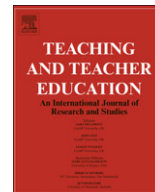


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Using action research in middle level teacher education to evaluate and deepen reflective practice

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ABSTRACT

The study examined the role of action research in promoting critical reflective thinking among twenty preservice teachers engaged in a year-long middle level program. Data from collaborative discussions, final written documents, presentations, and follow-up surveys revealed that conducting action research (a) engaged them in inquiry into their own practice, (b) was a means to reflect upon and determine ways to change their teaching practices, and (c) promoted critical reflection in a collaborative learning environment. Results underscore the importance of preservice teachers critically reflecting to gain insights into teaching and student learning as they are engaged in action research.

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1. Introduction

Several reports have been written in the last couple of years that challenge traditional teacher education programs (U.S. Department of Education, 2003). These reports advocate for teacher education programs that provide opportunities for preservice teachers to inquire into their own teaching (Darling-Hammond, 2006; Lumpe, 2005). The available international research literature provides a growing body of empirical evidence that recommends that teachers should systematically engage in inquiries about their practice (Crawford, 2007; Freeman, 1998; Little, 2002; Zhang, Lundeborg, McConnell, Koehler, & Eberhardt, 2010). Such an approach to teacher education is believed to support reform-based instructional practices in school classrooms (Feldman & Minstrel, 2000). This view of teachers as reflective practitioners implies that teachers become active knowledge producers as they continuously address problems of practice they encounter to meet the

unpredictable learning needs of all of their students (Darling-Hammond, 2006).

Almost from its inception, action research has been viewed as a way for teachers to inquire into and improve their practice (Carr & Kemmis, 1986). Action research is a way to promote a cyclical process of improvement that includes describing a problem, seeking knowledge from previous investigators, collecting data, devising and implementing a strategy for change, evaluating the results and planning for another cycle of improvement (Authors, 2009). According to Mills, "Action Research is any systematic inquiry conducted by teacher researchers, principals, school counselors, or other stakeholders in the teaching/learning to gather information about how their particular schools operate, how they teach, and how well their students learn..." (Mills, 2007, p. 5). It is seen as "... a series of steps in which the action researcher reflects, acts, and evaluates" (Hendricks, 2006, p. 9). Action Research is "...a type of inquiry that is preplanned, organized, and can be shared with others" (Johnson, 2003, p. 1). Further, it cuts across various dimensions of the school and its clients, such as teachers' own instructional methods, their own students, and their own assessment (Mertler, 2006). According to Carr and Kemmis (1986), action research aims at improvement in practice, understanding of practice, and improvement of the situation in which the practice takes place. Action research is more than a mere concern over the technical problems of teaching, but provides the teacher with the

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necessary tools to investigate their perspectives on curriculum and moral concerns. This approach to action research moves away from the positivist and empirical approach to one that is more interpretive and critical (Capobianco & Feldman, 2010).

In the United States there has been an increased interest in critical action research in which the teacher gains a greater self-understanding of practice, conceptual change, and an appreciation of the social forces that shape the school (Manfra, 2009). Manfra (2009) states that there currently is little dialog between the practical approach to action research or the day-to-day issues that a teacher faces and that of critical action research with a focus not only on the classroom but also on the improvement of society. She explains that it is likely within the reality of classroom life that teachers do engage in both practical and critical research as they investigate questions. Instead of a focus on the differences between the two types of action research, she proposes the development of a more integrative approach to action research that values both types of inquiry and encourages dialog around the support of critical teacher reflection. Capobianco and Feldman (2007) promote collaborative action research among teachers about their own practices for their own purposes. Teachers create meaning of their practices through reflection (Capobianco, Lincoln, Canuel-Browne, & Trimarchi, 2006). Conditions for collaborative action research include (a) an action research group that functions as a community of practice, (b) the group must have knowledge of appropriate research methods, (c) the group must function as a knowledge producing community, and (d) the teachers must have a thorough grounding in action research (Capobianco & Feldman, 2010). An emphasis is placed on the improvement of practice, the generation of new knowledge, and an understanding about the significance and responsibilities of teachers and researchers.

When preservice teachers are engaged in action research, reflection begins with the systematic investigation of a teaching problem. Reflection is carried out at various levels in a variety of ways throughout the process. Terms used to describe the level of reflective thinking include descriptive/technical, practical/dialogic, and critical/transformational. In a study by Sparks-Langer, Simmons, Pasch, Colton, and Starko (1990), these domains were used to assess reflective thinking in preservice and inservice teachers. Different types of reflective thinking were exhibited at different times with the teachers moving from technical toward more practical and critical reflection by the conclusion of their experience. These results were similar to those found by Hatton and Smith (1995) where preservice teachers moved from descriptive (technical) toward a more dialogic or critical form of reflection. Ward and McCotter (2004) found after reviewing the literature that a shortcoming of frameworks on reflection was a lack of attention to how teachers situated their learning within the context of practice. They developed four levels of reflection that focus on student learning which include (1) routine with no focus to problems and a tendency to blame others, (2) technical as a means to solve a problem without questioning the nature of the problem itself, (3) dialogic in which there is a focus on the consideration of the views of others and the process of learning, and (4) transformational in which fundamental assumptions and purposes are questioned (See Appendix A for Ward and McCotter's (2004) reflection rubric). They found that it was rare for preservice teachers to express transformational views when reflecting on their own teaching.

