Designing High-Quality Professional Development: Scaffolding Secondary Content-Area Teachers' Discipline Literacy Instruction

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Introduction

The study described in this paper is part of a larger grant project funded through the North Carolina Department of Public Instruction. Partnerships comprised of Institutions of Higher Education (IHEs) and school districts that were identified as "high needs local educational agencies" (LEAs, defined by Title II, Part A) were eligible to apply for this competitive grant. The grant competition sought applications that focused on the development and delivery of professional development in one or more areas of critical need including literacy, mathematics, and science. Regarding literacy, the Request for Proposals stated that projects should assist "K-12 teachers to become highly qualified, appropriately licensed, highly knowledgeable about and pedagogically skilled in effectively instructing students in literacy" (NC QUEST Cycle VIII RFP, 2009, p. 5). In addition, each project was required to incorporate two professional development "threads": a) instructional interventions for low-performing students, and b) the development of teacher leaders who would share instructional techniques, tools, and strategies with other faculty members.

The provision of high-quality professional development was a requirement of this grant. Funded projects were required to provide on-going professional development sustained over the grant cycle (18 months). This was defined as an "intensive instructional experience" with the goal of 15 – 20 days of professional development over the grant cycle focused on a smaller number of participants. Short-term workshops or conferences were allowed only if they were a part of the overall professional development plan.

Professional Development Literature

Effective professional development is critical to providing teachers with the scaffolding necessary to provide appropriate instruction for adolescents of the 21st century (Wenglinsky, 2000). If teachers are to benefit from professional development, the quality of professional development must be carefully considered (Porter, Garet, Desimone, & Birman, 2003). Unfortunately, much of the professional development offered in schools has been criticized as being superficial, ineffective, or irrelevant (e.g. Guskey, 1986, 2002; Huberman, 1995). Professional development efforts are often hampered by lack of buy-in by teachers, minimal administrative support, and scheduling and communication issues that result in poor outcomes with little to no impact on student learning (Bryant, Bryant, Boudah, & Klingner, 2010).

Professional development that results in a change in teachers' beliefs and practices requires careful planning and a long-term commitment (Guskey, 1991, 2003). Data should support and guide professional development planning (Guskey, 2003). Professional development should be well matched to the needs of participants and sensitive to the organizational context (Bryant, Bryant, Boudah, & Klingner, 2010), and it should be both intensive in the way that it works to cultivate depth of teacher knowledge of learning and pedagogy (Guskey, 2003) and extensive in that it is sustained over time (Guskey, 1991). Successful professional development also should be designed to create a learning community through which teachers work together to learn and develop content knowledge and pedagogical skills (Snow, Griffin, & Burns, 2005). Finally, professional development should be supported by the administration (Bryant et al., 2010; Garet, Porter, Desimone, Birman, & Yoon, 2001).

Guskey (2003) analyzed 13 published lists of characteristics of professional development. The lists were typically derived from surveys that solicited the opinions of researchers and/or educators. Results of the analysis yielded characteristics/principles of professional development that were cited in the 13 published lists (See Table 1).

Using Guskey's (2003) analysis of characteristics of effective professional development as a frame when reviewing the literature, we identified the following characteristics of high-quality professional development: (a) collegiality and collaboration, (b) teacher beliefs, (c) content and pedagogical knowledge, (d) compatibility of the professional development, and (f) commitment to professional development which we then used to design our project.

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Table 1
Characteristics of Effective Professional Development

1. Enhances teachers' content and pedagogic knowledge
2. Provides sufficient time and other resources
3. Promotes collegiality and collaboration
4. Includes procedures for evaluation
5. Aligns with other reform initiatives
6. Models high-quality instruction
7. Is school or site based
8. Builds leadership capacity
9. Based on teachers' identified needs
10. Driven by analyses of student learning data
11. Focuses on individual and organizational improvement
12. Includes follow up and support
13. Is ongoing and job embedded

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Collegiality and Collaboration

Core components of high-quality professional development are collegiality and collaboration. In their report on teacher education, Snow et al. (2005) discuss the importance of collegiality in the learning community. The authors identify teachers' ability to carefully analyze their own teaching as well as the teaching of their peers as important to the professional development process. Furthermore, Snow and colleagues assert that teachers must work collaboratively to generate shared knowledge. In a qualitative case study examining the relationship between school culture and the professional development process, Hamilton and Richardson (1995) contend schools that maintain a collegial atmosphere foster a community of learners.

