

Democratizing the Science of Teaching through Practitioner Research

Joel B. Judd

Southern Utah University USA

Abstract: *The current pandemic highlights once more the pressures and threats to teacher professionalism. While many give lip service to the essential role of educators, most high-stakes decisions continue to be made by those outside of the classroom (Hong & Rowell, 2019). Teaching continues to be more of a “compliant” than “activist” profession (Sachs, 2016). Our graduate program seeks to counter this state of affairs by supporting teacher practitioner research. By employing a cycle of inquiry drawn from action research, teachers improve their own practice and professionalism. Surveys employed before and after their capstone study support our findings that teacher-produced evidence is the best “evidence-based” practice, and that practitioner research is a powerful and transformative tool for professional development (Zeichner, 2006).*

The viral pandemic we are still living through has highlighted various shortcomings of our current school system, and exacerbated existing educational inequities (OCR, 2021). Unfortunately, in spite of the fact teachers bore the brunt of the move to online teaching, there has not been an increased value placed on teacher knowledge. Pre-pandemic calls to recognize and support teacher autonomy and promote a more activist professionalism are still largely unheeded (Sachs 2016). In addition, the continued positivist monopoly on “evidence-based” teaching practices largely ignores the insights and evidence from practitioners (e.g., Hedges, 2012).

PURPOSE

In reflecting on and revising our Master of Education program several years ago, we sought to provide teachers with meaningful professional (in-service) development. More specifically, we wanted to apply principles of adult learning by respecting both teachers’ professional autonomy and their role in generating [teaching] knowledge (Zuber-Skerritt et al., 2015).

The current curriculum consists of 33 credits: 7 required and 4 elective courses. Table 1 provides a complete course list with brief descriptions. The ordering of courses 1-4 may vary depending on when the candidate begins the program (Fall, Spring, or Summer), but the three research classes (5-7) are always taken consecutively.

Our capstone experience (courses 5-7) for master’s candidates entails designing and carrying out a practitioner research study in their local work context (usually their own classroom). A key reason for having them conduct research is to promote teachers as producers of knowledge and not just consumers (Elliott, 1994). In other words, we seek to democratize teacher knowledge by positioning teachers to act and not just be acted upon (Hong & Rowell, 2019).

We have three general goals for the capstone study:

1. Provide teachers a professionally fulfilling experience (Fletcher, 2015)
2. Equip teachers with problem-solving skills (i.e., counter the view of “teacher-as-technician”)
3. Democratize educational knowledge—bridge the divide between “experts/researchers” and “teachers/practitioners”

Table 1

Master of Education (M.Ed.) Curriculum

Course Title	Content
1. Social Foundations	History and philosophy underlying U.S. school curriculum and teaching; socio-cultural influences on schooling today
2. School law	Legal foundations of education; school policies; state and federal statute and legislation
3. 21 st Century Master Teacher	Principles associated with developing teaching expertise and professionalism, and providing all students with just and equitable opportunities to learn
4. Critical Pedagogy	Concepts and principles related to critical theory, pedagogy, and social justice in education and society
5. Principles of Practitioner Research	Origins of PR, its relationship with interpretivist and positivist research paradigms; articulating a problem and question for study
6. Practitioner Research I	Review of Literature; Methodology; IRB
7. Practitioner Research II	Data collection and analysis; write-up and presentation

REVIEW OF LITERATURE

The notion of practitioner-as-researcher can be clearly traced to Dewey’s work (Dewey, 1929) and his emphasis on teachers critically examining themselves and their classrooms (the origins of “reflective practice”). One can arguably trace the origins of practitioner research to Dewey as well, since he spoke of teachers “developing methods of inquiry and reasoning” and carrying on “systemic and protracted inquiry” as part of their professional disposition (Dewey, 1910, p. 28). Not long after Kurt Lewin’s conceptualization of Action Research, Corey (1954) was applying the idea to education. In the last 30 years, the notion of teacher-as-researcher has gained more proponents (cf., Nixon, 1987; Cochran-Smith and Lytle, 1993). More recently, Zeichner (2006) claims that teacher research is the most effective form of professional development, and

Sachs (2016) argues that teacher professionalism centers on “practices that are informed and improved by and through teacher [practitioner] research” (p. 424).