We believe that it is important for teacher educators to engage in collaborative and reflective action research with preservice teachers. Instead of the university faculty setting the agenda, the preservice teachers are encouraged to work together to study what is important to them in their own school situation for their own purposes. We must avoid the stance that action research is

a prescribed strategy with a reporting mechanism. Instead, it requires a developmental stance to the preservice teacher's own research at a level of clarity that makes the action research epistemic in nature (Capobianco & Feldman, 2010). We focus on being practically critical to improve not only educational practices but the preservice teachers' understanding of these practices within the circumstances of school (Cochran-Smith & Lytle, 1993). We acknowledge that in North America there is ceaseless pressure for school reform (Hutchinson, 1996). Such efforts as the *Leave No Child Behind Act* (U.S. Department of Education, 2011) have focused on teacher practice linked to student achievement. Could teacher as researcher be a means to empower change from within and a way to somehow address these mandates? Can action research help to empower teachers who will teach in ways and create classrooms that empower students? How can these experiences be provided to preservice teachers in educational programs? What are the expected challenges? These questions are central to making inquiry into practice a significant component of the culture of teacher education in the United States.

The purpose of this paper is to describe a teacher education program that uses action research as part of the requirements for licensure, and to provide evidence of the effects that action research had on preservice teachers' learning and practice through reflection. This study took place in a poor and disadvantaged southern portion of the country (Black, Mather, & Sanders, 2007). Like many parts of the United States, these student populations have become increasingly more diverse while the teaching population remains overwhelmingly White and middle-class (Cochran-Smith, Davis, & Fries, 2003). In this way, these teachers are demographically quite similar to teachers in other countries such as Australia where there are significant discrepancies between the backgrounds of teachers and preservice teachers and the increasingly diverse racial, ethnic, cultural, and socio-economic experiences of school students they are teaching (Mills & Ballantyne, 2010). These trends are expected to continue as populations in contemporary Western societies grow more diverse (Allard & Santoro, 2006).

For example, in the 1990's the United States experienced the greatest flow of immigrants than any previous decade, doubling the percentage of foreign born residents in the U.S. from five percent in the 1970's to just over ten percent in 2000 (Capps et al., 2005; U.S. Census Bureau, 2000). By 2000, foreign born children represented one in five U.S. students in pre-kindergarten to twelfth grade (Capps et al., 2005). U.S. Census Bureau projections estimate that immigration trends will continue to change the racial and ethnic demographics of the U.S., due in part to the shift in immigration from primarily European countries prior to 1965 to immigration primarily from Latin America and Asia. Such trends have contributed to projections that White U.S. residents will continue to decrease from seventy-one percent of the population to approximately fifty-eight percent by 2035 and fifty-two percent by 2050 (Spring, 2008; U.S. Census Bureau, 2000). Moreover, settlement trends indicate that foreign born families are increasingly migrating to previously homogeneous regions of the country, rather than the more traditional gateway of California and New York (Spring, 2008). Thus, more schools throughout the nation are experiencing and will continue to experience growing diversity. The need for preservice teachers and teachers to consider their own position and to critically consider how their position relates to their students becomes increasingly critical. Collaborative and critical action research is a way to consider how to meet the needs of the students that are present in these teachers' classrooms.

Although for more than 50 years action research has been promoted as a way for teachers to inquire into their practice

(Zeichner & Noffke, 2001), further investigation is warranted into its strength in preservice teacher education, especially in a one-year internship model in the middle grades in a large university in a southern area of the country. Using data collected from twenty preservice middle grades teachers, this paper examines the role of action research (Carr & Kemmis, 1986; Whyte, 1991) in promoting reflective thinking and practice among these future teachers. Specific research questions that guided this study were:

- What kind of teaching goals did the middle grades preservice teachers pursue using action research?
- To what extent were the middle grades preservice teachers able to reflect upon and change their teaching practices as a result of their action research?
- What did the middle grades preservice teachers think about the action research process as related to their teaching?

2. Method

2.1. Context

The teacher education program which serves as the context for this study is based on a five-year model that requires students to earn a major in their respective content area. While completing an undergraduate major, students must also seek admission to a teacher education program and earn a minor in secondary education. Upon receipt of a bachelor's degree, students advance to a 24-credit graduate level, year-long internship that constitutes their first year of teaching (The Holmes Group, 1990). The preservice teachers are then called interns. Almost all of these students complete an additional 12 credits to earn a master's degree in middle grades teaching (grades 4–8).

After the interns take 16 h of education courses in the spring and summer semesters, they take a year-long course in which they learn the value of action research and how to conduct action research in a school setting. The goal of this model is to lead the students to become reflective practitioners through (1) preparing them to explore alternative solutions to teaching problems, (2) showing them the value of communicating with others about problems faced in teaching, and (3) developing professionals who explore the literature about specific problems. Action research is

seen as a vehicle to carry out these objectives. The Associate Dean at the College of Education where the research was conducted and in charge of teacher education stated, "The action research process gives our students an opportunity to reflect on actual data they have collected from their own teaching experiences, leading them to believe in data-based reflective practice rather than uninformed assumptions and teaching folklore." (Associate Dean for Teacher Education and Teacher Licensure, 2009).

The interns begin their one-year school experience in a middle school at the beginning of August. Interns are on the middle school calendar and while they do attend courses at the university, mostly after school, they do not follow the university academic calendar. Two university supervisors, who are former teachers with mentoring experience and usually are graduate students at the university, along with the action research professor, coordinate the school experience. The university supervisors attend the action research course and are an integral part of the process. The goal of the course was to promote reflection and inquiry, to learn about how to teach students, to learn about research and action research, and to consider social justice in schools.