Teacher Beliefs

Not only do collegial environments play a role in high-quality professional development, the beliefs held by teachers contribute to the quality of professional development. In their report on teacher education, Snow, Griffin, and Burns (2005) contend professional development must address teachers' beliefs and practices. Snow and colleagues maintain that professional development must promote a secure avenue through which teachers can explore beliefs and practices. They contend that acknowledgement of long-held teacher beliefs and practices and reflection upon them encourages teachers to consider and try new ideas. Likewise, in her report for the Alliance for Excellent Education, Sturtevant (2003) also asserts that recognition of teachers' beliefs and practices is an integral part of high-quality professional development. In a study designed to look specifically at teachers' beliefs, Timperley and Phillips (2003) examined the influence professional development may have on teachers' beliefs about their

students' ability to learn and their beliefs about how they can impact that ability. They found that teachers who adopted new approaches to instruction had significantly changed their beliefs about students' ability to learn.

Compatibility of Professional Development

Another theme taken from professional development literature is compatibility of professional development components and school-based programs (e.g., Fisher & Frey, 2007; Frey, 2002; Snow et al., 2005; Welsch, Rosemary, & Grogan, 2006). Snow and colleagues assert that the goals of professional development and the needs of the schools must be aligned. In too many instances, schools are overwhelmed with professional development programs which are neither cohesive nor compatible. As a result, professional development may have little or no impact on teacher and student learning (Schen, Rao, & Dobles, 2005). The work of Fisher and Frey (2007) and Welsch et al. (2006) demonstrates the importance of a cohesive, compatible professional development program in order to reap student achievement benefits. In their study, Fisher and Frey (2007) investigated the effects of a focused professional development plan that coordinated with the goals of the school. The authors reported that effort to align the professional development with the goals of the school may have contributed improvements in student achievement data. Likewise, when Welsch and colleagues (2006) investigated the implementation of high-quality professional development and its influence on statewide literacy practices, the project took measures to ensure professional development programs were embedded in the contexts of schools and classrooms. Qualitative data indicated that the cohesive organization of the program may have helped realize one of the main themes of the professional development. Across the board, the program emphasized the importance of student learning in guiding instruction.

Commitment to Professional Development

An overarching theme of all the literature reviewed is the commitment required to establish high-quality professional development. In all the reviewed studies, the minimum duration of the professional development is one school year; in no instances were the teachers provided with one professional development session and left to their own devices (e.g., Hamilton & Richardson, 1995; Porter et al., 2003; Timperley & Phillips, 2003). Moreover, comprehensive reports on teacher quality maintain sustained, high-quality professional development as the fundamental requirement for improving teacher quality (National Commission on Teaching & America's Future, 1996; Wenglinsky, 2000). The literature indicates commitment to professional development not only ensures the longevity of the program but also improves a less tangible component -- school-level support. According to Snow et al., (2005) time and school-level support both play a role in developing high-quality professional development and without a commitment to these facets, professional develop may be ineffective.

Theoretical Framework

We believe that institutional change requires a collective effort. As such, we aimed to avoid the conventional image of the secondary classroom – the lone teacher working behind a closed door. Instead, we strove to develop a community of learners through which the participants in our study could learn and grow together. For this study, we draw upon the theories that embody the social nature of learning. We believe that learning, in our case, professional development, must be situated in communities of practices (Lave & Wenger 1991). In particular, we identified expansive learning theory to frame our work. According to Engeström, "The object of expansive learning activity is the entire activity system in which the learners are engaged. Expansive learning activity produces culturally new patterns of activity," (2009, p. 59). We compare expansive learning theory to yeast; as new ideas rise, they grow and expand throughout the community of practice. Moreover, in their chapter, Wells and Claxton (2002) recognize expansive learning theory as a viable professional development model. Therefore, we designed our study to provide professional learning opportunities that foster new patterns of activity within the community of learners.