METHOD & RESULTS

PRE- AND POST-STUDY SURVEYS

Our master’s in education candidates take an online Qualtrics Survey before commencing and after completing their practitioner research (usually 3 semesters, or 12 calendar months). The three courses focusing on practitioner research are: *Principles of Practitioner Research* and *Practitioner Research I & II*. In the *Principles...* course, educators become acquainted with the history and nature of action research, and the contrasts between positivist and constructivist perspectives on knowledge and research. The *Practitioner Research I & II* courses provide teachers mentoring in articulating a research stance and question, reviewing relevant literature, outlining a method for collecting data, analyzing the findings, then reflecting on results, making knowledge claims, and sharing their findings and insights with others.

The Survey itself has demographic, Likert-scale, and open-ended items. The Likert-scale and open-ended items elicit teacher beliefs about the value of their knowledge compared with that of “experts”, the comparable worth of positivist and constructivist ways of knowing, and the personal and professional benefits of engaging in educational research. To date (December, 2021), 176 mostly preK-12 teachers have completed a practitioner research study. They come from all grade levels, subjects, and school types, with 76% identifying as female and 24% as male—they are representative of our state’s teachers.

We have been comparing responses to Likert items before and after their studies looking for changes in teacher beliefs and attitudes with respect to the three goals for the capstone. Responses to the open-ended questions are analyzed for key sentiments—words, phrases, expressions—shared by multiple respondents. Some of the consistent findings from both Survey sections follow.

LIKERT-SCALE ITEMS

Table 2 shows before and after responses for five of the Likert-scale items. Only the most recent two cohorts’ data is presented.

Items 1. and 2. relate to the teacher-researcher divide (Goal 3). Teachers have various ideas about the “expertness” of what they know pre-study, but post-study respondents all agree or strongly agree that their “knowledge is as valuable as experts” (Statement 1), and that they don’t need to rely on experts to answer questions they have about their own work (Statement 5).

Supporting evidence that practitioner research bolsters teachers’ confidence in their own knowledge comes from open-ended responses about the value of their research experience: 46% of answers included terms such as ‘empower’, ‘knowledge’, and ‘self-efficacy’. One teacher said, “It was exciting to learn to believe in myself as an expert rather than just trusting the ‘experts’”. Hedges (2012) emphasizes the value of this self-confidence: “...teachers who are confident about their professional knowledge are more likely to recognize and maximize potential learning in children’s curriculum experiences” (p. 8).

Item 6. gets at the prevalence of a positivist research culture. While not a large shift, we are making some headway in persuading teachers that there are different kinds of “valid” data (and different kinds of validity). This is especially important given the professed reliance on “data-” or “evidence-based” decision making.

Table 2
Paired t-Test Comparison of Five Pre- and Post-Survey Responses

Survey Item	<i>M</i> <i>pre/post</i>	<i>SD</i> <i>pre/post</i>	<i>t</i> (42)	<i>p</i>
1. My knowledge of teaching and learning is just as valuable as educational experts' knowledge	3.0 / 3.8	.86 / .43	-5.48	p≤.001
5. I don't need to rely on experts to answer questions I have about my work.	1.9 / 2.57	1.0 / 1.15	-3.72	p≤.001
6. There are different kinds of research data, but experimental (numerical) data is still the most valid.	2.48 / 2.12	.89 / .89	1.92	p≤.03
7. Practitioner research is really just a process of critically reflecting on my teaching.	3.25 / 3.63	.79 / .74	-1.69	p≤.05
18. Administrators and colleagues will always value "outside" research more than local [practitioner] research.	2.59 / 2.41	.91 / 1.05	.90	p≤.19

Item 7. is one of several intended to address Goals 1 and 2. Because “reflective practice” means different things to different people, we associate it with the practitioner research process to show teachers concrete ways it can increase their professionalism and aid their problem-solving.

The last sample Item (18.) gets at professionalism (Goal 1) by highlighting teachers’ perceptions of how administrators view expert (outside) and local research. Here again, we would like to see a greater change. As more teachers produce useful solutions to local problems, we expect more administrators to recognize the value of such research, as in the case of the teacher who said that “administrators and special education supervisors want me to share the results [of my study].”

Not all Likert items yielded statistically significant comparisons, but they all trended in the desired direction. In addition, the open-ended responses provide insightful, individual evidence that we are meeting our goals.

OPEN-ENDED QUESTION RESPONSES

To obtain evidence for our three Goals in using practitioner research, I coded the responses by looking for common key words and phrases. The initial pass-through used Qualtrics’ TextiQ sentiment analysis. This processes the language of both question and answers to label answers on a range from very negative to very positive. From there, I identified frequent terms that coalesced around concepts expressed or implied by each of the three Goals (e.g., mention of a job-related term like ‘career’ was associated with Goal 1).

