

Special Section: Undergraduate Research Scholars in Education

The Action of Action Research: A Case Study of Four Projects in a Professional Development School

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Introduction

Professional Development School (PDS) collaborative groups provide ideal settings for action research for teachers, student teachers, district personnel, university personnel, and varying combinations. Constituents in schools, universities, and school districts engage in shared governance, span boundaries, and seek opportunities to collaborate on projects that increase learning for all. Precepts, put forth by the Holmes group in three documents, including *Tomorrow's Schools of Education* (1990), *Tomorrow's Schools* (1986), and *Tomorrow's Teachers* (1995), provide a foundation for PDS partnerships between universities and schools that fosters collaboration. Since the inception of PDS, varying forms of partnerships have emerged. To assist partnerships, the National Council for Accreditation of Teacher Educators (NCATE) added a set of five standards to the original foundation by which to determine the level of development of PDS partnerships (2001). Development of partnerships, defined by elements and delineation of the elements across levels, results in four general categories of development: Beginning, Developing, At Standard, and Leading.

In the Beginning Level, the PDS Learning Community specifies inquiry as a key component of the classroom teaching experience. The PDS constituents believe that research and inquiry are useful tools in improving the educational instruction (National Council for Accreditation of Teacher Education, 2001, p. 21). At the Developing Level, the PDS constituents

are conducting action research in some, but not all classrooms, and the research is not being shared among the constituents. At Standard Level,

practice in the PDS and partnering university is inquiry-based and an inquiry orientation weaves together learning, accountability, and faculty development. Inquiry is used routinely at an individual classroom, departmental, and school-wide level (at school and university) to inform decisions about which approaches to teaching and learning work best. (NCATE, 2001, p. 21)

Finally, the Leading Level involves

sustained collaborative inquiry into improved learning for P-12 students is at the center of the partnership's vision and practices. The PDS participants share their inquiry-based learning experiences and results with audiences beyond the local PDS partnership.

(NCATE, 2001, p. 21)

The implication for teachers and university instructors is the commitment to continued study of teaching and learning, to the benefit of the students, candidates, teachers, and university personnel.

Using the NCATE PDS standards as a means by which to measure the development of a PDS collaborative in North Central Texas across six years, many elements throughout the five standards showed progression toward the Developing Level, with some elements in the At Standard Level. However, although university faculty conducted continuous inquiry, the constituent partner groups remained at the Beginning Level. During the seventh year of the collaborative, conversations among constituents began regarding the belief that action research was valuable to improvement in teaching and learning. At that time, it was determined that action research was viable for all teachers and interns. In the eighth year, inquiry and action

research was introduced and practiced in 45 out of 60 (75%) mentor teacher classrooms. In the ninth year, 78% participated and, by the tenth year, 80% of the mentor teachers, and some administrators, participated in some form of action research. The projects included partnerships between mentor teachers and PDS candidates. These percentages indicate that the PDS program is between the Developing and At Standards Developmental levels, as noted in the NCATE PDS Standards.

Purpose

One purpose of this introductory paper is to establish the viability of action research as a meaningful form of research applicable to social settings, such as schools. The four studies related to this introduction serve as examples of descriptive and quasi-experimental designs employed in action research in classrooms. A second purpose is to establish the setting for the studies that follow and demonstrate that the professional development school model of teacher preparation serves as a valuable method for studying classroom behaviors, achievement, parental involvement, and a myriad of other ideas.

Related Literature

Action research provides a venue for individuals, particularly teachers, at all levels, to independently study their instructional setting, with the intent to glean new knowledge, adjust current practice, and eventually transform instruction and learning. Carr and Kemmis (1986) discuss three levels of action research: technical, practical, and emancipatory. At each level, facilitation from the outside diminishes, generally in the form of university intervention, increasing the collaboration and investment by teachers in the decision-making and implementation of research. According to Parsons and Reynolds (1995), following two years of extensive interactions and careful development of teachers as researchers, some teachers reached

the practical level, with some variance. Variance in the level of action research conducted by teachers, based on trust, staff development, and personal belief, leads toward emancipatory action research (Seda & Mamana, 1994). At this level, all constituents jointly organize and complete the research with the outcome of transforming education and, eventually, institutions of learning. This form of action research requires time, patience, and shared ownership (Burnaford, 1999).