In the fall, during the first stage of action research, the interns clarified their visions and goals and researched and planned their implementation. They conducted a community-mapping project in groups at their schools and an equity audit. They kept reflective journals, conducted formal observations of other classes, prepared, taught and analyzed units of work, videotaped lessons, analyzed student work, as well as learned about the process of conducting action research. They conducted pilot studies based on their ideas, visions and goals. During these pilot studies the interns practiced their research skills and other procedures such as interviewing, different strategies for assessing learning, or the teaching of intervention strategies they were considering. Copies of past interns' action research projects were made available and interns could continue and expand upon past action research projects. In the fall, the interns reviewed related literature as they planned their action. Then, in consultation with their action research professor, university supervisors, and their mentoring teachers, the interns reflected upon and shared their implementation plans through collaborative discussions with each other. The interns engaged in research projects with the emphasis on inquiry into their own teaching on topics of interest to them in their schools. The research was focused on the work of the intern-researchers to improve their teaching

Table 1
Backgrounds and placements of twenty middle grades interns.

Intern	Cohort yr 1 or 2	Main content area	Grade level	School type	Free/reduced lunch	Action research	Data type
Amy	1	Science	7	Rural	75%	Grouping	Quantitative
Bill	1	Social studies	8	Urban	45%	Graphic organizers	Quantitative
Bob	2	Social studies	7	Urban	10%	Student choice	Quantitative
Buck	2	Social studies	7	Urban	10%	Parent communication	Quantitative
Coleen	1	Social studies	8	Urban	45%	Note taking	Quantitative
Cathy	2	Social studies	8	Urban	84%	Advisory	Qualitative
David	2	Social studies	7	Urban	45%	Open-mindedness	Qualitative
Hannah	2	Social studies	6	Urban	5%	Writing journals	Both
Heidi	2	Language arts	6	Urban	67%	Writing journals	Both
Jake	1	Science	6	Rural	72%	Problem-based learning	Quantitative
Jane	2	Language arts	7	Urban	45%	Active learning	Both
Jill	2	Social studies	6	Urban	45%	Active learning	Both
Judy	2	Social studies	8	Urban	45%	Active learning	Both
Karen	1	Social studies	7	Urban	45%	Planners	Both
Kit	2	Social studies	6	Urban	8%	Planners	Both
Lacy	2	Social studies	6	Urban	8%	Planners	Both
Lori	2	Social studies	6	Urban	10%	Parent communication	Quantitative
Susan	2	Social studies	8	Urban	8%	Planners	Both
Samantha	2	Social studies	7	Urban	84%	Advisory	Qualitative
Tami	1	Science	8	Rural	72%	Student-led conferences	Both

practices and their students' learning. A second purpose was for the interns were to gain a better understanding of the educational settings in which they taught (Feldman, Rearick, & Weiss, 2001). A timeline was developed on how and when the project would be carried out based on the planned intervention in their classrooms at their schools.

During the spring semester in stage two of the action research, the interns implemented their action and collected their data, and connected action to results. The intervention strategy usually lasted between four and six weeks during the months of January, February, and March and ended before state testing. During March and the first of April in stage three of the action research, the interns culminated their experience by reflecting on the data, revisiting beliefs and theory, and planning informed future actions. A culminating experience was the presentation of their findings to their peers in the course and at a capstone conference to a larger audience at the end of April. Principals, school personnel, faculty, and other students were in attendance at the capstone conference. In addition, the interns often presented their findings during a faculty meeting at the school in which they were interning.

Even though interns conducted individual projects in their assigned schools, the process was approached collectively. During the research course, interns were placed in groups by themes for discussions and sharing throughout the year such as when they were finding related research, deciding on techniques, considering procedures and ethics, and writing up the different parts of the report. Other topics of these reflective discussions revolved around the sharing of personal ideas and theories, asking questions and seeking answers, and talking about their school environments. Dialog included practical ideas about data collection, pedagogy, classroom management, or focused on more critical topics such as philosophies, equity, and beliefs. These reflective discussions were especially helpful to the interns during stage three of the process as they are reflected on the data, their beliefs, and their actions. The rich context of their teaching experiences linked with their research findings proved to be an exciting environment for discussion.

2.2. Participants

The participant selection included all twenty preservice middle grades teachers (1 female African-American, 3 male Caucasian, and 16 female Caucasian) from two separate cohorts of one-year each in the Middle Grades Academy program at the University (See Table 1 for preservice teachers' backgrounds and schools). The interns ranged in age from 21 to 40 years old with a mean age of 26. Of the twenty participants, three declared science, two declared language arts, and fifteen declared social studies as their main content area. The middle schools in which the interns were placed varied (See Table 1). All interns were placed in schools in groups of at least two, though they were at different grade levels, subject areas, or with different mentor teachers at the school. All the interns signed Human Subjects informed consent forms and submitted evidence of their work including written action research reports which

consisted of a literature review, methodology, findings, conclusions, implications for teaching and learning, reflection, and appendices including lesson plans, rubrics, data collection instruments, interview questions, and student artifacts, and their digital PowerPoint presentations. In addition, notes were taken during the reflective discussions and action research presentations. At the end of the year-long course, an open-ended qualitative survey (Fink, 2003) was administered in which the interns wrote freely as they explained how their action research experience might or might not affect their teaching in the future and about their experiences overall (See Appendix B). All names of the preservice middle grades teachers are pseudonyms. None of the preservice teachers had prior experiences with action research.

