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Delving Into Teachers' Development Through Portfolio Reflections: Case Studies of Three Teachers

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As part of longitudinal research on the role and scope of portfolios in teacher education programs, this study employs a case study approach to systematically examine the portfolio contents and reflections of three teachers enrolled in an advanced professional development master's degree program in education; the three teachers were purposely selected as representative of the teachers in our program. Specifically, we examined the written reflections submitted in their program portfolios and transcripts from their exit presentations to identify connections to program learning outcomes and to gain insight into the scope and nature of the change of the teachers during the program. We sought to identify influences that program experiences had on their growth and their teaching practice. We contend that by thorough and systematic examination of portfolio contents, and in particular teachers' reflections included in the portfolios, programs can gain insights into teachers' learning, practices, and critical reflection which, in turn, may be used to inform program decisions.

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Key Words: Teacher professional development, portfolios, reflection in teacher education

Introduction

The National Commission on Teaching and America's Future (1996) stated that the most important element in achieving quality student learning is the quality of the teacher. Today's diverse classrooms require teachers who not only know the subjects they teach, but also have the ability to successfully teach those subjects to students. Since teaching requires both a high level of competency and a deep level of understanding of our increasingly diverse and global society, child development, pedagogy, technology, and the subjects taught, teacher education programs are seeking effective ways to provide teachers with the knowledge and skills they need to meet the needs of their students.

As teacher education institutions become increasingly accountable for the quality of their graduates, there is a continuing need to identify effective ways to provide concrete evidence

of teachers' knowledge in their programs (Cochran-Smith, 2001; Darling-Hammond, 2006; Zeichner, 2006). It is also imperative that professional development programs deepen their understanding of the visions of teaching and learning that guide their programs and be able to articulate the nature and results of coursework, as well as its impact on teachers and

teaching (Darling-Hammond, 2000; Tom, 1999; Zeichner, 2006). The expectations of United States federal guidelines, such as Title II, call for teacher education institutions to become more accountable for the quality of their graduates; as a result, teacher educators continue to search for ways to understand the nature of their coursework and its impact on teachers. One approach to capture and assess teachers' knowledge and skills that has gained prominence since the early 1990s is the use of program portfolios. By examining teachers' portfolios, studies have documented that teacher educators can gain insight into understanding teachers' growth to determine to what degree teachers are meeting professional standards (Fox & Galluzzo, 2006; Kimball & Hanley, 1998) and applying theory to practice in their classrooms (Barton & Collins, 1993; Fox, 1999; Winsor & Ellefson, 1995). Portfolios can also be used as a forum for promoting critical reflection of teachers and examining the growth of teachers' critical reflection over time (Foote & Vermette, 2001; Fox, White, Kidd, & Ritchie, 2005).

As part of longitudinal research on the role and scope of portfolios in teacher education programs, this study employs a case study approach to systematically examine the portfolio contents and reflections of three teachers enrolled in an advanced professional development master's degree program in education. We sought to identify influences that program experiences had on their growth and their teaching practice. We contend that by thorough and systematic examination of portfolio contents, and in particular teachers' reflections included in the portfolios, we can gain insights into teachers' learning, practices, and critical reflection.

Portfolios and Critical Reflection

Our program's research in portfolios as a means of providing evidence of teacher development during program participation contributes to an increasing body of research literature on the use of portfolios in teacher education programs to document teachers' learning (Borko, Michalec, Timmons, & Siddle, 1997; Darling-Hammond & Snyder, 2000; Foote & Vermette, 2001; Fox, 1999, 2004; Wade & Yarborough, 1996; Yost, Senter, & Forlenza-Bailey, 2000). The research also suggests that portfolios serve as a tool for enhancing critical reflection (Borko, Michalec, Timmons, & Siddle, 1997; Fox, 1999; Wade & Yarborough, 1996; Yost, Senter, & Forlenza-Bailey, 2001). This notion of promoting critical reflection through portfolio development strongly influenced our program faculty's decision to develop a program portfolio that included targeted reflection with the goal that it serve as both a learning portfolio and a programmatic evaluative tool (Foote & Vermette, 2001; Hammadou, 1998). Thus, the program portfolio we have developed includes prompted reflections that are written at specified points along the program's course sequence. Consequently, teachers write their reflections drawing on program coursework and their classroom teaching and learning experiences.

We had determined in previous research that examining portfolio evidences and targeted reflections can provide insight into teachers' practices and their application of program outcomes (Fox, Kidd, White, & Painter, 2005; Fox, Kidd, Painter, & Ritchie, 2006). Analysis of the portfolio contents of teachers by an entire cohort provided faculty with an understanding of teachers' knowledge and skills, as well as concrete data on areas where our program appeared to succeed or fall short of its goals.

