely removed from the methodology of designing a study on how best to measure their classroom efficacy as well as how the data is then reported and subsequently used. This occurs both in planning based on the pre-assessment or in planning based on the larger implications of their data regarding pedagogical and assessment strategies. The product over process mentality is just as apparent in higher education as it was in secondary ELA; students completed assignments designed to teach inquiry and analysis without actually engaging in their own authentic inquiry process. An important aim, therefore, should be to transform research experiences during teacher education to prepare preservice teachers as researchers with the knowledge and experience to plan, conduct, and utilize their own classroom research in order to be responsive to student needs. Equally important is fostering an appreciation for the inquiry process in undergraduate preservice teachers as it has the potential to become a significant focus when teaching their own secondary ELA students research.

In the secondary academic content areas that preservice teachers are preparing to teach, much emphasis is placed on the research and inquiry process and the critical thinking involved, which is reflected in the Common Core State Standards.

While the Common Core English Language Arts standards address developing students' ability to synthesize, quote, and organize complex material, they also asks that students "conduct short as well as more sustained research projects to answer a question (including a self-generated question) or solve a problem; narrow or broaden the inquiry when appropriate; synthesize multiple sources on the subject, demonstrating understanding of the subject under investigation" ("Common core," 2015, n.p.). The type of research in which students might generate a question, search for existing information, collect data, analyze it, and present their findings in written form is the type of inquiry and writing that promotes higher order critical thinking, yet seems to differ greatly from the type of research conducted in many secondary ELA classrooms. Guiding students through the inquiry process of conducting authentic research requires that teachers themselves have an in-depth understanding of not only the basic research process as it applies to searching for and selecting appropriate sources, but also the type of knowledge about research that extends to personal epistemological and ontological standpoints that underpin one's view on how things are known. Student research in which there is a genuine question to be answered or a phenomena to be investigated would require that teachers have the ability to guide students in refining questions and identifying gaps in knowledge as well as to assist them in selecting an appropriate design and methodology. The challenge, therefore, is to train our preservice teachers as researchers, specifically action researchers, for the development of their own reflective practice. Moreover, an important component of this is to guide them through authentic experiences as an undergraduate upon which to draw when teaching their own secondary ELA students to engage in the research and inquiry process.

In addition to their focus on improving the teaching of writing, the National Writing Project (NWP) is a strong proponent of teacher action research. Ongoing research in the classroom aids teachers in becoming reflective practitioners who are then able to make timely, evidence-based pedagogical decisions. One of NWP's core principles states, "Knowledge about the teaching of writing comes from many sources: theory and research, the analysis of practice, and the experience of writing. Effective professional development programs provide frequent and ongoing opportunities for teachers to write and to examine theory, research, and practice, together systematically" ("NWP core principles," 2015, n.p.). An additional benefit of teachers who are confident researchers themselves is the in-depth understanding and expertise they can draw from when leading their own students in the inquiry process. If teachers are expected to guide students through an authentic research process then they must possess the experience and knowledge to do so effectively and be afforded the opportunities in which they themselves can develop into confident researchers and writers of research as teacher efficacy directly impacts student achievement (Ashton & Webb, 1986). This can be accomplished not only by targeting in-service teachers through ongoing, intensive professional development experiences such as those offered through the NWP, but also in creating opportunities for preservice teachers to engage in authentic research experiences while they are still in their undergraduate programs. By making available varied research opportunities, teacher education programs can foster the development of research-oriented professionals who will conduct and utilize action research as in-service teachers to inform their own practice. Additionally, those experiences will give them an authentic and informed perspective when teaching their own students about the research process and expand their conceptions of research beyond the final written product. Thus, the inquiry process is recognized as valuable in and of itself and not subjugated to the product.

### **Opportunities: The Role of Undergraduate Research in Preparing Preservice Teachers**

Despite a growing interest in the impact of undergraduate research on student achievement and retention, the expansion of research experiences into humanities and social sciences disciplines has lacked momentum. (Mancha & Yoder, 2014). Although professional organizations such as the National Council of Teachers of English promote teacher research and some teacher education programs require action research projects for preservice teachers, many undergraduate teacher preparation programs may not require or offer research methodology courses that would prepare their teachers for this type of research as those courses are traditionally offered in graduate programs. In some states like Texas there is very little room for the addition of courses due to the cap on the number of hours for completing a program of study in teacher education; therefore, the addition of required coursework designed to train preservice teachers to conduct action research is not feasible. However, many colleges and universities across the nation are implementing and promoting undergraduate research on their campuses. The Council for Undergraduate Research (CUR) defines undergraduate research as an inquiry or investigation conducted by an undergraduate student that makes an original intellectual or creative contribution to the discipline ("Frequently asked questions," 2011, n.p.).

These experiences, outside the auspices of the classroom, not only enhance undergraduate learning but also foster their development into the critical thinkers and problem solvers needed to meet the demands of the twenty-first century, global workplace classrooms (Hart Research Associates, 2013). Undergraduate research at present is a trend gaining popularity in universities for a variety of reasons. Supporters of undergraduate research cite increased retention rates and increased academic achievement (Chubin & Ward, 2009; Lopatto, 2004), for involved students and opportunities for collegiately and professional relationships for faculty (Adedokun, Dyehouse, Bessenbacher, & Burgess, 2010; Hensel, Malachowski, & Osborn, 2011). Furthermore, through this mentoring process, faculty are demystifying the research process and inviting students into the ongoing academic conversation by providing guidance and support as they develop the unique skill set required by academic research and writing (Graff & Birkenstein, 2006).