The Current Study

The local district with which we partnered contacted faculty in the College of Education and proposed a partnership. During the previous year, high school faculty analyzed discrepancies between the results of End-of-Course (EOC) assessments and the middle school End-of-Grade (EOG) assessments. Faculty members were concerned about the significant difference between the reading achievement of students at the end of 8th grade and the lower scores on content-area assessments at the high school level. High school data from the 2008-09 assessment cycle indicated that fewer high school students achieved proficiency on the English I, Biology, Physical Science, Physics and US History EOCs than their peers in the state, yet more middle school students from the county schools attained proficiency on the reading, mathematics and science EOGs than their peers statewide.

With the requirements of the grant and the needs of the district in mind, guided by the literature on effective professional development, and grounded in expansive learning theory, a steering committee which included key personnel from the LEA and faculty members from the University developed a professional development plan that would focus on reducing these discrepancies. The focus of the project was to provide high-quality content literacy instruction for *all* students. Overarching goals of the project included increasing middle and high school teachers' understanding of literacy in and across the disciplines, engaging teachers in designing multifaceted approaches to literacy in the content areas, and providing effective learning activities for student readers and writers. During this two-phase professional development initiative, teachers enhanced their understanding of writing across the disciplines, multimodal literacy, and content-area reading strategies. The project also included professional development for selected teachers in interventions for struggling adolescent readers and writers. Questions that guided our work included: (a) To what extent does high-quality, long-term, professional development increase middle and high school content-area teachers' implementation of effective instructional pedagogy to meet the literacy needs of 21st century learners? (b) How do middle

and high school content-area teachers implement and integrate instructional approaches shared through professional development?

Site and Participants

The current study takes place in a small, rural area of North Carolina. The school district is nestled in the northwestern mountain region, isolated from outside influence due to limited Internet access and hiring practices. The majority of the teachers in the sample are originally from the area.

Of the 1,500 students in the district, approximately 66% receive free or reduced lunch. The sample of teachers represents two middle schools and the high school in the district. The total enrollment of secondary students is 794. District middle schools are housed in the same facilities as the elementary schools, essentially creating three prekindergarten through eighth grade sites.

The sample consists of 18 teachers across disciplinary backgrounds. Physics, mathematics, social studies, English, masonry, automobile technology, art, Spanish, and business education are the areas represented. Years of classroom teaching experience range from 2 ½ to 26. Sixty percent of the participants have bachelor's degrees, 33% have master's degrees, and seven percent have additional certification or some college. The seven percent represents those who teach career-technical classes as these teachers are experts in their specific fields and may not have attended a traditional four-year college. Participants from the university include a literacy professor, special education professor, two English professors, and one doctoral student. Those involved from the university are considered participants because of their close work with the sample of teachers from the school district.

Professional Development

Professional development opportunities comprised mainly of three formats: summer institutes, workshops and cooperative planning sessions, and instructional coaching sessions. Professional development spanned from June 2009 through June 2010 beginning and ending with a summer institute. We used the initial summer institute as an opportunity to build a community of learners and open line of communication between teachers and university faculty. Lasting approximately six hours a day, summer institute days typically consisted of an interactive presentation by university faculty followed by discussion with teacher-participants. Discussion typically focused on the implementation of the instructional strategy presented and dissected the feasibility of the strategy in the variety of classrooms. We recognized the importance of the discussion component because while we are experts in our fields, we are not experts in the various content-areas represented in the study. As such, we recognized the importance of developing a community in which the participants did not only learn from us, but one in which we learned from them as well. Topics discussed during the first summer institute included: (a) discipline literacy, (b) graphic organizers, (c) vocabulary, (d) multimodal composition, and e) writing across the curriculum. In addition, we allotted time for participants to analyze course content and discuss the process of integrating new strategies.

Professional development continued throughout the school year with monthly workshops/planning sessions as well as instructional coaching sessions. The purpose of the monthly workshops/planning sessions was to support teachers as they began to refine and implement strategies into their classes. Every workshop session began with an opportunity for teachers to discuss strategies used in the classroom -- what worked and what didn't work. The discussion typically lasted about 30 minutes and allowed teachers to discuss both positive and negative aspects of implementation as well as share ideas about how to refine strategies to align with the disciplinary demands of their classes. Next we would share information more deeply, exploring a previous shared strategy or a related strategy. The remaining time was allotted for supported planning. Participants would identify a strategy to be implemented in the classroom and, working with university faculty, would plan a series of lessons.