Critical reflection is integrated and scaffolded throughout the program coursework. Although teacher educators may assume that critical reflection developed during pre-service teacher preparation coursework will continue as teachers enter the classroom (Freidus, 1996; Morin, 1995; Wade & Yarborough, 1996), we found from earlier research that although most teachers entering our program were aware of the importance of reflection, they were not

fully engaged in reflection-based inquiry in their own classrooms (Fox, Kidd, White, & Painter, 2005). By the end of the program, although most teachers were willing and able to reflect critically on their practice, the data indicated that some teachers still did not meet this goal. We realized that if we were going to be able to better meet the needs of individual teachers, we needed to understand more about the changes that occurred during program coursework. We contend that investigating program participant growth via evidences in teachers' portfolios would provide us with a means to understand various aspects of changes they experience during the program.

We expected that providing specific opportunities during coursework for engaging in systematic reflection would enhance teachers' ability to think critically about their teaching practice. However, we also recognized that teachers entered our program at different starting points and took differing developmental pathways as they progressed through the program coursework, which supports previous findings by Lyons (1998). Consequently, we began to focus on understanding teachers' reflective development through what Rodgers (2002) describes as four levels of critical reflection. A study we conducted in 2005 provided evidence of different levels of critical reflection in which teachers were engaged. Although at the beginning of the program most of the teachers' reflective statements were at an awareness level comparable to Rodgers' level 1, there were some teachers who already made statements in their reflections that indicated a full engagement in reflection-based inquiry indicative of Rodgers' level 4 (Fox, White, Kidd, & Ritchie, 2005). Similarly, at the conclusion of the program, the majority of the teachers were able to identify a problem, collect and analyze data, reflect on the data and take a course of action. However, there were some teachers who did not show signs of having progressed beyond the awareness stage with others only providing evidence of identifying a problem (Fox et al., 2005). This was puzzling to us programmatically, and we wanted to understand why.

Although Lyons' (1998) research focused on pre-service teachers and ours on practicing teachers, our research supported the idea that teachers engage in differing levels of critical reflection (Fox et al., 2005). It also left us curious about the influence of program experiences on teachers who enter the program displaying different levels of critical reflection and dispositions towards teaching and learning.

Thus, through a case study approach of three teachers' and their portfolios, we set out to address the following research question:

> In what ways do the portfolio reflections of three purposefully selected teachers enrolled in an advanced master's degree program provide evidence of the scope and nature of the teachers' knowledge, skills, dispositions?

Program Context

The context for this study is an advanced master's degree program, Advanced Studies in Teaching and Learning (ASTL), designed for practicing teachers who have been in the classroom for at least one year. The program, which is housed in a large, diverse university located near a major metropolitan area in the mid-Atlantic region of the United States, provides learning experiences that simulate requirements for certification by the National

Board for Professional Teaching Standards (NBPTS). The NBPTS articulates professional teaching excellence by emphasizing knowledge, skills, dispositions and beliefs that connect with five broad propositions: 1) teachers are committed to students and their learning; 2) teachers know the subjects they teach and how to teach those subjects to students; 3) teachers are responsible for managing and monitoring student learning; 4) teachers think systematically about their practice and learn from experience; and 5) teachers are members

of learning communities (http://www.nbpts.org). These five propositions, plus three additional ones, comprise the eight program learning outcomes: teachers account for the needs of culturally, linguistically, and cognitively diverse learners; teachers are change agents, teacher leaders, and partners with colleagues; and teachers use technology to facilitate student learning and their own professional development.

Method

As a result of the findings from two previous program level portfolio studies, we determined that we needed to further examine selected teachers' portfolios to gain a more specific understanding of individual's growth while in the program. We selected a case study methodology (Merriam, 1988; Yin, 2003) to examine the individual growth and change of three teachers during the program and to help us consider aspects of our program's effects on individual teachers and their application of program content in their classrooms. The three teachers were purposely selected as representative of the teachers in our program. Specifically, we examined the written reflections submitted in their program portfolios and transcripts from their exit presentations to identify connections to program learning outcomes and to gain insight into the scope and nature of the change of the teachers during the program. Pam, Adam, and Matthew (all names are pseudonyms), the three teachers whose cases we present in this study, were part of a recent cohort of teachers enrolled in the program. Teachers in the program reflect a range of experiences and number of years in the classroom setting, varying backgrounds and teacher preparation programs, and a number of teaching disciplines. The portfolio research conducted by this research team was approved through the university's human subjects review board, and informed consent was received from all participants.

Participants in the Study
Three clusters of teachers. Previous research and faculty discussion helped us to determine that program completers seem to gather into three principle categories, or clusters. We define the clusters as follows: Cluster 1) teachers who consistently demonstrated the ability to synthesize and apply course content to their practice during the program and completed the program with clear and consistent connections to program goals and learning outcomes; Cluster 2) teachers who showed steady and significant growth along the program, and completed it with evidence of having made strong connections to program goals and learning outcomes; and Cluster 3) teachers who demonstrated weaker writing skills and did not appear to progress along the same pathway as the other two groups during the program, but who completed the program by providing adequate evidence of attaining program goals and learning outcomes.

