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Action Research in Pre-Service Teacher Education: Is There Value Added?

Action research (AR), a process of practitioner-directed inquiry into classroom practice, is widely seen as a compelling vehicle for helping teachers to improve their teaching and strengthen students' learning (Cochran-Smith & Lytle, 1993). With these goals in mind, many master's degree programs have embraced AR, making it a hallmark of their programs, and increasingly, AR is being adopted by pre-service teacher education programs (Carboni, Wynn, & McGuire, 2002; Zambo & Zambo, 2007).

Research into the impact of the use of AR in teacher education indicates that teacher candidates can benefit significantly from engaging in the process of inquiry and reflection that AR demands (Cochran-Smith, 2003; Schulz & Mandzuk, 2005). However, what remains unclear is whether these benefits are substantially different than the benefits derived from other experiences that frequently characterize teacher education programs. In response to calls for strengthening teacher education (see, for example, Darling-Hammond & Bransford, 2005; National Commission on Teaching and America's Future, 1996; National Council for the Accreditation of Teacher Education, 2002), institutions and accrediting bodies have begun to put measures into place requiring teacher candidates to demonstrate proficiency in many of the same domains that AR advocates claim to promote, including critical reflection, student assessment, and systematic instructional planning.

An example of confluence of expectations between AR and other teacher education measures can be found in the Teacher Performance Assessment Consortium (TPAC) initiative. Sponsored by the American Association of Colleges of Teacher Education (AACTE), TPAC is a 25-state initiative involving over 140 teacher preparation programs in adopting a teacher candidate assessment model that draws from the Performance Assessment for California's Teachers (PACT) evaluation. For this assessment, candidates must provide evidence of and craft commentary about their planning, instruction, student assessment, reflection, and use of academic language. The candidates must give particular attention to their responsiveness to the specific context of their classroom, the strengths and needs of the learners in their classroom, and their ability to adapt instruction in response to their assessment of student needs. To be successful on the teaching event that is the capstone of the PACT and TPAC requirements, candidates must demonstrate many of the same skills of inquiry and critical reflection that AR is designed to engender.

Is the move toward including AR as a component of pre-service teacher education programs worthwhile? Two factors make this issue appropriate to consider. First, both AR and assessments such as PACT and TPAC require time and resources from pre-service teachers and teacher educators. Second, the environment of teacher education has become increasingly competitive, with significant pressure being exerted by calls for alternative methods of certification.

This study uses a comparative research approach to investigate the experiences of candidates in two programs at one teacher education institution. One program engages candidates in AR; the other program does not. By exploring the experiences of candidates in these two programs, this study seeks to better elucidate the value that may be added by including AR in pre-service teacher education programs.

Review of Literature

Defining action research

Action research is generally recognized to be the systematic investigation by a practitioner into his or her own practice for the purpose of understanding and improving that practice (Cochran-Smith & Lytle, 1990; McNiff, 2002; Sagor, 1992; Shagoury & Power, 2012). The research is initiated and carried out by the practitioner in response to challenges or concerns the practitioner has identified (Ferrance, 2000; McCutcheon & Jung, 1990; Shagoury & Power, 2012). The research focuses on specific situations and explores the viability of localized solutions (Stringer, 2007).

Although multiple models of AR have been articulated, most possess the same core elements (Goodnough, 2011). The process begins with the identification of a concern and an investigation into the causes of that concern. The practitioner then plans and implements a change designed to address the concern. Implementation of the change is carefully monitored, and data is collected and analyzed to understand the impact of the change. In most conceptualizations, AR is seen as cyclical, with multiple cycles of planning, implementation, observation, analysis, and reflection (Kemmis & McTaggart, 2005; Riel, 2007; Stringer, 2007). With each cycle, the change is refined in response to the data gathered from the previous implementation.

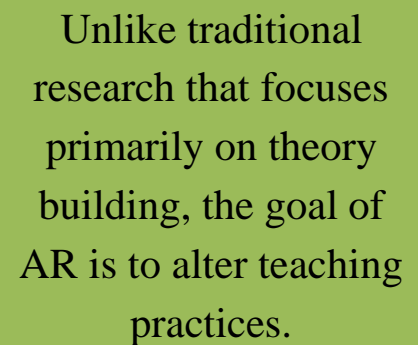
The recursive nature of AR places a high priority on reflection. Practitioners engaged in AR must critically explore what they are doing, why they are doing it, and what the impact has been (Mertler, 2012; Parsons & Brown, 2002). This systematic process of reflection, in addition to guiding the present inquiry, is expected to impact the professional orientation of the practitioner, providing the practitioner with the skills and dispositions to continually refine and improve practice (Mills, 2011; Whitehead, 1989).

In terms of both the scope of the research and the utility of the knowledge generated, AR is significantly different from traditional, university-based forms of research (Anagnostopoulos, Smith, & Basmadjian, 2007; Cochran-Smith & Lytle, 1990; McLaughlin, Black-Hawkins, & McIntyre, 2007). Some within the larger research community have questioned the validity of AR as scholarship largely because of the localized nature of the research and the lack of generalizability of the findings (Coleman, 2007; Hargraeves, 1999; Larabee, 2008). Advocates for AR argue that much of the value of this form of research resides within the localized, context-specific nature of the work. Stringer (2007, p. 5) observed that generalized solutions often don't fit particular contexts or groups of people and noted that AR facilitates finding "an appropriate solution for the particular dynamics at work in a local situation." Greenwood and

Levin (2007) asserted that AR allows practitioners, who are often best positioned to have knowledge of specific local concerns, to apply local and professional knowledge to respond to those concerns. Noffke and Stevenson (1995) argued that AR, by engaging practitioners in responding to local concerns through intentional and systematic inquiry, pushes back against the power imbalance between universities and practice-based institutions, allowing practitioners to become creators of knowledge, rather than mere consumers of it.