2.3. Data collection, analysis, and interpretation

This study used a multiple case method and a cross-case comparison to determine commonalities and differences among the twenty interns (Creswell, 1998; Merriam, 1988). The purpose of the case study research was to explore in-depth how these middle grades interns planned, conducted, and reflected upon their teaching practices as the result of conducting action research. Multiple data sources were used to investigate the three research questions, which included: (a) written action research reports; (b) digital PowerPoint presentations; (c) interns' reflections in the written research paper; (d) open-ended qualitative survey, which was administered by the University supervisors; and (e) researcher's journal documenting informal conversations with the interns and reflective discussions during the classes (see Table 2).

To answer the first question regarding the teaching goals of the interns, an inductive method (Erickson, 1986) and strategies suggested by Creswell (1998) and Merriam (1988) were used to analyze the data sets. First, the three researchers independently open-coded the written action research reports including their lesson plans, instruments, and data for references to teaching practices with regards to student learning. The researchers looked for dominant themes. The first author and the two university supervisors were participant observers for the two years of the study. The first author and the university supervisors assumed a number of roles including planners, facilitators, supporters, challengers, and teachers. The second and third authors were outside observers and a part of the secondary science and elementary internship programs. The three researchers independently open-coded the PowerPoint presentations and compared these findings to those of the written reports. Finally, the three researchers compared their findings. We met as a research team to see if we agreed on the themes. With these themes in mind, as a team, we examined the first author's personal journal for additional information. We calculated inter coder reliability among the three researchers to be 90%. Four teaching goals for student learning emerged within the action research reports: multiple ways of representing information, student self-efficacy, student behavior, and open-mindedness of students (See Table 3 for preservice

Table 2
Research questions and data sources.

Research questions	Data source
(1) What kind of teaching goals did the middle grades preservice teachers pursue using action research?	Written AR reports, PowerPoint presentations, reflection in AR paper, author's personal journal
(2) To what extent were the middle grades preservice teachers able to reflect upon and change their teaching practices as a result of their action research?	Author's personal journal (field notes), open-ended qualitative survey, reflection in AR paper, written AR reports, PowerPoint presentations
(3) What did the middle grades preservice teachers think about the action research process as related to their teaching?	Author's personal journal (field notes), open-ended qualitative survey, reflection in AR paper

Table 3
Interns inquiries and teaching methods.

Teaching goal	Teaching intervention	Interns
(1) Multiple ways of representing information to students	Active problem-based learning, graphic organizers, learning strategies, note taking, writing journals	Bill, Coleen, Hannah, Heidi, Jake, Jane, Jill, Judy
(2) Student self-efficacy	Homogeneous vs. heterogeneous groups, self-regulation strategies and goal setting (student planners), student choice	Amy, Bob, Karen, Kit, Lacy, Susan
(3) Student behavior	Advisory sessions, parent communication, student-led conferences	Buck, Cathy, Lori, Samantha, Tami
(4) Open-mindedness of students	Global citizenship	David

teachers' teaching goals and intervention strategies). The research team then met with the two university supervisors and shared the data sources and themes with them. The university supervisors shared their insights regarding the emerging patterns. Any disagreements regarding the themes were discussed between the three researchers and with the two university supervisors.

Second, the interns' reflections upon and changes to their teaching practices were analyzed by re-reading the action research papers, revisiting the PowerPoint presentations which contained reflections, and re-reading the reflections in the action research papers. Then, the open-ended surveys were individually open-coded regarding reflections and changes regarding teaching practices by the interns. Finally, each researcher independently developed themes around reflection and changes in teaching practices. The three researchers then met and discussed the themes and patterns that had emerged. The inter coder reliability was 85%. The three researchers discussed each intern and reached consensus. The data sources and findings were shared and discussed with the university supervisors. Then these profiles were arranged into a matrix, using a technique described by Miles and Huberman (1994) with regards to levels of reflection (Hatton & Smith, 1995; Ward & McCotter, 2004) by the three researchers and the university supervisors (See Appendix C for rubric). Themes and codes were investigated to support the decisions made regarding the level of reflection. The first author's personal journal was consulted to look for dialog regarding the interns' reflections or changes to their practice.

Third, the interns' thoughts and feelings about the action research process were analyzed using their reflections in the written research paper and on the qualitative survey. The first author's journal notes were read, re-read, and coded for incidents related to the preservice teachers' thoughts and feelings about conducting action research. In this case, the researchers looked intentionally for incidences of dilemmas and successes with regard to the planning and carrying out of the action research process. This was done collectively by the three researchers and discussed. The themes and patterns were discussed by the three researchers with the university supervisors for corroboration or dissent.

These determinations of the teaching goals, reflection level as determined using the rubric, and the interns' ideas about action research were then member-checked through follow-up discussions with the former interns. Adjustments were made based on these discussions until consensus was reached. Finally, the three researchers used the themes from what the interns did or their teaching goals, from their reflections about how what they did changed their teaching, and from their beliefs and feelings about action research to develop a cross-case comparison.