Selection of Participants. The three teachers whose stories we present here were members of a cohort of teachers (N=41) who recently completed the program. Teaching experience in the cohort ranged from 3 to 23 years. The cohort from which the three teachers were selected consisted of both male and female teachers, all with elementary or secondary teaching experience. As we studied the program portfolios, transcripts of their exit portfolio presentations, and overall coursework achievement during the program, we achieved consensus that Pam, Adam, and Matthew would provide representation for each of the three

clusters. Pam is a Caucasian female elementary school teacher with over 25 years of classroom experience and was selected for Cluster 1. She entered the program with a strong academic background and a commitment to conduct research as a means of informing her practice, but had not engaged in systematic research on her own. At the time of data collection, she was teaching at a suburban elementary school that is experiencing a growing multicultural, second language student population. Adam, a Caucasian male, is an

upper elementary grade social studies teacher who entered the program with three years of teaching experience at a school whose student body was international and largely middle to upper middle class. He was selected for Cluster 2. Matthew, a Caucasian male high school history teacher with five years of teaching experience in a suburban middle class setting was selected for Cluster 3.

Data Sources

The data used in this study come from the required program portfolio completed by all participants. The full portfolio consists of evaluated course products, required written reflections, P-12 student work samples, and self-selected professional documentation. For purposes of this study, we focused on data drawn from three sources: four portfolio reflections that were written in response to prompts provided at specified points during the program coursework, a synthesizing reflection written at the conclusion of the coursework, and an oral portfolio presentation made to faculty and peers as an exit requirement. The oral presentations were audio taped and transcribed for analysis.

Data Analysis

The data analysis process was ongoing throughout the study. Data were reviewed and coded into descriptive and emergent categories (Maxwell, 1996), which led to initial themes such as learning and learners, connections to course content, teaching practice, and references to self. The data were analyzed using the constant comparative method (Strauss & Corbin, 1998). As part of the content analysis process, the authors generated memos and met regularly to propose or question apparent themes or patterns (Miles & Huberman, 1994) and create multiple flow charts and tables to provide varying approaches to understanding the data. These perspectives were shared among the research group members as part of their ongoing analysis.

The descriptors of the nine themes that have emerged from the data are found in Table 1. The themes defined in Table 1 are as follows: Teaching Practices; References to Self; Teacher/Action Research; Reflection; Culture; Learners, Learning, Learning Communities; Leadership; Technology; Other. These themes provided a framework for presenting our descriptions of Pam, Adam, and Matthew.

Table 1
Emergent Themes from the Case Study Data

1. Teaching Practices – teachers' discussion and analysis of their teaching practice, connections to learning theories and strategies, and the connection to and impact on K-12 learners

2. References to self – teachers' references to themselves as teachers and learners, indicating the way they refer to themselves and their attitudes toward teaching

3. Teacher Action Research – teachers' references to their commitment to and application of teacher research

4. Reflection - teachers' discussion of reflection and its role in their practice

5. Culture- teachers' references to culture and the importance of recognizing, valuing, and honoring individual differences and varying cultures

6. Learners, Learning, and Learning Communities – teachers' discussion about connections to learning theories and their use in the teaching setting; references to the learning communities concept

7. Leadership – teachers' views of what leadership is and what it means to them in their classrooms, their schools, their teaching practice; views of how they regard themselves as leaders

8. Technology – teachers' ideas about the use of technology in their coursework, in their professional practice, and with their students

9. Other – category allowed for the emergence of individual/other areas not covered in the other eight themes

Validity
We subjected our analysis to the verification procedures identified in Glesne (1999) to serve as a check on our data analysis processes. As a research team, we have been engaged in portfolio research for the past four years and moved from a holistic review of program portfolios at the cohort level to identify the need for study of individual teachers. We deliberately included a representative case from each identified cluster, rather than focusing on randomly selected cases. By examining multiple data points from each of the three portfolio completers, we obtained triangulation of sources. Throughout our study, we met regularly as a team to review and discuss our emerging data to ensure accurate interpretation. These reviews and debriefings, as well as our use of researcher memos and multiple versions of analysis charts, helped us identify and actively seek to prevent biases from influencing our analysis. Themes were verified by an outside source who understood qualitative research methodology.

<div align="center">Results</div>

The following case studies provide a "picture" of the three clusters of program completers as previously described.

Pam: Reflection Must Be Systematic, or "You Can't Just Reflect Sitting in the Tub"

Pam (Cluster 1) was reflective when she entered the program, and her reflections continued to deepen and connect to new theories as she progressed through coursework. Through her written reflections completed during the courses, her synthesizing reflection, and portfolio presentation, Pam provided evidence of her strong commitment to and engagement in learning: "Sometimes I believe that the term 'lifelong learner' was coined for me. I have been taking courses almost continually for as long as I have been teaching." Over the course of the program, she indicated strong and steady growth in her reflective practice. During program coursework, she filtered everything through the lens of its impact on student learning and its subsequent application to her classroom. Considered a leader by her colleagues, she completed the program stating that she now not only regularly engages in systematic research, but also collaborates with colleagues on her team, in her building and school district.