Action research in teacher education

University-based teacher education programs have widely adopted AR. Seen as a way to bridge the gap that traditionally exists between K–12 school-based teaching practice and university-based research (Darling-Hammond & McLaughlin, 1995; McLaughlin, Black-Hawkins, & McIntyre, 2007; Noffke & Stevenson, 1995), AR has become a staple requirement of many master’s degree programs in education. Unlike traditional research that focuses primarily on theory building, the goal of AR is to alter teaching practices. Therefore, AR is often seen as a more appropriate culminating research activity for degree candidates who are practicing teachers (Noffke, 1997; Rogers et al., 2007).



Unlike traditional research that focuses primarily on theory building, the goal of AR is to alter teaching practices.

In recent years, an increasing number of pre-service teacher preparation programs have begun to engage candidates in AR as part of their student teaching (Carboni, Wynne, & McGuire, 2002; Zambo & Zambo, 2007). In addition to helping candidates link theories from their credential coursework with practice in their student teaching classrooms, AR is seen as potentially “progressive and emancipatory” (Kitchen & Stevens, 2008) in the pre-service teacher education context. Teacher education has traditionally relied upon an apprenticeship model within which novices replicate the model provided by the experienced master teacher. Use of AR, however, engages pre-service teacher candidates in their student teaching classrooms as a tool to transform practice and encourages candidates to “develop a distinctive approach based on evidence of student learning” (Kitchen & Stevens, 2008, p. 44).

Research on the impact of AR in pre-service teacher education indicates that significant positive benefits may be possible. Assessments indicate that pre-service teachers engaged in AR can become more reflective, critical, and analytical about their work in the classroom (Keating et al., 1998; Rock & Levin, 2002; Valli, 1997). Participating in the systematic inquiry process required by AR has led some pre-service teachers to recognize and be better equipped to articulate their personal theories of practice, explaining what they are doing and why they are doing it (Chant, Heafner, & Bennett, 2004; Choi, 2011; Kincheloe, 2003; Rock & Levin, 2002). Evidence also indicates that AR can lead pre-service teacher candidates to adjust their views of what it means to be a teacher, developing greater awareness of and appreciation for the processes of systematic inquiry, reflection, action, and change within the teaching profession (Kitchen & Stevens, 2008; Price, 2001; Rock & Levin, 2002).

Additionally, AR has been found to help pre-service teachers gain awareness of the needs and perspectives of their students within the classroom. Close examination of student learning alerted teacher candidates to the gap between their teaching and the learning experienced by the students (Liston & Zeichner, 1990; Rock & Levin, 2002). Using AR strengthened the relationship between pre-service teachers and their students by making candidates more aware of the diverse learning needs of the students and helping them to view students from a more holistic perspective (Goodnough, 2011). Additional benefits documented in the research include greater confidence, stronger knowledge of pedagogy and curriculum, and stronger collegial relationships (Goodnough, 2011; Price, 2001; Rock & Levin, 2002).

Against these positive findings, previous research also noted limitations of AR in pre-service teacher education. Subramaniam (2010) cautioned that the context within which AR takes place can significantly shape pre-service teachers' perceptions of the work. "The nature of the AR space, either friendly or unfriendly, is a key descriptor of whether participants hold onto the image of an inquiry-oriented practitioner or conceptualize the image of AR as a big project" (2010, p. 543). Price noted that the novice status of the pre-service teacher may necessarily limit the potential learning that can be derived from participation in AR. Price posed the following question, noting that pre-service teachers aren't fully accomplished teachers by the end of their program, "so will they be a fully accomplished action researcher at that time?" (2001, p. 44). This question addresses the limitations not of AR as a means of teacher development, but rather the developmental preparedness of pre-service teacher candidates to fully engage in and learn from the process.

Much of the existing research around AR and pre-service teacher education came from case study investigations of teacher candidates' experiences, learning, and perceptions. Often, the research was conducted by university-based teacher educators who were actively involved in the preparation of the candidates being studied. This approach has much merit, and the research has yielded significant contributions around understanding the learning and professional growth of teacher candidates and refining the process of guiding candidates through AR. However, few studies have sought to compare the experience of pre-service teacher candidates who engage in AR with those who don't for the purpose of understanding the differential impact that AR can provide. Are the benefits of AR, as documented by previous research, significantly different than the benefits that might be derived through other learning experiences within quality teacher preparation programs? Does AR add value to pre-service teacher preparation programs? The present study sought to begin to explore these questions.

Methodology

Research context

This study was conducted at a private, religiously affiliated university in Southern California. The teacher education program within the university is fairly small, credentialing approximately 50 elementary and secondary teachers each academic year. Beginning in the 2008–2009 academic year, the university began a combined program that offered both a teaching credential

and master's degree through a 12-month, 45-unit course of study. Incorporation of AR is a defining feature of the combined program. During the second semester of student teaching, students in the combined program who had successfully completed their standard credential requirements were expected to conduct a systematic AR project that responded to an assessed need in their student teaching classroom. Students' AR was supported both by a research seminar designed specifically for this program and by individual AR faculty advisors. Students in the combined program presented their AR findings at the culmination of the program to university faculty, supervisors, cooperating teachers, and school administrators.