3. Findings

3.1. Overview of the middle grades interns' cases

Despite the differences in schools and settings, it was apparent that the action research topics selected by the interns did center on some common teaching goals. These goals were based on the interns' interests as well as on their school setting, the abilities of the students in their classes, and from input by their mentor teachers. The data collection within those common goals varied being both qualitative and quantitative. Many used a control group or tried to compare data through some type of pre and post testing. Jake said, "How will I know what I have without a comparison" [author's personal journal]. Most interns choose to use one or two classes for their study. All of them conducted pilot studies in which they practiced the strategies used and tested and modified as needed their data collection techniques. Most conducted student interviews and student satisfaction surveys (and sometimes parental surveys) about the intervention strategies used.

Four teaching goals emerged from the action research projects. These included: (1) using multiple ways of representing information to improve student achievement, (2) using self-regulated learning strategies and goal setting to improve student self-efficacy, (3) using conferencing and improved communications with parents to improve student behavior, and (4) the teaching of global citizenship in order to influence the open-mindedness of students. Eight of the twenty interns focused on using multiple ways to represent information in order to affect student achievement (goal 1). The remaining twelve projects focused on ways they could use students' thinking about their learning (goals 2, 3, and 4). These interns were interested in why students were not achieving in their classes. Three of the twelve projects, Amy (goal 2), Tami (goal 3), and David (goal 4) addressed how their actions could contribute to greater equity in schooling by addressing concerns about tracking in schools through grouping, combating stereotypes to include everyone in the educational process of students, and open-mindedness of students toward others, respectively.

Data collected by interns in goal 1 consisted mainly of student quizzes, test scores, completion of homework, and writing scores. Their conclusions were mixed as oftentimes the quiz and test scores did not increase but remained the same. Bill concluded that even though his test scores did not improve, "Instructional use of graphic organizers did seem to increase student comprehension and recall in class. Students felt that the graphic organizers helped them organize the information. But students did seem to get 'sick' of them so they should not be overused." Judy concluded that, "[using multiple ways] ...decreased the students dislike of homework." Heidi remarked that, "You have to be careful that students do not become overwhelmed. Daily journaling may become time consuming and dull for students. If students become saturated, they will lose interest in the process."

Data collected in goal 2 was on self-efficacy of students as the result of using some type of planner to set goals or by allowing students greater choices in their own learning. Self-efficacy was measured using a variety of standardized instruments, through students' reflections and discussions, and by measuring increased student persistence and participation on tasks. Many of these interns said that these types of strategies had a positive effect on the students because they took ownership of their own learning. For example, Bob who gave students choices said,

The students were more motivated and exhibited fewer off-task behaviors on Choice days as compared to No Choice days. One could argue that the constructively grounded idea of crafting opportunities for students to put together knowledge in ways

that are meaningful to the individual has a positive impact. Specifically, giving students' choice on their assignments creates a more meaningful learning experience for the students and promotes motivation or their sense of responsibility [conclusion, action research report].

Amy instead gave students choices in which group they wanted to be a part of in science class. She felt that, "Positive attitudes towards learning and positive self-concepts are important elements of fostering a disposition to future learning, it is important for schools to consider the affects of tracking based on grouping by ability levels on students." Amy found that heterogeneous groups worked better for low ability learners but she cautioned that homogeneously grouped high ability learners had a lower self-concept due possibly to increased pressure from peers. Amy concluded, "It is unclear to me exactly how tracking affects academic performance and self-concept of students based on my results but I believe that it is important to continue this research on the effects of tracking on students' total development."

The use of planners to monitor student set academic goals was one topic that was continued from year one to year two by some of the middle grades interns. In these schools planners were not being used school-wide. School-wide use of planners was in practice at some of the other middle schools. Karen found that the students' favorite part of using a planner was the, "goal setting and monitoring of their progress". A low achieving student said that it helped her to be more "organized" and that she felt more "in control of her learning". But when she interviewed a high achieving student he said, "I already use one on my own. My mom buys me one every year." Karen said that, "Overall the students were positive about using a planner. It caused them to reflect more on their own achievement but some students already knew how to use one [a planner]." The following year Susan found similar results when she remarked that, "Students' felt a sense of accomplishment that the goal-setting strategies provided them and the perceived approval from the teachers and parents. Many of the students explained that they would use the strategies outside of the classroom and share them with their peers. The student reflections and interviews revealed positive feelings toward goal-setting strategies."

Data collected in goal 3 on student behavior through improved parental communication was largely qualitative, using journals, student portfolios and reflections, along with interviews. One intern from year one, Tami, decided to try a strategy she found in the literature called student-led conferences in her science classes. In fact, the school faculty had reported to her that parental participation in any non-athletic school event was at the most about 10%. She had the students create portfolios and reflections about their work and the students became adept in interviewing by sharing their portfolios with each other in preparation for the student-led conferencing event. Reporting on her findings Tami said,

Parent participants (which were 60%) showed genuine interest in their children's education and a majority suggested more feedback from the school. The parents wanted to know how to help their children be successful. Their involvement can make the teacher's job easier, and more importantly, is of benefit to the child's education. It was rewarding to put together a project that was so well received by the parents, students, and staff. ... By implementing student-led conferences I was able to help the students develop metacognitively, give parents an opportunity to be involved in their students' education, and contribute to my host school's School Improvement Plan [reflection, action research report, Tami].

It is interesting to note as reported through teacher interviews by the intern and meetings with the principal, the intern, and the

first researcher, that before this intern's action research project, neither the current principal nor his staff had heard about or experienced student-led conferences. The faculty was excited about the results and the principal requested additional staff development on student-led conferences. The next school year, student-led conferences were implemented at the school once a year in the spring with the goal of increasing parental involvement and communication.