Research, Reflection, and Cultural Awareness Drive Instruction. Pam clearly recognized connections between coursework readings and their application in her classroom. Portfolio reflections indicated that research and reflective practice were predominant influences on her teaching. She wrote:

> the biggest change in my teaching is that I am much more of a reflective teacher. . . . . I have discovered patterns in children's behaviors which have provided me necessary information to address the problems that arise …

Pam used research to support her classroom decisions and routinely cited learning theorists in her reflections, explaining how they influenced her practice. She used systematic monitoring of student learning, supported by careful observations and note taking, to help her make decisions about students. For example, in the culminating portfolio presentation she stated: "I've become much more of a keen observer. I now spend much more time asking questions and determining why something happened rather than talking off the cuff so much. . ."

Culture. Reflection data indicated that Pam is now more keenly aware of her own culture and that of her students. She said that she must be aware that "cultural influences are important to take into consideration when you're figuring out how to reach a student. Every child is unique, and I need to understand his family and his ways of learning in order to meet his needs." Her action research study was about a boy who was under consideration for special services for emotionally disturbed students. Because of her careful observation and note taking, coupled with research on culture and family interaction patterns, she was able to focus on his unique personality. Her work with the family and school were pivotal in his becoming more engaged in learning and informed the decision that he should remain within the regular classroom setting instead of moving him to another program.

Learning, Learners, and Learning Communities. Pam connected learning theories and the program's course content to her day-to-day teaching. In her second written reflection, she connected learning theorists to her teaching and discussed the impact on her students' learning. She also described how she used multiple intelligences, learning styles theory, and constructivist practices in her classroom. Pam commented that she benefited from the learning community in her program cohort and shared that "just as I belong to a learning

community of teacher and researchers, I encourage my students to see the educational process as a social endeavor and a collaborative process."

Pam used technology both for herself and to support learning in her classroom. Not only did she discuss how she used technology, but she also stated that it was essential that students use technology in an active way, not merely as "skill and drill." She indicated that if not well implemented in instructional practices, computers can easily become passive instruments that only take up valuable class time.

Leadership. Pam shared in her fourth written reflection that she did not initially see herself as a leader but knew that some of her colleagues viewed her as such. In her exit presentation, she said that something at school "caused me to look at my leadership a little differently" and encouraged her to acknowledge the leadership skills that others had identified in her. From coursework, discussion with program colleagues and at her school, she grew to understand her new role. At the end of the program, she came to view herself as a leader through action research in her classroom and mentoring other teachers in teacher research. Throughout her reflections, Pam clearly conveyed her thoughts and reflected on how new course material, research methods and practice, and new experiences related to her teaching; she consistently looked at herself as both a learner and a teacher, while also regarding her students in those same roles.

Adam: Data, not Perceptions, Drive Decisions

When Adam (Cluster 2) entered the program, he wrestled with his decision to "pursue a degree that would help to improve [his] craft" rather than to "embark on a course that would prime [him] for an administrative position." Having made the decision to develop his teaching, Adam approached the coursework and course content with an openness and commitment that seemed to enable him to embrace new ideas. An evolving sense of empowerment became apparent in his reflections across the program. Changes in his teaching practices and self-efficacy were also evident in his synthesizing reflection and portfolio presentation.

Research, reflection, and cultural awareness. Core reflections and his final portfolio presentation provided insight into the ways Adam felt he grew as a reflective practitioner. In his synthesizing reflection and portfolio presentation, he noted that he did "quite a bit of soul searching" throughout the program which influenced not only his teaching but also his cultural awareness and his willingness to approach teaching issues "with the mindset of a researcher." By assuming an inquiry stance, Adam stated that he made discoveries about his teaching that influenced changes in his teaching. In his first reflection, he specifically commented on examining his "own tendencies as a learner and educator." He cited his case study on a student with dyslexia as the course assignment that enabled him to recognize that the learning styles he tended to promote "were not aligned with [the student's] strengths, and thus, the work [the student] was producing did not accurately reflect his capabilities."

His third written reflection indicated his openness to learning from course experiences when he discussed his action research project that enabled him to "examine the school culture and ascertain how this contributed to the African-American experience at [his] school." He stated that being a teacher-researcher provided "the basis for gathering and analyzing data" and said that the analysis of the data allowed him "the opportunity to put forth some viable interventions in order to improve this situation." He later shared that it was through the action research project that he had come to understand that some of the prevailing perceptions in his school were erroneous and that "subtle forms of racism continue to

pervade [his] school culture." He asserted that "avoiding these discussions [about culture and race] only perpetuates the culture that already exists." He said that he was committed to work with the chairs of the equity committee at his school to ensure that cultural issues are addressed.