In addition to offering the combined program, the university continued to offer a traditional credential program that included many of the same courses and fieldwork expectations. Candidates in both programs were expected to complete the same foundations and methods courses toward their credential; often, candidates in both programs were enrolled in the same sections. Candidates in both programs also were expected to complete the PACT teaching event as well as the embedded signature assignments to qualify for a California state teaching credential. The fieldwork requirements, however, were structured differently for each program. Whereas candidates in the combined program enrolled in 2 semesters of part-time student teaching concurrent with coursework, students in the traditional program enrolled in 1 semester of student teaching after completing their credential coursework. The total hours of field experience and the evaluation of field experiences were nonetheless the same, and many cooperating teachers and university supervisors supported candidates in both programs.

Some additional differences distinguished student experiences in the programs (see Table 1). The combined program was an intense, cohort-based program in which all requirements were expected to be completed in 1 year, whereas the traditional program was self-paced with some candidates taking up to 3 years to complete the credential. Candidates in the combined program took an additional 12 units of coursework at the master's level, including an advanced instructional design course, an advanced cognition and learning course, and graduate elective course options. Certainly, these differences are significant and cannot be discounted when comparing outcomes of the programs. However, students and faculty reported that AR was a defining feature of the combined program and that the successful completion of an AR project clearly distinguished candidates graduating from the combined program from those graduating from the traditional program. As such, these programs provided a rich context to consider the additional impact that AR might have on pre-service teacher candidate preparation relative to the impact of standard components (such as foundations and methods coursework, fieldwork, and candidate supervision and assessment) that are hallmarks of more traditional teacher education programs.

Table 1

Program Comparison

Combined program	Traditional program
<ul style="list-style-type: none"> • California teaching credential and Master of Education (MEd) • Graduate only • Cohort-based • 12 months to complete • 45-unit program • Foundations and methods credential coursework • 2 semesters of part-time student teaching concurrent with coursework • Performance Assessment for California’s Teachers (PACT) teaching event and embedded signature assignments • 12 units of master’s level coursework • Action research project conducted in second semester student teaching classroom 	<ul style="list-style-type: none"> • California teaching credential only • Graduate and undergraduate • Self-paced • Up to 3 years to complete • 33-unit program • Foundations and methods credential coursework • 1 semester of full-time student teaching at the completion of coursework • PACT teaching event and embedded signature assignments

Research design

This study employed a mixed methods approach to investigate the impact of AR on the preparation of pre-service teacher credential candidates. The study examined the perceptions of recent program graduates regarding their readiness as professional educators and the contributions that their programs had made in their preparation. Its survey instruments were designed to elicit comparative program data. The response group interviews were designed to probe more deeply into the experiences of graduates of the combined program to better elucidate the value that may have been added to their learning through participation in AR.

All candidates who graduated from either program (combined or traditional) with secondary school credentials in the 2008–2009 and 2009–2010 academic years were invited to participate in an anonymous electronic survey 6 months after they completed the program. The survey consisted of a series of forced-response questions (see Figure 1). For each question, graduates were asked to rate their response using a 5-point Likert scale. Survey respondents also had the option to add open-ended comment in a separate field. The survey design was informed by expectations set forth in the Teaching Performance Expectations created by the California

Commission on Teacher Credentialing (CCTC), the PACT rubrics (PACT Consortium), and previous research into teacher education (see, for example, Darling-Hammond & Bransford, 2005; Darling-Hammond & Sykes, 1999).

Candidates who graduated from the combined program in 2008–2009 and 2009–2010 were also invited to participate in focus group discussions that examined the role of AR in their preparation. These discussions took place approximately 3 weeks after the survey was distributed. Groups of 5 or 6 program completers participated in each of the focus group interviews with participation restricted to program completers from the same cohort. Group interviews were intentionally designed to allow participants, all of whom had been through the program together, to respond to and build off of one another when sharing their experiences (Morgan, 1997). Questions for the focus groups were designed to elicit more descriptive responses that would help to build a more nuanced understanding of the differential impact that resulted from engaging these pre-service teacher candidates in AR as part of the combined program (see Figure 2). Questions were informed by early analysis of the data generated by survey responses as well as observations and informal feedback from the candidates when they were enrolled in the program.

Surveys were sent to all 49 graduates who completed the traditional or combined program in 2008–2009 and 2009–2010. A total of 25 graduates completed the survey: 13 from the traditional program and 12 from the combined program. Data from the surveys was compiled into an electronic database, and median scores for each of the indicators were calculated. Eleven students from the combined program participated in the focus groups: 6 from the 2008–2009 cohort and 5 from the 2009–2010 cohort. Discussions were audiotaped and then transcribed. Data from the transcriptions were coded and analyzed using a grounded theory approach (Strauss and Corbin, 1997). Findings were drawn from analyses of both the survey data and the interview data.