We also provided instructional coaching support to the participants. Teacher-participants scheduled time for university faculty to meet for individual planning, observations, and follow-up feedback. After the conclusion of the school year, participants attended a three-day summer institute. We designed the institute to continue the dialogue about literacy in the disciplines, identified new technologies to be integrated, and planned for the following school year. Professional learning hours totaled 168.5 with individual teacher-participants learning hours ranging from 69 hours to 75.5 hours.

Data Collection

Data collection included both quantitative and qualitative methods. At the onset and conclusion of the study, we asked participants to complete a 20-question survey. We used *Zoomerang*, an online survey tool, to develop and distribute the survey. Prior to distribution, current in-service teachers reviewed the survey. Modifications were made to the survey based on feedback provided. During the first section of the survey, we used a Likert scale to gauge how often participants engaged in a variety of literacy practices in their content areas (See Figure 1 for example items). In the second section of survey, we used short answer questions to collect more specific practice data (See Figure 2). Over the course of the study, we also collected qualitative data. Qualitative methods included professional development notes, coaching observation notes, teacher interviews, and teacher and student artifacts.

Figure 1
Example of Likert Scale Questions

Figure 2
Examples of Short Answer Questions.
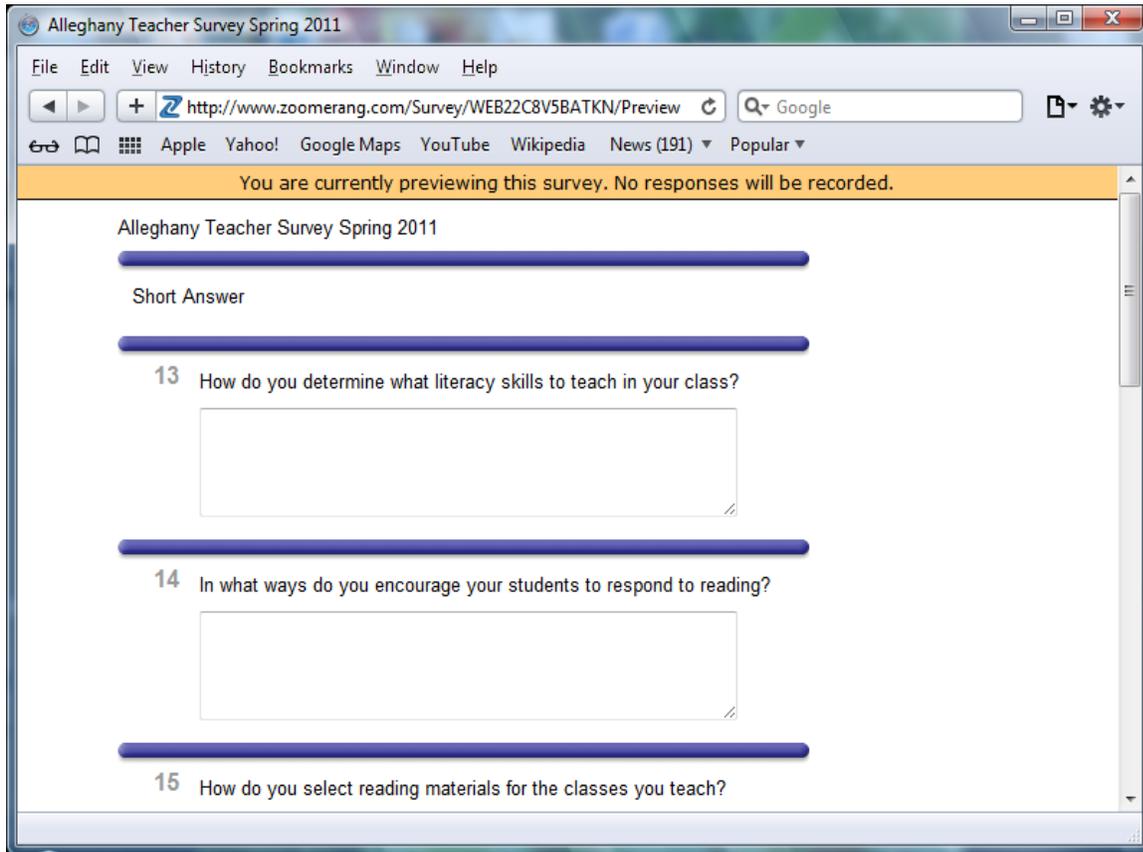