Learning and learners. Through his own learning process, Adam discovered "a renewed passion for teaching" and an eagerness to apply what he learned in his own classroom. One particular teaching practice that Adam mentioned in several reflections and the portfolio presentation was the importance of addressing students' learning styles to promote their learning. He shared his growing ability to identify times when his style was not a good match for students; he had begun to adjust his instruction accordingly. His discussion of technology was limited, but he did mention that he wanted to implement it more and more.

Leadership and learning communities. In Adam's fourth reflection, it became apparent that his thoughts about learning communities were closely related to his views of leadership. Although he exhibited a greater sense of empowerment after the course focused on teachers as change agents, he shared his "sense of futility" at trying to enact change as a teacher. However, he stated that his engagement in the program gave him "a sense of hope that one does not have to become an administrator to enact change within a school." Although Adam believed that change brought about by teachers is a slow process, he concluded, "I have been inspired to believe that teachers may begin to enact change in a school," and as a result, he shared that he has "been inspired to seek a more active role in the planning stages of the new high school."

Matthew: "I Wish I Could . . ". and "I Would Like To . . ".
Matthew (Cluster 3) began the program with what he stated as "a limited understanding of reflection" of teacher research. He said that he had developed his "own ways of running" his classroom, but wanted to refine his skills. At the beginning of the program, he stated,

> I don't have a lot of time to write down reflections like this and writing is not my strong suit. I am always able to carry lots in my head, and I don't see that writing it down is going to make much of a difference.

As Matthew progressed through the program, his reflections focused primarily on the content he was learning in courses, his own teaching, and his lack of confidence in making changes in his instruction such as using more technology in his teaching. However, he stated at the end of the program in his synthesis reflection: "My own old teaching strategies of a didactic classroom need to be revised." He provided a number of "ideas I have to achieve" such as creating personal relationships with students, allowing choices for students, and involving parents. Matthew ultimately met program goals adequately and demonstrated changes in his perceptions of teaching, his students, and how students learn over the course of the program.

Research, Reflection, and Cultural Awareness. The references that Matthew made to research, reflection, and cultural awareness across the written reflections and during the portfolio presentation focused on his teaching, his students, and the need to change his teaching practices. For Matthew, teacher research led to some discoveries about his teaching and particular students. In his first reflection point, he indicated that teacher research helped him "create a strategy to help an ESL student." In his synthesizing reflection point, Matthew stated that teacher research helped him discover that students are motivated differently. However, Matthew's concerns about conducting teacher research were also conveyed when he said, "On my thoughts of a teacher researcher, I think it will be hard to keep up with it, time, but also I need to practice to become organized."

Matthew's second and third reflections as well as his portfolio presentation provided evidence of growth related to the theme of culture. In his third reflection, Matthew noted that he learned to recognize diversity in his students. Matthew's study of a Hispanic student helped him "..understand better how to discover the uniqueness of each student's background." Through his case study and cultural inquiry project Matthew reflected on the importance of recognizing his student's culture and articulated a growing acknowledgement of the influence of culture on student's responses to his teaching.

Leadership and Technology. References to the themes of leadership and technology were rarely found in Matthew's reflections. In the fourth reflection, Matthew indicated that he was not comfortable thinking of himself as a teacher leader when he stated, "As I think of myself as a teacher leader…. I feel afraid." Similarly, Matthew indicated that he had difficulty using technology and was not comfortable including technology in his teaching. In his synthesizing reflection he commented, "I want to integrate the use of technology in my classroom, but I'm afraid to do so because of my limited knowledge." For the themes of leadership and technology, the data showed that Matthew lacked confidence and expressed self-doubt. However, the data also showed that Matthew's perceptions and beliefs about learning and learners demonstrated growth and did change as he moved through the different courses.

Learning, Learners and Learning Communities. Across the four reflection points Matthew referred to particular learning theorists that reflected the content he was studying. For example, early reflections included references to multiple intelligences and learning style theories:

> Students have more than one way to acquire knowledge…..My personal intelligences and learning styles are seen in my classroom… Knowing that my students have different intelligences, I have to be conscious of my students' different learning styles.

His reflections indicated a growing awareness of the limitations of his current approaches toward learning and a growing appreciation for addressing the needs of his students.

While Matthew's different reflections articulated an expanding knowledge of individual student needs and differences, he also expressed a lack of self-confidence in his ability to address these needs and differences. Specific course products such as the individual case study and cultural inquiry project provided Matthew with an increased understanding of the importance of focusing on his students and the need to move from a teacher centered approach to a more student centered approach. While Matthew only referred to the term "learning communities," he articulated the importance of engaging students in the learning process and the need for students to take more responsibility for their own learning in the synthesizing reflection and portfolio presentation. The need to trust his students was also accompanied by his self doubt about changing his teaching practice in reflection point four when he said:

> I want my students to have a more experienced based learning environment where they can develop into lifelong learners… By constantly being in the center, of the classroom, I don't know how to let the students lead their own learning. I need to trust my students.