Teachers as reflective practitioners begin for some as pre-service teachers. Course requirements in the final year of teacher preparation courses expect pre-service teachers to engage in action research in schools. The practices vary by course, but generally require pre-service teachers to initiate action research (Beisser, 2000; Beisser & Conner, 2001; Lamson, 1995; Penney & Leggett, 2005; Ponte, Beijard, & Ax, 2004; Price, 2001; Russell, 2000; Smith & Sela, 2005; Zambo, 2007). The authors collectively noted that engaging pre-service teachers in action research as part of a course provided the necessary guidance for student success. In addition, as a course requirement, communication through various focus groups, electronic forms, and independent mentoring, fostered success in attaining the goal of pre-service teachers as potential future teacher researchers. Again, time, patience, and shared ownership emerged as themes throughout the studies of requiring action research.

Action research by pre-service teachers, according to Moore and Gilliard (2008), leads to a deeper understanding of assessment and instruction through the exploration and documentation of daily events in the classroom. Phillips and Carr (2007) found that pre-service teachers, engaged in analytic memo exchanges during action research, practiced reflexivity which led to identify formation. Merino and Holmes (2006) observed that among pre-service teachers who conducted action research projects as part of their student teaching, student teachers reported

value in completing the projects for multiple purposes including advocacy, reconceptualization of problems as a point of inquiry, and the promotion of community practice of inquiry.

Integrating pre-service teachers with teachers, sharing action research projects, serves the dual purpose of empowering teachers and pre-service teachers (Angelides, Stylianour, & Leigh, 2007; Gooden, 2003; Hatch, Greer, & Bailey, 2006; Jagala, 2008; Menchaca, Peterson, & Nicholson, 1999; Poetter & Badiali, 2000; Sparapani, 1996; Spilkiva, 2001; Viechnicki, 1997).

Action research, as a component of PDS programs, provides PDS candidates with the opportunity to engage in inquiry, under the guidance of university and school personnel as evidenced in studies by Levin and Rock (2003) and Crocco and Faithfull (2003). Balach (2003) employed learning communities of teachers, pre-service teachers, and university personnel, to find ground in completing action research, raising the level of research to the practical, working toward emancipation. In a reflective inquiry course affiliated with a PDS, Kirschner (1996) found that through observations, interactions, and planning for professional growth, constituents developed from beginning to consolidating levels of inquiry. Professional Development Schools, employing the structures of collaboration, provide excellent settings for conducting action research.

NCATE presented a set of standards for evaluating PDS programs (2001). Throughout the standards, the notion of inquiry occurs frequently, across all four levels of development. Tunks and Neapolitan (2007) in their book about conducting research in and on PDS programs, recommend a clear understanding of the level of development, as defined by the NCATE standards, including communication, trust, and collaboration as research plans develop. Using the standards as a mechanism to determine levels of research, coupled with an understanding of

the research capacity of the partnership, theoretically leads to higher levels of success in completing research that is meaningful and valuable to classroom improvement.

Setting

The PDS Collaborative, a partnership between a large university and a school district in the same city, differs somewhat from the standard PDS. The PDS configuration includes two university site coordinators, ten elementary schools, three middle schools, and between 30-50 candidates. The program consists of a one-year program, a fall and spring experience for the candidates. During the fall, the candidates experience placements in two school settings, one Title I and one other. Mentor teachers, two per candidate assigned, working as a team, mentor all candidates during the first semester. Candidates, enrolled in four methods courses during the fall semester, complete assignments that study the relationships between theory and practice, and engage in multiple projects that support the school, including activities such as tutoring, math nights, and school program assistance.

During the spring semester, each candidate, placed for seven weeks, with each of two mentor teachers, in one of the two observation schools, eventually takes over teaching in the mentor teachers' classroom for no less than two weeks. A team of supervisors, primarily retired teachers and principals, observe and critique candidates, consulting with mentor teachers throughout the seven-week session. During this semester, candidates organize and host weekly seminars, based on topics that hold particular interest to them as future teachers. Candidates assigned to a given school work with school personnel, principals, supervisors, district personnel, university coordinators, community leaders, state leaders, and anyone else they muster to help instruct. The seminars, hosted in the schools, are the sole responsibility of the candidates, who

also accept responsibility for writing small grants to cover the costs of feeding anyone who attends the seminar.