Data analysis

Qualitative data analysis involved multiple steps. First, one author transcribed all observations and interviews. During analysis, we grouped questions together based on concept. Once the questions were grouped, individual responses to the questions were broken into idea units, which were coded using an inductive process of comparing and contrasting. When uncertainty in coding occurred, we discussed the codes and data until a consensus was reached. Codes were then grouped, named, and defined: (a) presence defined as university faculty providing ongoing support; (b) expertise, defined as teachers implementing newfound knowledge; and (c) time, defined as professional development time devoted to sharing and developing ideas through a community of learning. Because of the size of the sample, quantitative analysis of the data was limited to basic descriptive and frequency statistics.

Results

After a year collaborating with the teachers in our project and analyzing our data, change in instructional practices became apparent and our three themes presence, expertise, and time, help to tie the change in our project to the literature on professional development. Our work provides encouraging data which researchers and teacher educators might draw upon when

developing professional development through which the goal is to foster "…culturally new patterns of activity," (Engeström, 2009, p. 59).

Presence

We know that long-term commitment is necessary when developing high-quality professional development (e.g., Hamilton & Richardson, 1995; Porter et al., 2003; Timperley & Phillips, 2003). Our data indicate while a time commitment is necessary, a physical presence contributes to teachers' willingness and ability to change instruction. During a discussion about new vocabulary strategies, Charlie, a first-year masonry teacher commented, "The format of the project did help. Probably wouldn't have stuck with it if the support had not been here. Having someone check in, give feedback, and answer questions was key." Jack, a veteran social studies teacher, shared during an interview, "Interacting with university folks on a regular basis really helped me stay focused and try the strategies discussed during workshops." Coaching interaction and workshop notes also illustrate how the university presence helped to overcome resistance to professional development. Billy, a social studies teacher, did not readily engage in project activities. However, after repeated coaching visits, offers of support, and planning sessions, Billy designed lesson plans that integrated a multigenre newspaper, an instructional strategy presented by the university participants. During discussion, Billy acknowledged that without regular interaction with university participants, he probably never would have implemented new strategies.

Data indicate that teachers particularly benefited from frequent support when incorporating multimodal techniques into instruction. Notes from a workshop session describe a collaborative effort in which Landon, an English teacher, and a university participant, collaboratively redesigned lessons to incorporate an opportunity for students to develop a Prezi presentation in lieu of a traditional report. Maura, a physics teacher, shared that having support encouraged her to explore Web 2.0 tools, such as VoiceThread, to supplement physic labs. With the help of the university team, she created an activity in which students reported the results of their lab using VoiceThread, a Web-based digital-story telling tool. Joey, an agriculture teacher, shared during an interview that, "Yes definitely, because it [faculty presence] definitely got me out of my routine a little bit. We are using technologies that I probably never would have used." Data from our study supports the literature on professional development and is congruent with expansive learning theory; a long-term commitment to professional develop is necessary for change to take root.

Expertise

Along with presence, expertise also emerged as a major theme. The participants emphasized how the project helped them synthesize new instructional strategies with their new understanding of content and pedagogy. Dana, an art teacher, was quick to adopt strategies shared through the project and modify them appropriately for a visual art course. She recognized vocabulary as an important component of her content. As she learned various methods to teach vocabulary through workshops, she identified possible strategies to use. However, instead of simply using the strategy as presented, she adapted the strategies to better align with her course. She merged visual art with vocabulary instruction and in one instance had her students

create vocabulary totem poles. Growing expertise helped some participants revisit long-held beliefs about instruction. Jack, one of our veteran social studies teachers, insisted that the pacing of the course he taught did not allow for "projects." Instead, his courses consisted of a healthy dose of reading chapters and completing quizzes. However, as Jack's understanding of how his content aligned with different instructional strategies progressed, he began to design instruction which refined and utilized strategies appropriate for his content. During an interview Jack stated, "My instruction has changed because of this project. I use a variety of projects and approaches now" (i.e., VoiceThread presentations, primary source document analysis, creating artifacts, and perspective composition). When given the freedom to identify instructional strategies that meshed with the goals of his course, Jack recognized the value of the shared strategies and the impact the strategies appeared to have on his students' level engagement and learning. "They really get into the projects, and they're thinking deeply about really difficult topics." By inviting the teacher participants to identify and refine strategies that align with the literacies required in their courses, we alone were not the experts. For the project to be successful, a symbiotic relationship between university participants and teachers was necessary. In other words, everybody in the project brought his unique expertise to the table and together, we developed a new understanding of literacy in the various disciplines.