Undergraduate research experiences are recognized as high-impact educational practices, which were delineated by Kuh, Schneider, & AACU (2008) as best teaching and learning practices shown effective for college students. Consortiums and initiatives like the Council of Public Liberal Arts Colleges (COPLAC) and the Liberal Education and America's Promise (LEAP) are proponents of undergraduate research and encourage the implementation of such initiatives in the college experience. At our university this initiative is the Enhancement of Undergraduate Research Endeavors and Creative Activities (EURECA), which "promotes and facilitates undergraduate research by providing incentives and a support system for undergraduate students to engage in high-quality research and creative activities in an interdisciplinary environment ("EURECA", 2014, n.p.). One example of a project utilizing this resource involved several preservice teachers and education faculty working collaboratively to write a practitioners guide for integrating movement into the classroom. As a result of this project many of the students have continued beyond the scope of the initial project and have noted applicability to their role as preservice teachers.

Below is an interview with an ELA preservice teacher with whom I worked on the movement integration project. She shares her experiences with undergraduate research outside of the scope of her coursework and how it impacted her first field experience when teaching high school ELA students about the research process.

**Janise:** Please describe your undergraduate research experience.

**Krysta:** In spring 2014, I was approached by you about getting involved in a movement integration project. And you asked for me to work on the language arts chapter of the textbook. So far, I have conducted a review of the relevant literature, and this semester I am working with you on drafting the chapter and researching ideas and designing the actual lesson plans. Undergraduate research has been a great learning experience for me. I have learned how to work with others, and I have also learned how to find relevant information from reputable sources. And we've already talked about the next phase of the project which is to design a study about the aspects of implementing the lesson plans.

**Janise:** What specific skills did you acquire in your undergraduate research experience that assisted you in teaching your own students research in the field experience component of the teacher preparation program?

**Krysta:** Through my undergraduate research experience, I have learned many basic research skills that I did not learn in high school. Therefore, when I went into the classroom to teach my students about research, I wanted to make sure that I showed them skills that would help them stay ahead of the curve when they reached college. Instead of simply relying on what the curriculum of the district provided me in terms of slide presentations and worksheets that included what they wanted the students to know about research, I was able to pull from my own research experience to build on what the curriculum provided with personal anecdotes from my own experience. So, if a student was struggling with finding evidence, for example, I could tell him or her about how I worked through the struggle in my own research with strategies like changing my keywords for searches.

**Janise:** How did the knowledge you gained from your involvement in undergraduate research impact the way you taught and prepared to teach research to your students in the field experience component of the teacher preparation program?

**Krysta:** Through my undergraduate research experience, I have changed from seeing research as a cumbersome activity that results in a paper for a class to seeing research as a mode of change. I know that my research partners and I are working toward a textbook that could actually change the way that some instructors teach content to their students, so I see our project as relevant to my teaching career and the teaching career of others. When I went into the classroom, I wanted to try and instill in the students that they should choose to research topics that they see as relevant or things that they want to change in the world. I could see when a student had actually chosen a topic that he or she cared about when that student would become passionate while speaking to me about the evidence that he or she had found. It was very rewarding.

**Janise:** You mentioned your own high school experience above, so how did the way you taught your students research in the classroom differ from the way you were taught in high school?

**Krysta:** To be completely honest, I was not taught about real research in high school, so when I got to college, I had to start from square one. I wanted to make sure that this did not happen to my students, so I tried to use what time I had in my field experience to teach my students basic research skills that would help them in the future. I tried to make sure they knew how to search for a relevant and interesting topic to research and how to search for evidence from credible sources that they could use to back up their arguments.

**Janise:** In what ways did your undergraduate research experience increase your confidence in teaching research to your own students?

**Krysta:** After being involved in undergraduate research, I felt more confident when I taught research to my own students because I felt like more of an authority on the matter. I was able to give my students accurate advice that they could apply to their own research because I had already encountered some of the issues that my own students were having in my own research.

**Janise:** In what ways do you see yourself continuing research as a classroom teacher and how might this help in your teaching the research process to your future students?

**Krysta:** In my future classroom, I will continue to do research by trying new things. More specifically, I would like to try different techniques for teaching different content material and collect data in the process so that I can check whether or not the new technique increased student learning. Because I will be doing the research in my classroom with my students, I can serve as a model when I am teaching my students about the research process. I can take my students through what I am doing step-by-step and explain to them how the research process works while they are getting to watch me actually go through the process myself.

### **Maintaining the Momentum: Future Directions**

As Krysta mentioned above, undergraduate research experiences have the potential to prepare teachers for utilizing action research in developing their own reflective practice in addition to informing how they approach teaching their own students the research process. The question is how can we change preservice teacher experiences to prepare them to conduct and teach the research process to their own students? Perhaps a change in existing structures like clinical teaching assessments and program evaluations to significantly include the preservice teachers in the design and methodology as well as the collection and reporting is a step in the right direction. Also, an emphasis on preparing undergraduates as researchers through a variety of experiences and more structured initiatives such as EURECA has the potential to develop university students' critical literacy skills, understanding of the research process, and its relevance to their future careers. In turn, those critical thinking dispositions can figure significantly when preservice teachers go into classrooms armed with the confidence and desire to lead their own students through authentic research experiences. Furthermore, as Krysta also highlighted, perhaps an even more significant revelation was her insight into how her perceptions changed when she was teaching her students about research when she herself was actively engaged in research at the same time. This shift in her perspective of seeing research as a process facilitated a shift in her instructional approach to help students focus less on the product by engaging them more in the process. Existing literature already confirms the positive effects of action research for both students and teachers (Colucci-Gray, Das, Gray, Robson, & Spratt, 2013); however, what would benefit from even further investigation is how teachers engaging in their own research alongside students impacts learning outcomes and how that dynamic holds potential in shifting the focus from a product-oriented model to one in which the process takes center stage.

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