Governance for the collaborative consists of multiple teams. Each team accepts both responsibility and authority for different aspects of the collaborative. The principal team, consisting of principals and assistant principals, monitors the logistics for the collaborative: determining starting dates, research, tutoring, social action, etc. Each school elects a teacher to serve as a member of the teacher leadership team. This team meets to organize the mentor teacher preparation meetings, held in August and December, and plans additional events that serve the group. Mentor teachers plan and organize the rotation of candidates through the seven-week fall placements, setting up treasure hunts that lead to the introduction of the entire school staff to the candidates, who learn schooling from the adult perspective. The methods instructional team develops coordinated courses that tie theory to practice, by connecting projects to social action in the schools; provides tutoring; and engages candidates in thinking of the courses as connected and, hence, the content, integrated. The supervisory team meets prior to the spring placements to discuss communication, observation, and critique strategies. The district team meets to discuss space, resources, and general support for the collaborative. Every team includes the university coordinators, who engage, support, and encourage all teams.

At the end of the third year (2005) of the collaborative's initiation, representatives from each team met for a day of review and reflection. The day resulted in three products: a vision statement, a mission statement, and placement on the continuum of the NCATE PDS Standards Developmental Guidelines. The group determined that the collaborative operated at the Beginning Level overall, but with some movement toward Developing Level. These findings inspired the group to work toward Developing Level overall, with the intent to work toward At

Standard Level. At the sixth year mark, the collaborative showed progress, but lagged in one area, inquiry. Discussions began with the principal team in the sixth year, and in the seventh year, agreed to begin action research in every mentor's classroom, engaging the candidates as co-action researchers on two projects. In 2008, 45 of 60 mentors engaged in some form of action research, supported by a candidate, university coordinators, and principals.

Method

In the summer of 2009, for the third year, teacher leadership team members introduced action research to mentor teachers as part of the annual mentor preparation meetings hosted each summer. Prior to this meeting, the teacher leadership team met with university coordinators to study action research, using the guidelines from the Madison, Wisconsin website (Burch, 2004), teacher leadership team members developed presentation materials. During the preparation meeting, teachers were given hand-outs describing action research, samples of action research projects that tied to the teacher evaluation system in the district, time to discuss and develop simple projects, question and answer sessions, website access, then encouraged to return in December with an observation of something in the classroom that could become a research question.

Teachers returned in December, with varying levels of interest in participating in the action research project. Some teachers gave testimony to successful action research they conducted since the summer meeting, while others continued to question the importance of conducting the projects. The teacher leadership team answered questions, encouraged, supported, and assisted all sixty teachers in the development of some form of action research. All 88 teachers left the meeting with something planned. Projects varied and included multiple configurations of participants: individual, grade level teams, all school, and across campus

projects. All projects accepted as valid began in the spring of 2009. With 60 projects across 13 schools, the expectation was set that mentor teachers were responsible for engaging the candidate assigned to them for seven weeks, in the process of completing the project.

During the fall semester, candidates completed three research projects: observation and comparison of math and science teaching to current research and methods course instruction (2 separate projects); and mathematics tutoring, whereby candidates diagnosed, randomly selected children for tutoring, tutored for six weeks, then post-tested, and studied the results. These course-guided experiences of research served as preparation for candidates to work with mentor teachers on action research projects. Candidates, briefed on the action research overall project, were provided with the same materials and websites provided to mentor teachers. Candidates, familiar with the mentors based on previous experience in the fall, began engaging with mentor teachers in action research in the spring of 2010.

Throughout the spring semester, teacher leadership team members, coordinators, and principals encouraged and supported mentor teachers and candidates in their research efforts. Supplies, data analysis assistance, poster-boards, and more were provided to ease the burden of change to the routine of the classroom. Conferences with coordinators during weekly “walk-abouts,” email exchanges, and other forms of communication led to design and implementation of projects. Candidates met with coordinators before and after weekly seminars to discuss projects and processes for collecting and analyzing data. Weekly casual conversations with mentor teachers regarding the action research projects indicated that projects were underway and working.