Following Tami in year two, other interns were interested in finding out if greater involvement by caring adults could positively affect student behavior. Lori found that, "Teacher initiated contact was the first step in forming relationships with parents. This two-way communication was beneficial to teachers, parents, and students." Cathy tried a different approach and established student advisory sessions for high-risk marginalized students on her team. Like Tami, she included student journaling and reflection as a part of her intervention. She found that, "The students showed significant positive changes in classroom behavior through increased responses and questions, decrease in tardiness and decrease in talking to peers during class." These interns realized how important it is for schools to initiate and encourage the involvement of caring adults in a student's education.

One intern, David, decided to teach global citizenship (goal 4) in order to influence the open-mindedness of seventh graders using a curriculum developed by OXFAM (2008). The data he collected was qualitative based on student photographs, projects, interviews, and focus groups. When describing the reason for choosing this research project he said, "Most of the students knew or had a family member fighting in the Middle East. They had many preconceived ideas regarding what they had heard [author's personal journal]." After his intervention David concluded:

Student interviews and focus groups showed that the students became more aware and more open-minded about the key elements of responsible global citizenship. Students showed a desire to have these elements present in their lives. However, many students still viewed being a good global citizen as being a good local citizen. This suggests that these elements should be implemented in a whole school approach. The results of this study call for broader links between the school and community [conclusion, action research report].

While this action research project did not lead to school adoption of the curriculum as in Tami's case, it was a positive experience. Further, the intern and the students continued to participate in the global citizenship curriculum after data collection was completed [author's personal journal].

3.2. Middle grade interns' reflection on practice

The interns reflected on various rationales behind their teaching interventions and as a result changes to their practice. Different explanations emerged as they analyzed and discussed their data according to different groups of students in their classes. There was a range of reflection from more routine or focused on self to technical with response to a specific situation, to dialogic or moving toward a more transformative change in teaching. The majority middle grades interns moved to a dialogic form of reflection. Table 4 displays the views and practices of the interns and was constructed from the analyses of the bulk of the data (See Appendix C for rubric used based on reflection rubric in Appendix A by Ward and McCotter (2004)).

The following provides evidence for the decisions to situate the interns at the varying levels of reflection on the continuum.

Three middle grade interns exhibited the lower-levels of routine and technical reflection characterized by a narrow more ego-

Table 4

Middle grades interns' reflection on practice.

Dimensions	Routine	Technical	Dialogic	Transformative
Focus	Samantha, Jake Coleen		Amy, ^a Bill, Bob, Buck, Cathy, David, ^a Hannah, Heidi, Jane, Jill, Judy, Karen, Kit, Lacy, Lori, Susan, Tami ^a	
Inquiry	Samantha, Jake Coleen		Amy, ^a Bill, Bob, Buck, Cathy, David, ^a Hannah, Heidi, Jane, Jill, Judy, Karen, Kit, Lacy, Lori, Susan, Tami ^a	
Change	Samantha, Jake Coleen		Amy, ^a Bob, Buck, Cathy, David, ^a Hannah, Heidi, Jane, Jill, Judy, Karen, Kit, Lacy, Lori, Susan, Tami ^a	

^a These interns addressed ethical and cultural concerns of their contexts, gaining new insights from their inquiries.

centric focus and a failure to identify subsequent changes to practice. This is common of new teachers who are more focused on survival than on improvement. Samantha who researched the effectiveness of advisory sessions (goal 3) for marginalized students on her team said, "The intervention did not provide a significant change in the seventh grade students' behaviors. Their academic success did not improve. The students did say that they enjoyed expressing their frustrations about school, teachers, family and peers in their journal and I was pleased that they said that they would like to continue writing in their journals but it really did not help them. ... I do not think anything can help these students." This reflection shows evidence of routine reflection because the focus is on self and the evaluation is limited with no attempt to evaluate what could have been done differently. As stated by the intern, "It just did not work." Coleen (goal 1) was convinced that teaching middle grades students how to take notes during lectures was an essential skill. She reflected on her results by saying, "I did see an increase in classroom oral discussion and the students did behave better but this was not the focus of my study. The students struggled with the writing. I was sad to see that even after weeks of instruction their notes were disorganized and lacked important information. I do plan to continue to use guided lecture notes in my classes in the future though." Coleen continued to say that even though the note taking strategy was "not working" that she would "continue to use it in the future" because "taking notes was important" for all students. She made no attempt to offer suggestions on how she might teach this skill differently to these or other future students. Jake (goal 1) showed a bit higher level of reflection, technical, by shifting his focus more toward his students when he said, "I should have asked the students for input on the project or how it was being taught. More structured journaling assignments could be used, and student input on instruction could be solicited. A longer time frame might allow for a more student led unit rather than a teacher led approach." His focus is on a specific practice with questions about his practice expressed as a response.