In the exit portfolio presentation Matthew expressed increasing confidence in his ability to change his teaching practices when he indicated, "I now have many strategies to help them achieve."

Cross Case Analysis

In this section, we provide an analysis that addresses the similarities and differences between and among the three participants and is organized by the different themes used to categorize the data (see Table 1). A summary of these similarities and differences across the different themes may also be found in Table 2.

Table 2
Themes Across Teachers

Theme	Pam	Adam	Matthew
Teaching Practices	Applied and connected a variety of theories and research to classroom practice; Used a variety of assessments to inform instruction; Considered impact of teaching on student learning	Focused on connecting and applying theories and research on learning styles to classroom practice; Used standards to inform instruction; Worked on creating more choice for students	Discussed importance of theories and research on learning styles on classroom practice; Did not discuss role of assessment; Identified need to shift from teacher-directed to student-directed classroom
References to Self	Saw self as a life-long learner; Connected life experiences to learning; Referred to self as reflective teacher who provides meaningful instruction	Renewed his passion for teaching; Reflected on own learning styles; Decided to remain in the classroom rather than become a school administrator	Conveyed a negative attitude about himself as a teacher; Lacked confidence in ability to teach; Identified competing pressures on his time
Teacher/Action Research	Committed to teacher research as a way to inform instructional decisions that influence teaching practices; Saw importance of collecting and organizing data used to impact student learning	Approached issues with a teacher-researcher mindset; Gathered, analyzed, and used data to intervene; Understood importance of data-driven rather than perception-driven decisions	Voiced concern about time and organization required to conduct research; Gained insight about individual students from research; Used research to develop strategies for individual students
Reflection	Examined self as a reflective learner and teacher; Used systematic journaling to move beyond surface and examine own beliefs	Examined own tendencies as a teacher; Gained insight into effect of teaching on students; Thought more productively about teaching practices	Reflected on his fear of relinquishing control in the classroom; Examined ways teaching and learning styles are reflected in the classroom; Identified need to increase student motivation
Culture	Understood importance of own and	Recognized subtle racism as a result of	Recognized and valued individual differences;

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		research project; Identified issues related to diversity that need to be addressed; Believed school needs to examine the school culture	Believed students should not be treated differently because of different backgrounds
	students' cultures in teaching; Viewed culture as a part of understanding student learning and students' families Honored and respected diverse cultures		
Learners, Learning, & Learning Communities	Viewed learning communities as important for self and students; Used learning communities with students; Planned to promote learning communities with colleagues	Felt ways classrooms and schools are structured makes it difficult to create a community of learners; Engaged in conversations with colleagues about future changes to his school	Believed learning is an ongoing process in which students need to assume more control over their own learning; Believed students lack in-depth content knowledge
Technology	Used technology in daily practice; Discussed ways students used technology in the classroom; Viewed technology as a tool of engagement that can be a passive instrument if not used properly	Used technology as a tool for self as a learner; Believed technology could be a beneficial tool for students, but did not incorporate technology into his teaching	Expressed doubt about ability to use technology; Expressed interest in using and incorporating technology in his classroom
Leadership	Felt she was seen as leader by colleagues and as mentor by self; Assumed leadership role in school; Planned to examine school literacy practices; Described growth as a leader	Felt hopeful about being able to effect school change despite original sense of futility; Planned to seek a more active role in school change; Developed an immediate plan of action	Felt afraid to think of himself as a teacher leader
Other	Believed she grew in many ways; Believed her own growth contributed to her students' growth; Connected own learning to enhanced classroom practices	Embraced ideas new to him with openness and commitment	Felt he had new strategies to help his K-12 students by the end of the program

For the theme of teaching practices the three participants mentioned similar theories related to teaching and learning such as multiple intelligences and constructivism; however, only Pam noted how she connected specific theories such as Vygotsky to her practice. Adam

referred to theories in terms of changes he would like to make in his practice such as adapting his teaching to address his students' learning styles. Matthew mentioned specific theories in isolation and did not discuss the application of particular theories in his own teaching practice. Data categorized as references to self revealed that the three participants referred to themselves in different ways. For example, Pam identified herself as a life-long learner who is self reflective and provided examples of how she used assessment and research to inform her teaching. In a similar fashion, Adam affirmed his "passion for teaching" and reflected on his decision to stay in the classroom rather than pursue school administration. In contrast, Matthew's references to himself as a teacher were often negative, and he expressed a lack of confidence in his ability to teach all students.