To serve as reinforcement and recognition for completing action research projects, the district agreed to support a Gala Action Research Night. This event, scheduled at the end of the

spring semester, was advertised as a recognition night for teachers and mentors. Coordinators, teacher leadership team members, candidates, supervisors, district personnel, university development officers, and community leaders worked as an ad hoc team to raise the funds to provide an evening of gifts, door prizes, and shared research. Participating mentors and candidates gathered with community, district, university, and school personnel to celebrate the achievement of completing action research. The posters presented at the event included information similar to science fair posters and displayed for visitors to read, discuss, and learn.

Four of the projects were purposefully selected for inclusion in this case study. These projects were chosen based on the consistent application of the scientific method: problem, question, hypothesis, hypothesis testing, data collection, data analysis, findings, and recommendation for further action. The projects ranged from kindergarten to fourth grade and encompassed academic as well as personal responsibility issues and management. Each study, included as a compendium to this introductory paper, details the action research completed in each classroom and/or school during the spring of 2010.

Data

Action research projects included the following:

- The first grade study examined the effect of five minutes of targeted, silent reading, following each of five return transition times, on student performance in reading.
- The kindergarten study examined the affect of personal reflection through writing on students' choices of personal responsibility in social settings in the kindergarten classroom.

- The school-wide project studied the relationship between volunteerism by African American parents in school programs on student academic performance.
- The fourth grade project examined the relationship between weekly, teacher-made classroom tests, benchmark tests, and elements of state mandated tests, to determine the effectiveness of group-centered mathematics instruction.

Cursory analyses of the four studies are summarized in Figure 1. The summary shows that a trend among the four studies was a consistent plan that included hypothesis testing through careful data collection. A second trend in three of the four studies, long-term data collection, was noted. In the experimental study in the first grade, two teachers and one intern collected data across two placements, 14 weeks. The kindergarten teacher began data collection on the first day of school, resulting in 24 weeks of data collection, with six attributed to baseline, twelve during the intervention, and six post action intervention. The third study consisted of fourteen weeks of data collection across two placements. The fourth study was shorter in duration and involved intervention in the form of telephone calls to remind parents to volunteer.

There was some consistency in the designs selected. Three of the four used a case study, descriptive design. Although the kindergarten project collected baseline data, which served as a comparison for the later incorporation of the treatment of writing to eliminate inappropriate behavior, the design remained descriptive. The fourth grade mathematics study compared testing strategies, which was descriptive as well. Finally, the African American parent correlation study, described the relationship between students' achievement and parent volunteerism, describing changes. The fourth study, the first grade reading study, began as a quasi-experimental study, with matched groups. Pre-tests were administered to both groups of children and treatment .applied to the experimental classroom. At the seven week mark, a second test was administered,

and design reversed, whereby the experimental group received the treatment. In both treatment groups, students who were performing on a lower level, raised reading scores and levels significantly in short periods of time.

Action research suggests actions taken following the study of a phenomenon. In two of the four studies actions were taken. In the case of the kindergarten group, action was taken during the 12 weeks of treatment for students whose colors changed from green to yellow, or yellow to red, with the intent to influence behavior choices to remain in blue or green, which occurred in over 60% of the students. In the first grade reading study, action was taken throughout in the experimental class, and in the control class, when the reversal design was implemented. The other two projects ended near enough the end of school, hence disabling the researchers from taking action, based on what was learned in the study. However, both sets of researchers report that the teachers and school leaders plan to take action in the future, based on the results.

In all four studies, mentor teachers and interns worked together to create an understanding of a phenomenon observed in the classroom. In all four studies, designs were clearly established, data collection clearly outlined, and hypotheses tested. Reading the four studies provides a clearer understanding of the projects, and hence all four are included in full in this journal. The studies served as a catalyst for thought about future research for both the mentors and interns. In a visit with one of the teachers, she reported that “it took me twenty-one years of teaching and one simple experiment to teach me how to more effectively use return transition time, but it was worth the wait.”

Conclusions

Action research is a meaningful tool for teachers, interns, school leaders, and university personnel, working in harmony to create significant changes in teaching and learning in schools. The Professional Development School model lends to success in conducting action research due to the shared governance, boundary spanning, and collaborative approach to teacher preparation. The NCATE PDS standards serve as a valuable guide for PDS programs seeking to improve its teacher preparation program, as was noted in this study. It was the NCATE PDS standards that served as the catalyst that engaged mentor teachers and interns in the action of research, making a difference for children, teachers, interns, schools, and university personnel.