The majority of interns perceived that as a result of their action research that they were able to understand multiple ways of teaching in order to reach all of their students, that they learned to elicit, listen to, and use their students' ideas in their teaching, and that their teaching practice improved by incorporating students' ideas. This represents a shift toward more dialogic type of reflection on teaching. These interns focused on the students and used assessments that would help them to learn how to assist all of their students, including those that were struggling. For example, Judy (goal 1) acknowledged that, "Using strategies that are kinesthetic, incorporating gestures and movement into the classroom, as well as interpersonal opportunities for learning helped to mold my instruction and assessment to fit the individual learning needs of

my students. Students seemed to feel the difference too and I noticed an increase in their confidence." Hannah agreed, "Visual organizers paired with journals provided many ways for the students to learn the material. This appealed to their different learning preferences and helped me to learn more about my students in order to better meet their individual needs." Cathy, who used advisory (goal 3), noted, "Students need more social interactions, higher frequency of talking in class, self expression, and open communication with those around them. Writing in their journals helped me to learn more about them and helped them to develop creative avenues to express aggression and emotions. ...this is especially important in the middle grades." Lacy (goal 2) remarked, "Students should not only reflect on their goals in social studies but be able to choose any subject and I would like to have them share their reflections more often. I learned so much about them from their reflections and they learned about themselves too. I would like to explore oral reflections to help my special education students who have trouble writing in the future."

Critical or transformational forms of reflection are unusual and difficult for preservice teachers (Ward & McCotter, 2004) and although most of the interns considered students' ideas, utilizing them in meaningful ways proved to be more challenging. Three interns, Amy, Tami, and David demonstrated an attempt to address the ethical and cultural concerns of their contexts through asking fundamental questions and considering change. While their reflections were dialogic in nature, their thinking did exhibit attempts to address difficult questions that lead to a change in their practice. Tami (goal 3), for example, found that student-led conferences were effective in a low socio-economic setting with previous minimal parent involvement. She said,

The students showed enthusiasm and ownership for the work they put into their portfolios. The enthusiasm was carried home with them and promoted curiosity among the parents. Parents were supportive of their students' hard work and showed their support by participating in student- led conferences. I have learned that parents are exceptional allies if you allow them to be. I always want to encourage and support parental involvement [reflection, action research report].

Tami was surprised by her reframed perspective about parents and in several collaborative discussions expressed that she realized it was her responsibility to encourage, support, and maintain parental relationships in her classes. She believed this was the "best education for all of her students." Amy (goal 2), though her findings on different types of grouping were inconclusive reasoned, "Educators should broaden their scope to include groupings that will provide the best experience for all students." She vowed to continue her search. David (goal 4) built his intervention around a unit on global citizenship and defined his overall goal as, "fostering an understanding of how we relate to the environment and to each other as human beings." His focus involved ethical, moral, cultural and historical concerns. David administered to the faculty at his school a global citizenship audit and later discussed the results with them. His lessons and activities were focused around war, conflict, and racism both locally and globally. While this inquiry did lead him to seek new questions and the ideas of his students, David did not engage in a long-term ongoing inquiry in which he reframed his perspective about the teaching of global citizenship to his students. David's practice was therefore more dialogic in nature. For example, David did say that his students "related experiences they had in their school to ways of being a global citizen and described ways to combat xenophobic acts." But he neglected to have his students tell their own stories in their own communities. He said, "If anything were to be done differently, it would be to examine conflicts within the US's own history for

which the students have no context.” David relied on his textbook to accomplish this and he did not fully questioning the best way to relate the teaching of global citizenship to his students. David, however, did express that he learned a tremendous amount about the teaching of global citizenship that he would like to continue in the future.

3.3. Middle grade interns' thoughts about action research

All twenty of the interns acknowledged that they gained valuable knowledge and skills for critically analyzing their practice as illustrated by Jill when she said,

The greatest value of this project was learning the skills to identify a problem in the classroom and researching a means to solve it. This was incredibly fulfilling and really strengthened my confidence. I think that talking about my results especially helped me to look at my teaching and how to help my students learn [author's personal journal].

Collaborative discussions, the qualitative survey, and reflections in the action research paper provided evidence to support that participating in action research enabled the interns to begin to appreciate the process of critical reflection on their practice. Many of the interns discussed the potential value of action research as a means of reflective practice that would lead to future changes. Bill said, “Conducting action research helped because we were able to identify the unique needs of our students and identify a teaching method to successfully help them achieve. I also think that the process was beneficial to my teaching methods and how I think about classroom practice.” Jane said, “I will definitely use my findings in future classes.” Karen said, “Action research gave me the confidence and knowledge to look in-depth at my teaching and students' learning and gain insight into what works and what does not.” Tami said, “It was my Everest...you aren't learning/growing if you are not frustrated. I gained so much perspective from my project that has been and will continue to be invaluable to my efficacy as a teacher.”

Action Research facilitated discussions about the interaction between theory and practice. Interns learned about teaching and learning through conducting a review of literature, analyzing their findings, collaborating and discussing with one another on their research, reflecting on their findings, and attending other interns' presentations. Lacy said, “reading the theorists' opinions of students' needs and how to accommodate their needs was very beneficial.” Jake said, “I learned about the necessity of being clear in my explanations of a new procedure in the classroom when I reviewed the literature for my research.” Other students expressed similar comments. For instance Tami said, “The literature review helped me learn the most about teaching and learning. Having to delve into the literature and see what others have already done as well as what they found out was enlightening.” While reflecting on his experience attending other presentations, Bob said, “Attending other research presentations also helped us to learn about teaching and learning.” Buck said, “It allowed us to see the strategies and procedures other teachers have used in solving classroom problems that are common.”

The interns realized that this process gave them the opportunity to question their existing personal beliefs and to reform their personal theories upon which change in practice could support effective student learning. Heidi said, “It helped me to think about how I could help my students to achieve in school and motivate them to be successful in the classroom by using different teaching strategies.” Hannah mentioned that, “This experience helped me to get to know my students better, and analyze my teaching strategies. It helped me to see that I need to do things differently.” Similarly, Lacy said,

I will definitely use skills acquired to stay on top of current and new information being introduced into teaching. This will help me stay more informed as a teacher so I may share these with my students [author's personal journal].