Time

In conjunction with presence and expertise, we identified time as a major theme. Time was a key component in our effort to develop a community which generated culturally new approaches to instruction and learning. Professional development sessions incorporated structured time in which teacher participants worked and planned together. During these sessions, university participants were available to assist and scaffold ideas for implementation. Data from professional development notes indicate that teachers used the time to share their newfound expertise with their colleagues in the grant. Maura, equipped with knowledge of VoiceThread through work sessions with a university participant, was able to collaborate with fellow participants, Melanie and Jack. Their collaboration led to the implementation of VoiceThread in Melanie's Spanish courses and Jack's social studies courses. Structured work time also led to Landon's assistance with incorporating the use of Prezis in colleagues' classes. Time allowed for the sharing of successes among participants, which encouraged experimentation with new strategies and collaborative work for implementation.

While the small sample size does not permit advanced statistical analysis, trends that emerged include the daily use of graphic organizers increasing from zero percent to 10%; an increase in the teaching of components of the writing process from 21% to 60% on a weekly basis; collaborative writing and collaborative projects in the classroom increased from zero to 10% on a daily basis. Shared writing also increased from zero to 20% on a daily basis and from 40% to 70% on a monthly basis. See Table 2 for additional trends.

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Table 2
Trends and Practices

Practice	2010 (Baseline)	2011 (End of first cycle)
Use of Reading Inventories on a monthly basis	20%	60%
Discipline-specific writing genres on a weekly basis	36%	70%
Use of technology a daily basis	33%	60%
Use of technology to communicate on a daily basis	0%	30%
Sharing writing via technology on a daily basis	7%	20%
Use of professional literature to guide instruction on a weekly basis	20%	40%

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Implications

The data collected for this project indicate that professional development that strives to incorporate characteristics relating to collegiality and collaboration, teacher beliefs, content and pedagogical knowledge, compatibility of the professional development, and commitment to professional development helps to foster a learning environment in which new ideas rise, grow, and expand throughout the community of practice. At the onset of the project, our teachers perceived themselves as conveyors of content. However, the project allowed teachers to explore, identify, and create literacy strategies specific to their content areas. This project not only enabled teachers see themselves as literacy experts in their courses but helped them see the value of collegially in working with their peers.

This project offers teacher educators a rationale for implementing professional development that uses expansive learning theory as a framework. We believe that our work illustrates that teacher educators can develop professional learning opportunities that provide new information while building upon and incorporating existing teacher expertise. The frame of our project promotes teachers as valued members of the learning community and as such, encourages joint construction of knowledge. Because teachers view themselves as part of the change process, their new conceptualization of literacy and implementation of related strategies is voluntary and not forced.

Lessons Learned

Our inquiry into how to ground professional development with expansive learning theory has demonstrated how thoughtfully designed professional development can scaffold teachers as they construct a new understanding of literacy in their disciplines. Because we embraced

characteristics of high-quality professional development when designing the project, we avoided the pitfalls associated with many traditional professional development efforts (Guskey, 1986, 2002; Huberman, 1995). Teachers in this study did not see our project as a passing fad but welcomed it as an opportunity to learn and grow as professionals.

Our theoretical frame emphasizes the social nature of learning and joint construction of knowledge within a community of practice. We believe that teachers and teacher educators alike would benefit from engaging in similar professional development. We offer the following suggestions:(a) provide learning opportunities that will expand teachers' content and pedagogical knowledge, (b) provide multiple and varied learning opportunities which include all participants, (c) provide protected time for collegial explorations of strategies, (c)value teachers for their expertise, (c) and respect the culture of the community of practice.

We recognize our project cannot be separated from our context, yet we believe it can offer insight for teacher educators as they develop professional development that addresses the needs of the school while recognizing the role teachers must play in the change process in their unique community of practice.

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of Ed Award # S367B060048.