When referring to teacher/action research, Pam's responses were again different from those of Adam and Matthew. Pam articulated her commitment to teacher research and provided specific examples of how teacher research is used in her classroom. These examples focused on how data is used to inform her instructional practices and the classroom decisions she makes. Adam and Matthew did not address how teacher research was used in their practice. Rather, Adam indicated that teacher research provides an opportunity to gather and analyze data, and he acknowledged the importance of using data to inform classroom decisions. Matthew described how he used teacher research in his assigned coursework, mentioned what he learned through a specific teacher research study, and indicated that he was unsure whether he could conduct research in his classroom due to the time involved.

Pam, Adam, and Matthew showed both differences and similarities in their connection to the three themes reflection, culture, and learners, learning, and learning communities. Whereas each teacher recognized the importance of reflection, each one viewed and engaged in reflection differently. For example, Pam identified herself as one who is naturally reflective, who used journaling to "move beyond the surface" to examine her own beliefs and actually help her change her way of teaching. Adam grew in his ability to reflect during the program; he indicated that reflection enabled him to examine his own tendencies as a learner and educator and said that it helped him to become more productive in his thinking about many aspects of his practice. Matthew spoke about reflection as something he needed to do to improve his teaching and by the end of the program recognized its importance; he continued to express concern about relinquishing his control in the classroom and finding time for systematic reflection.

Pam, Adam, and Matthew all recognized that understanding culture should be an essential element in their classrooms, but differences emerged in the depth to which they applied their knowledge and understanding to their teaching. Pam acknowledged that different cultures should be honored and talked about cultural understanding as an integral part of meeting student needs. Adam was able to identify specific aspects of culture that related to his practice and recognized that there are forms of racism and issues of diversity that should be addressed in his school. Matthew said that teachers should not treat students differently because of their background and stated that he recognized individual differences and diversity in his learners. Matthew, however, did not provide specific examples from his teaching setting.

Both Pam and Adam discussed learning communities in their reflections, whereas, Matthew did not specifically refer to them. Pam focused on the importance of creating learning communities for herself and for her students and included plans for incorporating the learning community concept into her own classroom and in her school. Adam referred to conversations he had had with his colleagues about proposed changes they would like to see implemented in their school, but expressed concern about finding time and resources

for creating a learning community in his own school given the current structure of his school and its classrooms.

For the themes of technology and leadership the data revealed similar patterns found across the themes in general. When analyzing the technology theme, we noted Pam's use of technology in her daily practice and the numerous examples she provided. She also articulated the importance of her students using technology beyond drill and practice and cautioned that computers can be passive instruments if not used properly. Adam described his uses of technology in coursework, including the creation of a website, and articulated the benefits of incorporating technology into his own practice. Matthew noted that he would like to use technology in his classroom but questioned his own ability to use technology. In terms of leadership, Pam indicated that her school colleagues view her as a leader and she described future plans for organizing a group of teachers to examine literacy practices in her school. Adam indicated that he planned to pursue a more active role in participating in school change and that he planned to take "future action." The data revealed that although Matthew did not elaborate on himself in a leadership role, he did state that he was afraid to think of himself as a teacher leader.

In summary, our analysis revealed that Pam integrated each of the themes into her teaching practice, articulating beliefs and providing examples of how she had grown professionally, which in turn were contributing to her students' growth. She also provided many examples of the ways in which she incorporated different aspects of coursework such as multiple learning theories, culture, and individual differences into her teaching. In his reflections, Adam articulated his own growth in each of the themes; however, his growth seemed to indicate more of a concrete understanding and application of course readings. He consistently acknowledged the importance of the content he learned and described how he planned to use the content in his practice and the changes he intended to make in his classroom. Matthew's reflections indicated an emergent understanding of the theories, but did not quite reach a stage where he applied course content to his practice. Across all of the themes Matthew articulated an understanding of the different themes; however, in his reflections, he only discussed different concepts as they applied to course assignments rather than his own teaching practice. Matthew was the one participant whose reflective statements sometimes conveyed self doubt about his ability to apply concepts he was learning, and yet change and growth were evident from the beginning to the end of the coursework.

Conclusions and Implications

Through individual and cross-case analysis of the three participants, we were able to examine the ways that each of the common themes emerged in the teachers' portfolio reflections and exit portfolio presentations. We found that each individual did grow and change over the course of the program; however, differences appeared in the amount of progress and the level of application of the program content. Our study resulted in two principle conclusions: 1) the portfolio data showed both similarities and differences in the scope and nature of the teachers' growth and application of program content in their classrooms; and 2) the portfolios provided us access to data that included insight into the growth patterns of different individual's reflections.