Regarding the study being a professionally fulfilling experience (Goal 1), open ended responses frequently included “job” related terms like ‘expertise’ and ‘career’ (44%), “professional”-related words like ‘confidence’ and ‘autonomy’ (33%), and “valuable” expressions such as ‘critical thinking’ and ‘student enthusiasm’ (43%). Teachers compared their research experience with other professional development: “I took my research more seriously than just sitting in a professional development seminar”, and, “I never felt as confident in changing, creating and implementing something from other professional development as I felt with practitioner research.” Such comments coupled with changes in the Likert responses related to Goal 1 indicate teachers see a contrast between mandated professional development, and professional growth that comes from asking and answering relevant work questions.

Teachers have also evidenced growth in their problem-solving skills (Goal 2). Open-ended answers frequently referenced terms like ‘research’, ‘problem’, ‘process’, ‘skill’, and ‘solution’ (50%). Some representative comments were, “I feel more capable of using research and data collection to improve my practice. It put tools in my hands.” “It really made me look at what I was doing and how to improve what I was doing, instead of being told what to do.” “It forced me to think more critically about my practice. Not what I think I do, but what I actually do.” Such sentiments suggest our efforts to provide teachers with increased ability to adapt and improve are working.

One recent comment encapsulates all three Goals: “This may just be a personal thing, but conducting my study gave me a tremendous amount of confidence in pursue[sic] what I see to be the right thing to do for my students.” Would that all teachers were able to do this.

This is just a brief sampling of evidence that we are moving in the right direction with our master’s program. As the number of completers grows, additional analyses may prove fruitful. For example, we have not looked for correlations between things like years’ experience and self-efficacy, or between practitioner research and increased advocacy for equitable learning opportunities.

TWO TEACHER RESEARCH EXAMPLES

Following are brief summaries of two recent research projects—one carried out in the teacher’s school, and another at the district level.

INCREASING UNDERSTANDING OF AGRICULTURE

A Career and Technical Education teacher noticed that his middle school students had little knowledge of or interest in how food is grown and distributed, partly because schools are de-emphasizing agricultural education. With the prevalence of Project-Based Learning (PBL) he wondered, *How might PBL increase student interest in, and the understanding of, food production, distribution, and technology in agriculture?* To study this question, he placed students into either a “passive” or “active” hydroponics group. In the former, plants are placed in growing media and obtain nutrients from water via wicking. In an active system, pumps pass nutrient rich solutions over the roots of plants. In this study, the passive system utilized empty 2-liter bottles, and the active system used a vertical arrangement with plastic pipes. The food students grew was buttercrunch lettuce.

Seven classes and 100 students were given brief pre- and post-activity questionnaires about their interest in and understanding of food growth and distribution. The teacher conducted detailed interviews after the project was over. The students kept a digital journal, and the teacher noted evidence of student engagement and participation as the project unfolded.

Findings included changes in student understanding as evidenced by journal entries grouped around the key words *meaningfulness*, *competence*, *impact*, and *interest*. Evidence of changes in engagement came from both the Questionnaire responses as well as the percentage of students completing journal entries by the end (from 61% to 98%). Open ended student comments also showed a more sophisticated understanding of food production because of their projects. One of the teacher's conclusions was "this study shows how PBL can energize, challenge, and engage students with thoughtful, real-world problems." A published version of this study is available at https://www.socialpublishersfoundation.org/knowledge_base/increasing-student-learning-and-interest-in-hydroponics-through-project-based-learning/

EFFECTS OF COVID ON TEACHERS

Another teacher surveyed colleagues in a large suburban district regarding work stress experienced because of the COVID-19 pandemic. In addition to her concern about teachers' mental health, she wanted to know if they would access online resources she provided. Her question was two-fold: *What stressors do teachers experience while teaching?* and, *How many teachers will access online resources about decreasing stress?*

Her method involved sending a Stress Survey to all teachers, conducting some personal interviews, and tracking the number of teachers who accessed the website. Most of the study's focus ended up on the Survey. While she expected a couple dozen responses to the Survey, she received 457. An interesting trend emerged: teacher responses to the Survey suggested they received sufficient support from the district and administrators, and overall they felt "mentally" and physically healthy. However, in the open-ended question at the end of the Survey and especially in one-on-one interviews, teacher responses suggested otherwise. They consistently expressed feeling overworked and undercompensated. They were concerned about their health and safety, the perceived lack of parental support, and were stressed about the expectation to teach effectively online. One source of the discrepancy was teacher concern about who would see their Survey responses—one even asked the researcher if her answers were anonymous.