Figure 1

Survey Questions

Forced-response questions:

1. Please rate your current expertise in each of the following areas: (1–5 scale)
 - a. Content knowledge
 - b. Student learning processes
 - c. Instructional planning
 - d. Teaching methods
 - e. Differentiation
 - f. Assessment of student learning
 - g. Reflection on practice
2. Please rate the degree to which [this university's] program contributed to your expertise in each of the following areas: (1–5 scale)
(see a–g above)

3. Please rate the degree to which you were prepared for each of the following issues as a beginning teacher: (1–5 scale)
 - a. Designing curriculum
 - b. Delivering instruction using a range of instructional approaches
 - c. Assessing and responding to student needs
 - d. Differentiating classroom instruction
 - e. Building a classroom community
 - f. Managing the classroom
 - g. Reflecting on teaching and learning in the classroom
 - h. Investigating and accessing resources to respond to classroom needs
 - i. Continuing your own professional learning
 - j. Contributing to a professional community of educators
4. Please rate the degree to which each of the following aspects of [this university's] program contributed to your professional learning: (1–5 scale)
 - a. Foundations courses
 - b. Method courses
 - c. Field experiences
 - d. Performance Assessment for California's Teachers
 - e. Master's courses (combined program only)
 - f. Action research (combined program only)

Figure 2

Focus Group Interview Questions

1. What did you learn through the action research process?
2. How did action research affect your student teaching experience?
3. How did action research affect your preparedness for your first year of full-time teaching?
4. Did action research have an impact on how you view yourself as a professional?
5. What were some of the challenges of engaging in action research as a pre-service teacher?
6. How was your learning impacted by the Performance Assessment for California's Teachers versus action research?
7. Should action research continue to be a part of [this university's] combined program? Why or why not?
8. What suggestions do you have for improving use of action research in the combined program?

At the time of the study, the primary investigator was an instructor in both the traditional and combined credential programs at the institution and had played a leadership role in developing

and initiating the combined program. Efforts to mitigate bias in the research included the following: Study participants were all program completers and had no ongoing supervisory relationship with the primary investigator; surveys were distributed and survey data was collected through the university's office of assessment; and graduate students from a separate program helped to transcribe interview data and provided independent data analysis that was used to corroborate research findings.

Findings

Survey results

Perhaps the most noteworthy aspect of the survey results is the lack of noteworthy aspects. Few significant differences in perception were found between those who completed the combined program and those who completed the traditional program with regard to their own expertise, the degree to which their program helped to develop their expertise, and the level to which they were prepared to demonstrate practices expected of beginning teachers. On a 5-point Likert scale, the difference in the median score between those who completed the combined program and those who completed the traditional program was never more than 0.75 and was generally less than 0.5.

In general, graduates of the combined program rated their current expertise as somewhat stronger than did their peers who had completed the traditional program (see Table 2). On a 5-point scale ranging from 1 (*very low*) to 5 (*very high*), median scores from both programs generally fell between 3 (*average*) and 4 (*high*).

- Graduates of the combined program scored their expertise slightly higher in “student learning processes,” “instructional planning,” “teaching methods,” and “reflection on practice.”
- Graduates of the traditional program scored themselves somewhat higher in “content knowledge.”

Table 2

Graduates' Rating of Their Current Expertise (5-point scale)

Knowledge domains	Combined program	Traditional program	Difference
Content knowledge	3.67	4.15	-0.48
Student learning processes	3.92	3.62	0.30
Instructional planning	4.08	3.54	0.54
Teaching methods	4.00	3.54	0.46

Differentiation	3.50	3.38	0.12
Assessment of student learning	3.58	3.38	0.20
Reflection on practice	4.25	3.85	0.40

When considering perceived differences in the contributions of their respective teacher education programs to the development of their expertise, graduates of the combined program generally ranked their program slightly higher than graduates of the traditional program (see Table 3). On a 5-point scale, median scores from both programs fell mostly between 3 (*average*) and 4 (*above average*).

- Graduates of the combined program gave somewhat stronger scores to their program in the areas of “instructional planning,” “assessment of student learning,” and “reflection on practice.”
- Graduates of the traditional program scored their program higher on “differentiation.”
- Graduates of both programs gave highest marks to the role their programs played in preparing them to reflect on practice.

Table 3

Graduates’ Rating of The Degree to Which Their Teacher Education Program Contributed to Their Expertise (5-point scale)

Knowledge domains	Combined program	Traditional program	Difference
Content knowledge	3.00	3.00	0.00
Student learning processes	3.75	3.54	0.21
Instructional planning	4.08	3.67	0.41
Teaching methods	3.67	3.69	-0.02
Differentiation	3.33	3.69	-0.36
Assessment of student learning	3.75	3.38	0.37
Reflection on practice	4.42	4.00	0.42

On average, graduates of the combined program rated their preparedness to demonstrate the practices expected of beginning teachers slightly higher than did graduates of the traditional program (see Table 4). On a 5-point scale, median scores from both programs mostly fell between 3 (*average*) and 4 (*above average*).

- Graduates of the combined program gave somewhat higher scores to their readiness around “building a classroom community,” “managing the classroom,” “reflecting on teaching and learning in the classroom,” and “contributing to a professional community of educators.”
- Graduates of the traditional program gave slightly higher scores to their preparedness for “delivering instruction using a range of instructional approaches.”