As we studied the differences in the growth and change for each of the participants, we were able to understand more about these three teachers and ultimately about the three clusters of teachers each of the three represented. Similar to Lyons (1998) and Fox, Kidd, White, and Painter (2005), our findings provided further support for the idea that teachers

engage in different levels of critical reflection (Rodgers, 2002). It was apparent from the data that Pam's reflections were representative of the Rodgers level four "intelligent action/experimentation," whereas the majority of Adam's reflections were at level three "analysis of experience," and Matthew's were at level two "description of experience." Pam's reflections showed clear connections between theory and practice and included additional discussion about how she was implementing new practices in her classroom, as well as her perceptions about their impact on her elementary students' learning. Her portfolio provided evidence of strategies and tools she used in her teaching, her advocacy for individual students' needs, and the studied changes she made in both her teaching and her school. Because Pam was the more experienced of these three participants, it is important to recognize the fact that the extensiveness of her experience may have influenced her ability to reach deeper levels of reflection and connections from coursework to classroom practice. Through her portfolio, we found Pam to be representative of teachers who take a broader perspective on their teaching as they examine and synthesize artifacts of their teaching and learning across time (Borko et al., 1997).

For Adam and Matthew, the portfolio provided "evidence of their thinking, learning, and performance" (Darling-Hammond & Snyder, 2002, p. 536). Adam, a Cluster 2 teacher, wrote reflections that were more concrete in nature at the outset of his coursework. Adam saw the value in reflection and introspection and stated that it provides him with a more informed basis for classroom decision-making and instructional practice. While Adam actively sought to apply new theories in his classroom, his reflections were more concrete than Pam's, and he viewed teacher research and reflection as having a positive impact on his teaching in the areas of culture, leadership, and teaching practice. His progress by the end of the program was apparent through his discovery that reflection could, and did, play an important role in his deepening understanding of his students and his own teaching practice. Matthew, a Cluster 3 teacher, wrote reflections that seemed to remain at a more descriptive, concrete level. However, these reflections provide evidence that he became more aware of how course content could be connected to his classroom practice. His more closed ideas at the outset of the program appeared to undergo change. Matthew did not value reflection at the beginning of the program, and his reflections tended to be descriptive and often self critical. By the end of the program, his reflections articulated a depth of awareness that was not evident at the program's outset. Although he focused primarily on specific assignments and articulated concerns about how he would find time beyond the scope of the coursework to conduct research in his classroom, his reflections did show a level of growth and development over the course of the program. However, we were not able to determine in the analysis of his portfolio data whether or not any feedback he received through program coursework directly influenced the changes we noted across time in his reflections.

The cross-case analysis revealed that, although they were at different levels of reflection, all three teachers demonstrated individual growth across the program and their reflections were linked to course content. Through grades received on performance-based course products assessed during coursework and included in the portfolio, it had been determined the three participants had met the program learning outcomes at the course level (Fox & White, 2006). The portfolios provided us access to data that included insight into the growth patterns of different individual's reflections. In a previous study (Fox, Kidd, White, & Painter, 2005), we identified three principle clusters of teachers who complete our program. This study enabled us to conduct an in-depth examination of the growth and change of an individual within each of these three clusters. In addition, the portfolio reflections provided additional insight into the degree to which these three teachers met our program standards (Fox & Galluzzo, 2006; Kimball & Hanley, 1998) and applied theory to practice in their classrooms (Barton & Collins, 1993; Fox, 1999; Winsor & Ellefson, 1995).

The three case studies also provided a source of in-depth data to address program level questions about how we might best meet the varying needs of teachers who enter our program. Our results confirm that teachers come to this program with different backgrounds, varying levels of motivation and commitment to their learning and their students, and progress through the program in individual ways. The challenge presented to us as a program by Pam's, Adam's, and Matthew's portfolios is to discover ways to meet the needs of all our teachers so that optimum growth can take place.

We also recognize the importance of using these results to guide decisions about programmatic content and structure. For example, we have made several course level changes based on portfolio data analysis, such as altering assigned readings in the first course and scaffolding the early reflection experiences to include more structured activities for those teachers who need it. As we continue to implement program changes and study their impact on teachers, portfolios provide important qualitative data that can be used by program faculty to address the different learning needs of the teachers. Using data in this manner directly responds to Tom's (1999) suggestion that "[t]he issue of program substance is best addressed in relation to the characteristics and needs of particular teachers and school settings" (p. 252).

Regarding future research efforts focusing on teacher reflection, we present the following suggestions. First, we pose the question, how do the cultures of particular contexts such as elementary and secondary schools influence a community of practice which could encourage deepening levels of critical reflection among participants? Second we pose the question, what types of discipline-specific experiences foster critical reflection in practicing teachers, and do some particular experiences promote this growth more than others? We also suggest the following points be considered in future program portfolio research efforts. Follow-up interviews with teachers who have completed the program need to be conducted to determine if particular growth patterns have been sustained in their teaching practice. When considering the establishment of systematic analysis of program portfolio data, it is important to maintain in-depth reflections that may not be evaluated through standardized instruments such as prescribed rubrics or checklists. Rather, the challenge is to use more extensive data that can be found in program portfolios to understand the individual needs of teachers in advanced professional development programs and encourage data-based program decision making and evaluation.

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