

Providing Exemplary Professional Development through Subject-matter, Technology Inquiry Groups

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Abstract: This paper situates an innovative approach to professional learning called “School Technology Inquiry Groups” within the research literature on teacher learning and offers a description of our local initiative in a large urban school district. This project examines (a) the process of establishing and supporting subject-matter technology inquiry groups, (b) the knowledge inquiry participants learn and develop, and (c) the impact of their learning on their teaching practices and student learning. This paper presents reflections on the nature of developing technology inquiry groups and specifies our plans for expansion and modification for school technology inquiry groups to include preservice teachers.

Theoretical Orientation

Historically, approaches to teaching teachers to integrate technology have been ineffective. Training occurring at school or district levels as one-day workshops that focus on technology tools, *not* on a specific subject area or grade level, have been shown to not change teachers (Miller 98; Darling-Hammond & McLaughlin 96). Teachers leave these courses with a slight understanding of the technology tool and with very unclear ideas about how to use the technology to support standards-based, subject matter-specific instruction.

Unlike the workshop tradition, the collaborative inquiry group approach has been shown successful for teacher learning because this approach (a) focuses on supporting teachers in sharing their knowledge and questions, (b) connects learning to contexts of teaching (site and subject-specific), and (c) promotes active engagement with others over time. These attributes emerge from a “situative” perspective on teacher learning that acknowledges cognition is situated in physical and social contexts and is social in nature, and that knowing is distributed across people and tools (Putnam and Borko 2000). To date, only one other initiative (Swan et al. 02) has begun this type of professional development for technology integration. Their preliminary findings indicate that teachers reported “increased knowledge of computing technologies, greater confidence in using them, and more creative teaching with computers” (p. 187). However, Zech et al.’s (2000) work with inquiry groups with mathematics teachers highlights the importance of basing inquiry groups in a subject area common to the participants – an aspect that is missing in Swan et al.’s technology inquiry groups. Subject matter is a focal point in our approach that establishes subject-matter focused, technology inquiry groups in K-12 schools.

In addition to the importance of subject-specificity, our inquiry groups target teachers in urban settings. Urban centers are in most need of quality professional development as Anderson and Becker (2001) determined that “schools with large concentrations of lower income students spend a smaller portion of their technology funds on

teacher training and support ... they are less likely to be able to evaluate and adapt to new technologies as they emerge in the future” (p. 19). Training and support for teachers needs to be a priority in urban schools if we want the urban school students to use technologies to its fullest potential.

Our Local Initiative

In the Spring of 2002, we began collaborating with the middle school humanities and art teachers at an urban K-8 school to form a technology inquiry group. Wesley and Buysse (2001) emphasize the need for diverse expertise in a community of practice. They noted that “the ideal community of practice incorporates diverse expertise to bring together research, policy, and practices in a way that is both meaningful and relevant to all participants—something that is almost impossible to achieve through more contrived, one-dimensional approaches (e.g., a theory-to-practice journal, a set of written recommended practices).” (p. 119) Noting the importance of a diverse, yet focused, set of participants, the inquiry group included three humanities teachers, the middle school coordinator, a university faculty member (in Educational Technology), and graduate students in Educational Technology. These efforts complement the school district’s commitment to embedded staff development that uses inquiry groups to target teacher development and student achievement.

The inquiry group meets on a monthly basis. During those meetings, the teachers identify content topics to be explored in further depth. Together the inquiry group facilitators and school participants share responsibilities for learning possible technologies, critiquing the technology to determine its potential effectiveness in supporting the content to be taught, and ultimately integrating the technologies into the curriculum. After examining technologies, teachers may identify powerful technologies that serve curricular purposes. If the identified technology is not available at the school, the inquiry group considers funding options for purchasing the software or hardware through requests to the principal, community partnership, donations, or grants. If chosen technologies are available, university facilitators can assist with technology-supported lessons to any degree a teacher desires. Our assistance may range from assisting children, team-teaching, or even teaching the lesson first. As teachers attempt to integrate technologies, the team videotape the lessons to be shared at the monthly group meetings for analysis, critique, and reflection (Tochon 99).

For example, in a recent inquiry group meeting, one teacher expressed an interest in identifying a tool to increase student motivation to write. University participants had access to 30 AlphaSmart 3000, a “portable, low cost computer companion,” loaned from the company. This technology was demonstrated at an inquiry group meeting. The teacher decided to integrate the AlphaSmarts into an eighth grade writer’s workshop unit. The students used the AlphaSmarts for a two week writing unit. The university researchers provided on-site assistance throughout the entire process even though after the first day of use, the teacher indicated that she felt completely comfortable with the AlphaSmarts. The teacher described the project as a success and shared her experience with other teachers at a subsequent inquiry group meeting. She mentioned how focused and motivated the students were while using the AlphaSmarts. The researchers who provided technical assistance during those classes observed that students were on-task during the entire class period. Upon hearing about the success of the Alpha Smart project, other inquiry group teachers were eager to use them in their classrooms as well. Coincidentally, the most technology resistant teacher of the group decided to use the AlphaSmarts in his writing class.