Table 4

Graduates’ Rating of The Degree to Which They Were Prepared to Demonstrate Practices Expected of Beginning Teachers (5-point scale)

Teaching practices	Combined program	Traditional program	Difference
Designing curriculum	3.58	3.46	0.12
Delivering instruction using a range of instructional approaches	3.58	3.92	-0.34
Assessing and responding to student needs	3.83	3.54	0.29
Differentiating classroom instruction	3.58	3.46	0.12
Building a classroom community	4.00	3.46	0.54
Managing the classroom	3.67	2.92	0.75
Reflecting on teaching and learning in the classroom	4.25	3.85	0.40
Investigating and accessing resources to respond to classroom needs	3.33	3.38	-0.05
Continuing your own professional learning	3.83	3.62	0.21
Contributing to a professional community of educators	3.92	3.54	0.38

Overall, the survey's results showed a slight trend among graduates of the combined program toward stronger perceptions of the following: the student's own expertise, program contributions, and teaching preparedness. Graduates of the combined program consistently scored themselves and their program higher on "reflection on practice" or "reflecting on teaching and learning in the classroom" as well as on "instructional planning." Their scores in these areas averaged above those of graduates from the traditional program and reflected a rating that was higher than above average. These differences, however, were relatively small, and drawing conclusions based solely on these scoring results is questionable practice, particularly given the small sample size of the survey.

Even more difficult to ascertain from the survey results was the role AR may have played in contributing to differences in graduates' perceptions. Certainly, reflection—an area that showed some differences in median scores and high scores overall—was emphasized as a critical element of AR, but reflection was also a core component of the PACT teaching event, an assessment required in both programs.

Table 5 summarizes the graduates' perceptions of the degree to which elements of their teacher education programs contributed to their professional learning. This data, too, didn't point to significant conclusions. The most significant difference between programs was in graduates' perception of the role that methods courses played in supporting their professional growth. Graduates of the traditional program had a more favorable perception of this program element. The methods and foundations courses were, however, identical for both programs. The differences seen in this study may be attributable to differences in the graduates' perceptions of instructors and/or section dynamics. These differences are further reasons not to place too much weight on the program variations described in this section.

More interesting, in terms of assessing the value added by AR, was the relative rank given to the various program components by graduates of the combined program. Median scores of responses by these graduates placed field experiences and master's courses as most valuable to their professional learning, followed by AR, PACT, and their credential coursework. Again, differences were relatively small and conclusions based solely on this information are inappropriate to draw. However, the mid-level ranking of AR suggests that its perceived value isn't significantly different than that of other program components.

Table 5

Graduates' Rating of The Degree to Which Program Elements Contributed to Their Professional Learning (5-point scale)

Program elements	Combined program	Traditional program	Difference
Foundations courses—credential	3.62	3.23	0.39

Methods courses—credential	3.31	4.00	-0.69
Field experiences, including student teaching	4.29	4.19	0.10
Performance Assessment for California's Teachers	3.62	3.15	0.47
Master of Education courses	4.15	NA	
Action research	3.82	NA	

Group interview findings. Contrary to the minimal differences evidenced in the survey results, the group interviews yielded clearer information on the perceived value of AR in pre-service teacher education. Graduates from the combined program who participated in the group interviews indicated that AR made a substantive contribution to their professional preparation. Across the two cohorts, graduates indicated that engaging in AR as a pre-service teacher supported their growth in four areas: 1) focus on K–12 students, 2) systematic reflection, 3) ownership of instructional practice, and 4) professional voice. In each of these areas, graduates indicated that AR allowed them to grow and develop as new teachers beyond what they otherwise gained from the standard components of the traditional credential program.

Focus on K–12 students. Graduates of the combined program indicated that engaging in AR strengthened their focus on their K–12 students. Prior to engaging in AR, these credential candidates had primarily focused on themselves and their own performance in the classroom. The AR process pushed candidates to get out of this egocentric bubble and to more thoughtfully consider the learning and classroom experience of their K–12 students. Denise said this:

Graduates of the combined program indicated that engaging in AR strengthened their focus on their K–12 students.

Action research really helped me focus on my students instead of focusing on my goals, my objectives, my assignments—really looking at the students' learning. What are they experiencing?...It helped me to see my students as individuals and recognize their learning needs.

Mark had focused his research on the use of reading journals in English. Initially, he was caught up in the mechanics of the teaching; however, through AR he began to listen more to his students and learned to be more responsive to their input.

Honestly, I can say that, had it not been for the research, I don't think I would have been as aware of how my relationship with the students impacts their learning.... I originally started thinking that these book-based techniques were the

way to go, but concluded that the most influential element within that process was the way that students reacted to me and my excitement about the writing.

Mark went on to describe the change in his thinking that occurred because of AR, helping him to realize that “teaching is about the students more than the content or the technique.”

Participants in the group interviews indicated that the increased focus on K–12 students prompted by AR continued beyond the scope of the AR project and helped to guide their work during the first year of full-time teaching. Elizabeth moved from student teaching in an English learner classroom in a traditional high school to a first-year job in an interdisciplinary, project-based charter school. The topic of her research and the focus of her teaching were in many ways very different, but what remained consistent was the focus on students and their learning experience.

One thing that has really helped me this year is student voice. When I first started my research, I wasn't aware how different the students' perception is from my perception. I learned to ask them questions and then listen to them. I just find that to be the most helpful thing, just directly asking them... That's one huge thing I loved about AR, getting the students' feedback on a consistent basis. I really loved that, and it has really impacted this year for me.

Systematic reflection. Graduates of the combined program also viewed AR as strengthening their ability and inclination to systematically reflect on their practice. Graduates consistently commented that AR went beyond PACT and the discussions prompted by student teaching observations, encouraging them to think systematically and meaningfully about successes and

struggles in their classrooms. Where PACT and the teaching reflections required in their methods courses too often felt like an external assignment, reflections in AR prompted real learning and were perceived as having authentic value. Jennifer, for example, explained that, whereas she had previously reflected about what went well and what didn't, AR caused her to be more thoughtful in her process of assessing teaching and learning in the classroom.