The interns received ideas from others, adopted strategies for assessment of learning in the context of teaching, adopted innovative strategies to improve teaching and learning, and linked theory to practice in their own teaching. This is consistent with the views of Feldman et al. (2001) and Zeichner and Liston (1987) who have argued that through reflection on action, teachers became more thoughtful about teaching, more aware of their practices and beliefs, and of the effects that their teaching had on their students' thinking and learning.

4. Implications/conclusions

The experiences of these twenty middle grades interns provides detailed insight into engagement in classroom inquiry and reflection to inform teaching practice within an action research community of practice over a one-year time span. The teacher development during the year-long practicum was collaborative and teacher-centered (Capobianco & Feldman, 2007). While the interns utilized knowledge produced by others, they also theorized about their own work, and constructed actions that were linked to their context (Cochran-Smith & Lytle, 1999). In three interns' cases, context was linked to larger social, cultural and political issues. The teaching goals investigated by the interns were focused on some aspect of student learning. Establishing links between the larger issues of school can be challenging, especially if the teacher development is other directed as opposed to being teacher-directed (Judah & Richardson, 2006).

The year-long practicum allowed time for the interns to begin to critically reflect on their own experiences and in a forum where ideas were discussed with others (Capobianco, Lincoln, Canuel-Browne & Trimarchi, 2006). It takes a great deal of time and support for preservice teachers to see their work in terms beyond surviving the day-to-day routines to a more reflective approach to decision making based on knowledge forms (Gitlin, Barlow, Burbank, Kauchak, & Stevens, 1999). The interns were able to reflect upon and examine their beliefs about teaching and learning and many gained insights as they became more dialogic in their thinking. The application of the Ward and McCotter (2004) rubric which evaluated the quality of the interns' critical reflective skills was helpful as we reflected on our program. Watts and Lawson (2009) found that the use of this rubric by student teachers allowed them to evaluate the quality of their own critical reflective skills. They cautioned that it is important to use the rubric early in the course and to make the reflection skills explicit. Based on our observations, we plan to use the reflection rubric throughout the internship year beginning with a critical reflection of the interns on their practice of lesson planning and continuing with critical reflection throughout the action research process.

The partnership between the interns, the mentoring teachers, the school faculty, the principals, the university supervisors, and the action research professor were important in supporting the interns during the year-long internship. Meaningful action research that involves critical examination within the scope of goals that can be achieved requires a great deal of cooperation. The interns were able to share their ideas, goals, problems, and issues not only in the action research course but also during enactment in their school contexts. Collectively as a group, they were able to share their successes, frustrations and disappointments. They had time to share their ideas about their experiences, culture, and beliefs. The interns reported several positive impacts of their action research

such as learning how to interrogate the literature when exploring new ideas, becoming more reflective and thinking about teaching differently, and learning to ask others for help, to work together and to learn from what other interns had done. These collaborative experiences promoted the pre-requisite reflection level of self-awareness in order to promote a better understanding of the diversity of students in their classrooms (Mills & Ballantyne, 2010; Ward & McCotter, 2004). These findings confirm what others have found in that action research is a productive means of professional development (Arzi & White, 2007; Darling-Hammond, 1998; Penuel, Fishman, Yamaguchi, & Gallagher, 2007; Putnam & Borko, 2000). Exploring more meaningfully ways such as collaborative and critical action research in a year-long experience to engage preservice teachers in diversity in educational settings is our responsibility as teacher educators. Teacher preparation programs should reflect upon ways to integrate diversity across program settings, especially in light of increasingly diverse student populations (Mills & Ballantyne, 2010).

Teaching is complex and context-specific in nature. Reforms call for radical changes in teachers' knowledge and beliefs about subject matter, teaching, children, and learning (van Driel, Beijaard, & Verloop, 2001). According to Cochran-Smith and Lytle (1999), there has been a renewed interest in action research that is more critical in the United States (Manfra, 2009). We have engaged in action research with an emphasis on teachers' generation of new knowledge about teaching practice and student learning and with a focus on understanding the significance of teachers' actions and responsibilities within the school context. We believe that teachers who are well-equipped with knowledge, skills and experiences to effectively deal with the challenges of teaching that many first year teachers face may also be more likely to be retained as teachers in the future. Thus far, all of these twenty interns are currently in their first or second year of teaching in schools. This is higher than the national average in which nearly one-third of teachers (29%) left the field sometime during their first three years of teaching and fifteen percent within the first year of teaching (National Commission on Teaching and America's Future, 2003). Only time will tell, however, if this remains to be true in an increased reform-based environment in which a teacher's performance pay is linked to student achievement as is currently the case in our state.

We do believe that professional development opportunities for teachers to engage in collaborative action research as a vehicle for promoting active learning, linking research to practice, and to developing the skills of critical reflection will best equip our interns to pursue and address the problems they will face in their teaching careers. Ultimately these skills will support the learning of the students they teach. It is our goal that our interns have a better understanding of how to critically reflect on their teaching and a clearer understanding on how routine reflection can develop into more transformative practices.

Appendix. Supplementary material

Supplementary material related to this article can be found online at [doi:10.1016/j.tate.2012.02.006](https://doi.org/10.1016/j.tate.2012.02.006)

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