References

- Angelides, P., Stylianou, T., & Leigh, J. (2007). The efficacy of collaborative networks in preparing teachers. *European Journal of Teacher Education* , 30 (2), 135-149.
- Balach, C. (2003). The growth of a professional learning community through collaborative action research. *Paper presented at the Annual Meeting of the American Educational Research Association* (p. 61). Chicago, Il: (ERIC Document Reproduction Service No. 477527).
- Beisser, S. (2000). Posing questions... solving problems: Action research for preservice teachers. *Paper presented at the Annual Meeting of the American Educational Research Association* (p. 10). New Orleans, La: (ERIC Document Reproduction Service No. 444953).
- Beisser, S., & Conner, K. (2001). Action research for undergraduates: Solving problems in preservice teaching. *Paper presented at the Annual Meeting of the American Association of College Teachers of Education* (p. 7). Dallas, TX: (ERIC Document Reproduction Source No. 452167).
- Burch, C. (2004, 02 02). *Classroom Action Research*. (C. Burch, Editor) Retrieved 03 22, 2009, from Madison Metropolitan School District:
<http://www.madison.k12.wi.us/sod/car/carhomepage.html>
- Burnaford, G. (1999). Teacher action research as professional development in schools: Four paths toward change. School wide inquiry: A self-study of and "outside teacher researcher. *Paper presented at the Annual Meeting fo the American Educational Research Association* (p. 20). Montreal, Quebec, Canada: (ERIC Document Reproduction Service No. 429959).
- Carr, W., & Kemmis, S. (1986). *Becoming critical: Education, knowledge, adn action research*. Philadelphia, PA: Falmer Press.
- Crocco, M., Faithfull, B., & Schwartz, S. (2003). Inquiring minds want to know: Action research at a New York city professional development school. *Journal of Teacher Education* , 54 (1), 19-30.
- Gooden, K. (2003). Action research: Enhancing collaboration, nurturing professionals. *Paper presented at the Maryland Professional Development School Network's National Professional Development School Conference* (p. 5). Baltimore, MD: (ERIC Document Reproduction Service No. 474902).
- Hatch, A., Greer, T., & Bailey, K. (2006). Innovations in early childhood teacher education: Reflections on practice. *Journal of Early Childhood Teacher Education* , 27, 205-212.

- Holm, D., Hunter, K., & Welling, J. (1999). *Supporting systematic change through action research*. Indiana University . South Bend: (ERIC Document Reproduction Service No. 429957).
- Jagla, V. (2008). Service-learning prepares teachers to meet the needs of diverse learners. *The International Journal of Learning* , 15 (6), 3-7.
- Kirschner, B., Dickinson, R., & Blosser, C. (1996). From cooperation to collaboration: The changing culture of a school/university partnership. *Theory Into Practice* , 35 (3), 205-213.
- Lamson, S. (1995). Action research: Reflective thinking model applied during student teaching. *Paper presented at the Annual Conference of the Association of Teacher Educators* (p. 15). Detroit, MI: (ERIC Document Reproduction Service No. 379279).
- Levin, B., & Rock, T. (2003). The effects of collaborative action research on preservice and experienced teacher partners in professional development schools. *Journal of Teacher Education* , 54 (2), 135-149.
- Menchaca, V., Peterson, C., & Nicholson, S. (1999). *Supporting action research in a field-based professional development school*. Southwest Texas State University. San Marcos, Tx: (ERIC Document Reproduction Service No. 429040).
- Merino, B., & Holmes, P. (2006). Student teacher inquiry as an "entry point" for advocacy. *Teacher Education Quarterly* , 33 (3), 79-96.
- Moore, R., & Gilliard, J. (2008). Preservice teachers conducting action research in early childhood education. *Journal of Early Childhood Teacher Education* , 29 (1), 45-58.
- National Council for Accreditation of Teacher Education. (2001). *National Council of Accreditation of Teacher Education*. (M. Levine, Ed.) Retrieved March 20, 2009, from Standards for Professional Development Schools: NCATE.org
- Parsons, S., & Reynolds, K. (1995). Establishing an action research agenda for preservice and inservice elementary teacher collaboration on self-empowerment in science. *Paper presented at the Annual Meeting of the National Association for Research in Science Teaching* (p. 13). San Fransisco, CA: (ERIC Document Reproduction Source No. 382475).
- Penney, D., & Leggett, B. (2005). Connecting initial teacher education and continuing professional learning through action research and action learning. *Action Learning: Research and Practice* , 2 (2), 153-169.
- Phillips, D., & Carr, K. (2007). Illustrations of the analytic memo as reflexivity for preservice teachers. *Educational Action Research* , 15 (4), 561-575.