[I learned] that the way that I initially perceive something is not always the way that it is actually happening, and action research forced me to see that...

[I learned] that the way that I initially perceive something is not always the way that it is actually happening, and action research forced me to see that... Oftentimes, things that I initially perceived as unsuccessful were the

things that the students liked the best or the things that produced the best results according to the data. So actually having to look at that and think about why that might be was a really positive thing.

Jennifer further explained that this more systematic process of reflection increased her willingness to persevere when attempting new strategies or employing new approaches.

It's easy to say "Oh, that doesn't work" or to not even try it. AR made me realize that I need to really try something, try it for a substantial amount of time and see what works about it and what doesn't work, and then make adjustments in what I do and how I approach it.

Another graduate, Sara, said that she valued AR in large measure because it led to purposeful reflection. Unlike with a written journal or talking to a supervisor, the reflection that accompanied her AR was followed; therefore, the reflection mattered if it was going to drive appropriate decisions that would further her research, strengthen her teaching, and enhance students' learning.

What I learned through AR is to use reflection toward action. Reflection is fine, but if you don't do anything with it, it's not helpful. So I like that action piece and thinking about, "Now that I've reflected, what's the next step?"

Although Jennifer, Sara, and other graduates had learned *how* to reflect from previous course assignments, AR provided them with a rationale for *why* reflection was necessary. They saw the reflection that was part of AR as critical to helping them better understand students' learning experiences and to making good decisions about future classroom instruction.

Ownership of instructional practice. Graduates of the combined program perceived that AR had helped them to gain greater ownership over their instructional practice in the classroom. They became more confident making instructional decisions and more independent in their lesson planning, implementation, and assessment process. In comparing PACT with AR, graduates expressed the view that whereas the evaluation criteria that were part of the standard credential program ensured that all candidates met a baseline of expectations, AR pushed candidates in the combined program to go beyond these externally established criteria. Engaging in AR encouraged candidates to take charge of establishing their own goals for their students' learning and their own teaching. Karen explained the added value that AR brought in this area as follows:

The thing with PACT is that you have to prove you are capable of teaching... But AR, that's where you develop the skills about teaching with your own style and how to put that into a lesson and to go and reflect on the lesson so that you can learn from it so that you can take the next step.... AR takes it to the next level.

The AR also helped candidates to be more independent from their cooperating teachers. As student teachers, these candidates were often implicitly or explicitly expected to conform to the practices of the cooperating teacher. The AR provided candidates with the space to try new approaches and become more independent in their planning and instructional choices. Melinda

explained that, though she adored her cooperating teacher, she appreciated the opportunity that AR provided to more independently examine her instructional goals.

I loved the way that she taught, but in terms of valuing historical empathy as much as I did, that was a little bit different. AR really helped me a lot in terms of realizing, as an educator, what I value.

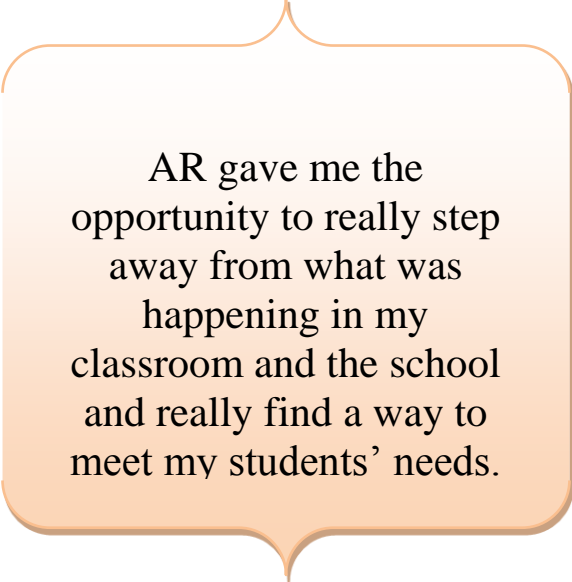
Karen, on the other hand, had a more strained relationship with her cooperating teacher. For her, AR provided a vehicle to make changes in the classroom as she worked to establish her independence in determining instructional practice.

AR gave me the opportunity to really step away from what was happening in my classroom and the school and really find a way to meet my students' needs. And I wouldn't have stepped back like that and worked to find something to do in the classroom and change it and make it better had it not been for AR.

By helping candidates to define what they value as teachers and giving them space to explore new instructional practices, AR added value to these candidates' preparation. They became more independent in their choices and strengthened ownership of their instructional practices.

Professional voice. Finally, graduates of the combined program perceived that engaging in AR had helped them to gain a stronger professional identity and voice. During their first years in the classroom, graduates reported encountering situations with administrators, colleagues, parents, and students that challenged them to articulate, defend, and advocate for themselves and their students. In these situations, graduates were able to draw on the professional identity and voice developed through engaging in AR. Denise explained that the process of learning how to analyze and respond to data helped her to contribute to faculty discussions during her first year of full-time teaching.

I think the experience really helped me to boost my confidence; for example, being confronted with issues like the principal saying, "Our AYP went down last year and we need to bring it up." Before, I think I would have been totally intimidated, like "Oh my gosh, how am I supposed to figure out strategies to improve test scores?" But having done AR, it's like, "OK, here's our research question, how do we analyze the data, how can we try new approaches and see what's working?" It helps you not to feel quite so overwhelmed by things like that.