This teacher also learned about the politics of knowledge. She assumed that the district would want to know about teachers' experiences and address their needs. She pointed out that in addition to instructional support and safety measures, the district needed to acknowledge and support teachers' mental health. Instead, she received mixed reactions from the district about her findings. By the end of the study, she felt a personal obligation to be a voice for her colleagues' stories since many of them did not feel able to do so. Initial administrative enthusiasm for her project also changed by the end—she was supposed to present her findings to the administration and Board, but when the time came she was asked to just meet privately with one member of district administration.

SIGNIFICANCE

In sum, we have found practitioner research an ideal vehicle for professional growth and knowledge production; in other words, it is transformative (Fletcher, 2015; Zuber-Skerritt, 2015). Teacher's responses to conducting research consistently allude to how they view themselves and their work differently after their study. Teachers also find that practitioner research is not compatible with a neoliberal, business approach to education. The ability to identify and resolve problems in one's own work is inherently liberating. The notion of a teacher-researcher defies simplistic definition, does not lend itself to checklist measures of effectiveness, and counters the

prevailing paradigm of teacher-as-technician, which implies a one-size-fits-most “best-practice” approach to teaching (Feldman, 2017). As Craig (2009) observed, a teacher’s knowledge is ultimately individual; knowledge cannot be generalized across teachers, reform cannot be standardized across schools, and the same educational means will not result in the same educational ends for everyone. Most importantly, practitioner research challenges traditional knowledge hierarchies, where the value of teacher/practitioner knowledge is less than that of experts/theorists (Rowell & Hong, 2017). As a result, practitioner research democratizes the science of teaching, putting those closest to students in a position to share and act on what they know.

REFERENCES

- Cochran-Smith, M. & Lytle., S. (1993). *Inside Outside: Teacher Research and Knowledge*. NY: Teachers College Press.
- Corey, S. (1954). Action research in education. *The Journal of Educational Research*, 47(5), 375-380.
- Craig, C. (2009). Teacher research and teacher as researcher. In Saha, L. & Dworkin, A. (Ed.), *International handbook of research on teachers and teaching* (pp. 298-330).
- Dewey, J. (2008). *John Dewey The Later Works v. 4: 1929*. Carbondale, IL: Southern Illinois University Press.
- Dewey, J. (1910). *How we think*. NY: D.C. Heath & Co.
- Elliott, J. (1994). Research on teachers’ knowledge and action research. *Educational Action Research*, 2(1), 133-137.
- Feldman, A. (2017). An emergent history of educational action research in the English-speaking world. In L. Rowell, C. Bruce, J. Shosh, & M. Riel (Eds.), *The Palgrave International Handbook of Action Research*, (pp. 125-145). NY: Nature America.
- Fletcher, M. (2015). Professional learning. In Zuber-Skerritt, O., Fletcher, M., & Kearney, J. (Eds.), *Professional learning in higher education and communities*, (pp. 41-75). NY: Palgrave MacMillan.
- Hedges, H. (2012). Teachers’ funds of knowledge: A challenge to evidence-based practice. *Teachers and Teaching*, 18(1), 7-24.
- Hong, E. & Rowell, L. (2019). Challenging knowledge monopoly in education in the U.S. through democratizing knowledge production and dissemination. *Educational Action Research*, 27(1), 125-143.
- Lewin K. (1951). *Field Theory in Social Science*. New York: Harper and Row.
- Nixon, J. (1987). The teacher as researcher: Contradictions and continuities. *Peabody Journal of Education*, 64(2), 20-32.
- Office for Civil Rights. (2021, June). *Education in a pandemic: The disparate impacts of COVID-19 on America’s students*. <https://www2.ed.gov/about/offices/list/ocr/docs/20210608-impacts-of-covid19.pdf>
- Rowell, L. & Hong, E. (2017). Knowledge democracy and action research: Pathways for the twenty-first century. In Rowell, L., Bruce, C., Shosh, J., & Riel, Margaret, R. (Ed.), *The Palgrave International Handbook of Action Research* (pp. 63-101)
- Sach, (2016) Teacher professionalism: Why are we still talking about it?
- Zeichner, K. (2006). Teacher research as professional development for P-12 educators in the USA. *Educational Action Research*, 11(2), 301-326.

Zuber-Skerritt, O., Fletcher, M., & Kearney, J. (2015). *Professional learning in higher education and communities*. NY: Palgrave MacMillan.