- Poetter, T., & Badiali, B. (2000). Growing teacher inquiry: Collaboration in a partner school. *Peabody Journal of Education* , 75 (3), 161-175.
- Ponte, P., Beijard, D., & Ax, J. (2004). Don't wait till the cows come home: Action research and initial teacher education in three different countries. *Teachers and Teaching: Theory and Practice* , 10 (6), 591-621.
- Price, J. (2001). Action research, pedagogy and change: The transformative potential of action research in pre-service teacher education. *Journal of Curriculum Studies* , 33 (1), 43-74.
- Russell, T. (2000). Introducing preservice teachers to teacher research. *Paper presented at the Annual Meeting of the American Educational Research Association* (p. 15). New Orleans, La: (ERIC Document Reproduction Source No. 441827).
- Scharmann, L. (2007). A dynamic professional development school partnership in science education. *Journal of Educational Research* , 100 (4), 235-242.
- Seda, I., & Mamana, L. (1994). *A collaborative action research project on assessment and the implications for the pre-service participant*. Pennsylvania State University, Academy for Professional Teaching. Harrisburg, PA: (ERIC Document Reproduction Source No. 376503).
- Smith, K., & Sela, O. (2005). Action research as a bridge between pre-service teacher education and in-service professional development for students and teacher educators. *European Journal of Teacher Education* , 28 (3), 292-310.
- Sparapani, E. (1996). Action research: A strategy for bridging the gap between theory and practice. *Paper presented at the annual meeting of the Association of Teacher Educators, St Louis, MO* (p. 11). St Louis, MO: (ERIC Document Reproduction Service No. 398194).
- Spilkova, V. (2001). Professional development of teachers and student teachers through reflection on practice. *European Journal of Teacher Education* , 24 (1), 59-65.
- The Holmes Group. (1995). *Tomorrow's schools of education: A report of the Holmes group*. East Lansing, MI: The Holmes Group.
- The Holmes Group. (1990). *Tomorrow's schools: Principles for the design of professional development schools*. East Lansing, MI.
- The Holmes Group. (1986). *Tomorrow's teachers: A report of the Holmes group*. East Lansing, MI.
- Tunks, J., & Neapolitan, J. (2007). *A framework for research on professional development schools*. Lanham, Maryland: University Press of America.

Viechnicki, K. (1997). Action research in a school/university partnership. *Paper presented at the Annual Meeting of the American Educational Research Association* (p. 13). Chicago, IL: (ERIC Document Reproduction Service No. 409363).

Zambo, D. (2007). The fuel of educational psychology and the fire of action research. *Educational Psychology and Action Research*, 2 (1), 1-12.

Figure 1. Comparison of Studies and Trends in Research Conducted.

Project	Design	Comparison	Data collection	Findings	Action
Reading	Quasi experimental	Compared matched populations	Pre Intervention Post in both populations	Intervention brought about change in significantly higher reading scores among low performers	Control group reversed design and experienced similar growth patterns in student reading; experimental group changed design to test strength of routine of student reading
Behavior writing	Non-experimental pre/intervention design	Individual behavioral patterns during pre and intervention phases	Patterns in color change, based on: no intervention, intervention, results of intervention, and adjusted intervention	Behavior changed for most following intervention	Following 6 weeks of baseline and 12 weeks of intervention, changed the design to accommodate students who were not responding to intervention
AA parents	Descriptive	Change in student behavioral and academic performance, based on presence of stimulation	Review volunteer records, review student performance	Changes in student performance correlated with parent volunteerism	None taken, only recommendations
Math connections	Descriptive	Elements of testing platforms	Each student's project test scores, benchmark, and state mandated expectations were collected for six weeks	Classroom test scores correlated positively to similar benchmark test elements, and state standard elements	None taken, only recommendations