AR gave me the opportunity to really step away from what was happening in my classroom and the school and really find a way to meet my students' needs.

Elizabeth used the confidence and professional voice that she had gained through engaging in AR to establish her professional identity with parents at her new school site. When challenged to explain policies around homework, assessments, and presentations, Maria was able to draw on her experience with AR to support her responses.

[AR] made me more confident, and it showed me that research speaks a lot. This year, my teaching team experienced a lot of pushback during parent-teacher conferences.... Even though I am a new teacher, I felt confident because I could back up what we were saying with research.... So it showed me that research can really change how people think and make you seem like a stronger professional.

In addition to recognizing the role AR played in empowering them to collaborate with colleagues and articulate their thinking to parents and administrators, some graduates saw AR as instrumental in positioning them to advocate for students and become a catalyst for change. Ana, whose research focused on student-led discussions, saw her work with AR as having a significant impact on changing the beliefs of other teachers at her school about students' potential for academic success.

I know that doing AR at the site that I was at really opened the eyes of my colleagues and that they are trying new things because of the research that I did.... A lot of teachers doubted [that I could have student-led discussions with my students]. It was like, "not with these students, not in this area." What my AR proved was that I could. And if I could do it, the student teacher, then they maybe they [*sic*] could do it too. And so it turned on a lot of light bulbs.... So not only did I learn from AR, but other people learned about what I was doing, and it made them think about their own pedagogy.

Ana went on to explain that, "the work continues." During her first year of teaching, Ana remained engaged in her research, viewing the work as instrumental to strengthening her own instructional practice, empowering her students, and advocating for change within the professional community.

Challenges of engaging in AR. Although the pre-service teacher candidates who had participated in AR within the combined program indicated that they had derived significant benefits from AR beyond the learning achieved through the components of the standard credential program, they also reported some significant challenges presented by engaging in AR as student teachers.

The most pressing challenge was time. During the 12-month duration of the combined program, candidates were expected to complete all their coursework, field experiences, PACT, AR, and university-specific requirements such as an international experience. Discussions of the AR began soon after completing the PACT requirements. This transition challenged candidates, who sometimes struggled to shift gears in a short time frame. The actual process of AR also took place in a relatively short time frame, with candidates having only about 5 months to complete a

project prior to graduation. This time pressure was cited as a concern by many of the combined program graduates, and some felt that it limited the impact of AR on their professional growth.

Additional concerns related to the dynamics of being in a student teaching placement with a cooperating teacher or supervisor who may not always be supportive of the candidate's AR process. Although AR expectations had been communicated with school sites prior to making student teaching placements and efforts had been made to maintain open channels of communication between candidates, cooperating teachers, supervisors, and university faculty during the AR process, some candidates encountered resistance from cooperating teachers. Some cooperating teachers, particularly those at school sites in state-mandated program improvement, were reluctant to allow the candidates the flexibility required by AR.

Despite logistical challenges, time constraints, and the added stress that candidates encountered due to the expectation to conduct and present their AR as part of their program, graduates of the combined program all agreed that AR was an essential part of their preparation. When asked, "Should AR continue to be part of the combined program?" graduates were unanimous in their strong, affirmative responses. One stated the following:

Definitely. Reflective practitioners are essential if education is going to turn around in this country. Furthermore, there is much more ownership and feeling like teaching is one's own when conducting action research.

Discussion

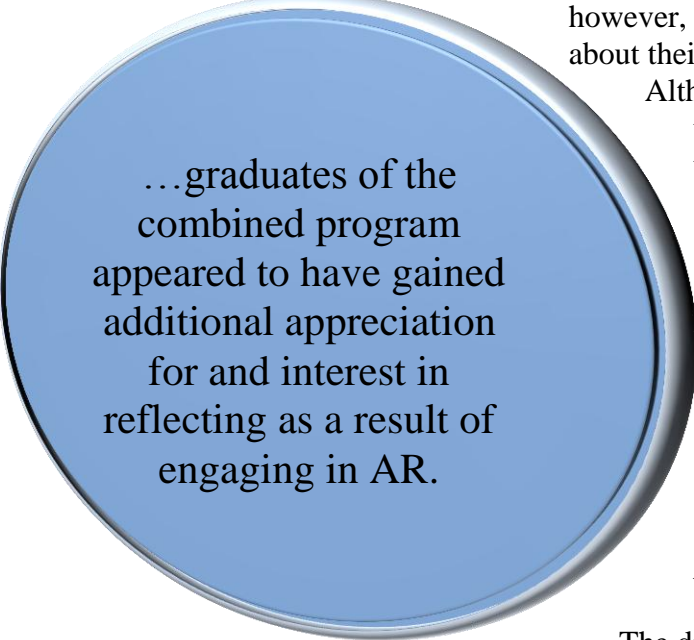
Does AR add value to a pre-service teacher education program? Results from the present study appear to be mixed on this question. The survey results comparing responses of graduates from the traditional and combined programs indicated negligible differences in perceptions of their preparedness for classroom teaching. Findings from the group interviews, however, indicated that graduates of the combined program perceived that, in some areas, AR enhanced their readiness to enter the teaching profession. Initially, these results seemed contradictory. Closer examination of the findings pointed toward a potential explanation for the apparent discrepancy.