As needed, consultations with content or other educational technology experts occur to develop an array of technological solutions to meet the issues identified by the teachers. For example, the inquiry group has also identified geography as an area that needs improvement. We examined an array of software that could support geography instruction, and identified GIS software (Geographic Information Systems) as a possible solution. We consulted with a GIS expert to learn more about the software and to determine possible learning resources for teachers. The researchers demonstrated the software’s capabilities, the teachers were interested, and they have participated in several GIS training sessions. GIS will be integrated in the humanities classes in the Spring of 2003.

Reflections and Preliminary Recommendations

As part of a larger initiative to establish subject matter technology inquiry groups as a preferred approach to technology professional development in schools and colleges of education, this project is concurrently examining (a) the process of establishing and supporting subject-matter technology inquiry groups, (b) the knowledge inquiry participants learn and develop, and (c) the impact of their learning on their teaching practices and student learning.

This paper reports preliminary results from the work-in-progress with the current inquiry group. We focus on the issue of establishing and supporting subject-matter technology inquiry groups. At this point, we highlight aspects of the process that are particularly important.

Site and Participant Selection

The current group is located within a school and district that are already using inquiry group approaches to professional learning. Participating in an inquiry group is a required part of their professional duties. Teachers may disagree with the district-wide mandate but are still required to participate. However, teachers' ability to focus on topics of their choice allowed our group to form around the issue of technology integration. Teachers report that they are truly interested in this topic.

Each teacher receives a modest stipend of \$150/year to compensate for the activities related to data collection. There is little time for teachers to meet and learn new technologies, and teachers have not requested nor exhibited any interest in learning new technologies outside the school day. Not all teachers attend the monthly, 45-minute meetings and others do not request between-meeting assistance during the school day. The nature of the inquiry group necessitates the need for full participation of each member. The support and dialogue of colleagues is crucial to the learning environment. Many teachers consider this the most valuable component of their professional development experience (Talbot et al. 2001). Though the teachers report a vested interest in technology integration, other commitments and time constraints pull them away from full participation in the group.

Nature of Group Meeting

We are evaluating the nature of the monthly group meeting. The purpose of the meeting is to discuss challenging issues in teaching and learning and explore technology options. After the group identified technology (GIS) to explore, attendance at the monthly meeting diminished to two/five teachers. We are trying to determine when and how the monthly meetings are most useful. It appears that if teachers are engaged in learning a new technology (e.g., GIS), the inquiry group meeting where we discuss content and technology seems less of a need until the group is ready to consider another new content idea or technology. Some teachers expressed an interest in learning one technology at a time, rather than considering other new technologies concurrently. It may be that as topics are under exploration the focus should shift to individual meetings with teachers rather than the large group meeting.

Activities

We are also evaluating the range of activities that the university partners and teachers do within the inquiry group. Our preliminary analyses indicates that the teachers may not be active enough in their own learning, in that, the university partners engage in research of technology options, learning the technologies, demonstration of technologies, and assistance related to use of technologies in the classroom. The teachers engage in curricular and pedagogical analysis that lead to identified problems of practice, critiquing the technologies demonstrated, and then learning and integrating technology. We are considering the impact of encouraging teachers to also engage in action research projects related to their investigations. The balance of activities and responsibilities lies in workload constraints, and essentially is a challenge. For, as the university partners do more work to facilitate integration (due to teachers' busy schedules), the teacher partners engage less fully in the learning and are less likely to learn and consider technologies for adoption.

These issues and observations illuminate some of the challenges of establishing technology inquiry groups. We are still very confident that the nature of this approach will lead to thoughtful, cognitively-engaged technology use in the classroom for students. Capturing those effects are part of our continued research.

Future Expansion and Modifications

Over the next three years, we intend to broaden our scope by establishing more collaborative, technology inquiry groups. We will continue our commitment to facilitating professional development, supporting technology-supported teaching and student learning, and documenting our efforts.

These inquiry groups, though primarily focused on professional development of practicing teachers in the project, to date, may be a beneficial learning opportunity for preservice teachers as well. We are developing a plan

to include preservice teachers in the project in order to examine the potential for and logistics of incorporating participation of preservice teachers in technology inquiry groups as part of their initial licensure preparation. We believe that the situated nature of the technology and curriculum explorations that occur in the inquiry groups will be more beneficial to preservice teachers than taking educational technology courses within the university course curriculum. This partnership, similar to one described by Middleton (2000), models “lifelong professional learning” for preservice and veteran teachers. University students are treated as professionals while participating in a “collaborative learning environment”(p.52).

One of our goals in working with these inquiry groups is to learn how to help them become self-sustaining, without undue reliance on outside funding or large human investment from the outside entities like the university. On the other hand, we acknowledge the benefit of university-school collaborations so we are not comfortable eliminating the university role completely. Yet, certainly the role that the graduate assistants serve is costly, so we will be examining ways the schools’ media coordinators or other technology-knowledgeable teachers may serve those needed roles.

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