Many of the metrics addressed in the survey questions focused on knowledge and skills, areas that are traditionally viewed as the primary purview of teacher preparation programs. Results from the survey indicated that the traditional elements of the teacher preparation programs adequately responded to these domains. Use of AR appeared to add little to candidates' perceptions of their knowledge of content, instructional planning, teaching methods, and assessment beyond what they had learned in their foundations and methods courses, field experiences, and teacher performance evaluations. The minimal differences that emerged from the survey results should perhaps be seen not as a failure of AR, but as a success of the standard teaching credential program to provide the knowledge and skills mandated by local, state, and national accrediting agencies and professional associations.

Does this mean that AR adds no significant value to pre-service teacher education? The results from the survey suggest benefits, but they primarily address dispositions rather than knowledge and skills. When asked what AR added to their preparation, graduates of the combined program focused much more closely on the affective elements of teacher professional growth. They spoke of being more focused on their students, more in control of their practice, and more confident in their voice. For these graduates, AR was less about gaining discrete skills and knowledge and more about taking ownership of their work as a professional educator dedicated to K–12 student success.

This distinction was visible when looking, for example, at reflection. From the survey results, the difference between the perceptions of program graduates around their ability to reflect on practice was only slight. However, in interviews, graduates from the combined program indicated that reflection was a core benefit gained from AR. The benefits that they described, however, were less about the skills of reflecting and more about their increased appreciation for the purpose of reflection.

Although student teaching assignments and PACT had taught these candidates the kinds of questions that they should be asking after teaching a lesson, AR required that candidates *act* on that reflection, using their assessments and analysis to determine next steps in their teaching and research. This process made candidates more systematic about their reflection and provided a clearer rationale for why they should engage in the process. Although graduates of both programs acquired the skills of reflection, the graduates of the combined program appeared to have gained additional appreciation for and interest in reflecting as a result of engaging in AR.



...graduates of the combined program appeared to have gained additional appreciation for and interest in reflecting as a result of engaging in AR.

The distinction was also visible when considering instructional practice. Here again, only a slight difference in survey results was found in the area of instructional planning and essentially no difference in survey results was found around teaching methods. However, graduates of the combined program indicated in the group interviews that AR significantly strengthened their sense of ownership over their instructional practice. For these respondents, AR was less about acquiring knowledge of new instructional techniques or mastery of specific skills and more focused on empowering them to make instructional decisions based on their context. Using AR allowed instructional practice to become less dependent on external evaluation measures such as PACT, less a replica of the model provided by the cooperating teacher, and more driven by candidates' assessments of student needs. They gained the confidence and dispositions needed to effectively put their knowledge and skills to use in their classrooms and to be able to articulate the rationale behind their decisions.

The added benefits that AR generated for graduates of the combined program in this study correspond with previous findings around the impact of AR in teacher education. Much of that work, similarly, focused on dispositions. The additional focus on K–12 students that these candidates experienced while engaged in AR reflected previous findings that the close examination of student learning prompted by AR alerted teachers to more readily recognize and respond to students' needs (Liston & Zeichner, 1990; Rock & Levin, 2002). Previous research also found that engaging teachers in AR led them to become more reflective, critical, and analytical about their practice (Keating et al., 1998; Rock & Levin, 2002; Schnorr & Painter, 1999; Valli, 1997) and to become more confident and articulate in explaining what they were doing and why they were doing it (Chant, Heafner, & Bennett, 2004; Choi, 2011; Kincheloe, 2003; Rock & Levin, 2002). Additionally, some graduates from the current study described experiences that could be seen as “progressive and emancipatory,” as Kitchen & Stevens (2008) described, with AR having empowered them to move beyond the apprenticeship model provided by their cooperating teacher and to leverage their learning to advocate for change in their schools.

In 2002, the National Council for Accreditation of Teacher Education (NCATE) began requiring accredited teacher education programs to articulate and systematically assess dispositions of pre-service teacher candidates. Described as “predictive patterns of action” (Borko, Liston, & Whitcomb, 2007, p. 361), dispositions address the gap between what teachers can do and what they will do. The increased attention around developing dispositions in pre-service teachers recognizes that just because a teacher education program helps candidates to develop the requisite skills and knowledge doesn't necessarily mean that they will choose to use those skills and knowledge consistently and effectively in the classroom. Dispositions help predict the choices teachers will make. In the messy, often-isolated arena of the classroom, in which multiple competing demands are placed upon them, teachers “must not only be inclined to achieve particular purposes but also be sensitive to the context of any teaching situation to know what knowledge and skills to put to use at any given time to achieve those purposes” (Schussler, Stooksberry, & Bercaw, 2010, p. 351). The present study suggests that AR can play a critical role in helping pre-service teachers to develop the inclinations and judgment needed to use their skills and knowledge effectively in the classroom.

Conclusion

Does AR add value to pre-service teacher education programs? Although additional research is needed to conclusively respond to this question, the present study suggests that significant benefits can be derived from engaging candidates in AR as a part of their teacher preparation. While standard course and fieldwork elements of traditional preparation programs provide candidates with the requisite knowledge and skills, AR can nurture development of the dispositions needed to be an effective teacher in the classroom. This is of particular importance given the increasing focus on dispositions in teacher education and the challenges encountered when attempting to develop and assess this affective component of a candidate's growth (Borko, Liston, & Whitcomb, 2007, Carroll, 2005; Diez, 2007; Sockett, 2009). Certainly, costs and obstacles are involved when including AR as part of teacher preparation; however, the findings

of this comparative study suggest that the benefits can outweigh the costs and that AR can add value to the preparation of an effective classroom teacher.

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