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ABSTRACT

This paper describes a model for connecting the constructs underlying strong Professional Development Schools (PDS) with the infusion of standards-based technology; a model that can be replicated cost effectively and efficiently for both schools and colleges. Manhattan College, New York, collaborated with IN-TECH, a newly developed middle school with a vision of focusing on technology. The collaboration began at the earliest stages of the middle school's development, with faculty representation on the original committee that developed the vision and curriculum. Early collaboration efforts focused on traditional shared experiences such as the placement of student teachers and counselors at IN-TECH. Due to a grant, technology began to strengthen the collaboration. As the grant has developed, more advanced technologies are being learned by faculty and teachers at team meetings (e.g., video editing). Videoconferencing is also available for collaboration between classroom teachers and college students and faculty. The college continues to play an active role in the development of the school. The collaboration has expanded beyond interactions between school and college faculty. For example, Manhattan College graduate engineering students took an active role in mentoring groups of children in a robotics competition.(SM)

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Breaking Ground In Technology Development: A school/college partnership focusing on the infusion of standards-based technologies into practice

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Introduction

Technological collaborations between K-12 schools and institutions of higher learning should be at the forefront of 21st century Professional Development Schools' (PDS'S) development agenda. This presentation focuses on a unique technologically-driven collaboration between a newly formed, 6-12 urban middle/high school that focuses on technology and a College of Education that included this school and its district (serving 47,000 students) in a U.S. Dept. of Education Preparing Teachers to Teach with Technology (PT3) grant. The collaboration illustrates the bridge that technology can provide not only for the development of interactive instruction and learning within the K-12 learning community but also between the K-12 school and higher education communities. The presentation describes a model for connecting the constructs that underlie strong PDS's with the infusion of standards-based technology, a model that can be replicated cost effectively and efficiently for both schools and colleges.

Professional Development Schools

The rationale for Professional Development Schools (PDS) began to be formulated in the reform movement of the 1980's that was motivated by a concern for economic competitiveness in a global market. In the early 1990's the focus turned to standards for children and teachers. These standards in turn led to reexamination of standards for accreditation of Schools of Education. The concept of PDS's emerged from within this call for change.

The National Council for the Accreditation of Teacher Education PDS Standards Project has identified three characteristics of successful PDS's including the nurturing of a learning community, a true collaboration both within and between partners, and accountability for teaching and learning. According to Levine (1997) this learning community is one in which teaching includes knowledge based practice, collegial

interaction and an inquiry based orientation. The collaboration is based on the needs and practices of both school and college. Clearly, the movement for standards in education informs the need for accountability.

For PDS's to engage in the three activities described above, they need to be enacted in places where there is a commitment to change, both in the school and in the college of education partners. School faculty and university faculty working together find solutions to problems and develop better ways of doing things. Each faculty group brings a different set of skills and perspectives to this effort. University partners might facilitate teachers learning from each other and working collegially through their expertise in approaches to adult learning. University faculty also have expert knowledge to bring to bear on school problems. As members of this learning community, they have a role to share this expertise. This process creates different ways of doing things and a new culture in the PDS. Norms of privacy and isolation are replaced by norms of public practice and collegiality.

Collaboration is critical to development of PDS's (Trachtman, 1996). College of Education faculty are not the experts and the school faculty are not the learners. Rather, each member of the learning community brings certain strengths to the relationship. College faculty should participate on committees of the schools and contribute their expertise. School faculty likewise advise college faculty on best practices. As for accountability, standards are at the heart of educational reform and PDS's must promote professional practice in teaching. These attributes set the stage for the continued development of PDS's.

Technology and Collaborations

Technological collaborations as part of PDS's have received little or no notice in the literature on PDS's. No one doubts that technology has the power to reshape both education and learning institutions in providing teachers and professors with other models of teaching, learning, and assessment (Educom Review Staff, 1996). Moreover, technology standards (e.g., NETS) have become a crucial part of educational standards and therefore accountability. Some successful collaborative work between Texas State University and a Texas school district has led to the development of a generational model

for educating teachers in computing. School principals and college faculty identified a group of instructionally strong "first-generation" teachers who were shown how to use technology to support interdisciplinary, thematic units. The following summer, the teachers attended a second technology institute where they each mentored two second-generation teachers. The first-generation teachers continued to mentor the second-generation teachers throughout the school year. The following year, the process continued as the second-generation teachers mentored third-generation teachers. (Caverly, D. C.; Peterson, C. L; Mandeville, T. F. (1997). The current collaboration differs from this model in its emphasis on interactive teams on which there are both college and school faculty learning together, and an emphasis on networking and videoconferencing besides other technologies.

Technology is increasingly being linked to constructivist learning. Cognitive psychologists have turned overwhelmingly toward a constructivist view of learning (Anderson, L.M.; Bluenfeld, P.; Pintrich, P.R.; Clark, C.; and Peterson, R.W. (1995); Fitzpatrick, C; 1994; 2000; Ginsburg; 1992). Constructivist learning is concerned with understandings achieved through relevant, hands-on, engaging activities. Education leaders who have been involved in revising frameworks and standards for learning have based their suggestions on the constructivist model that learners do not passively absorb knowledge but rather construct it from their experiences (Anderson, 1995). Pepi and Scheurman (1996) suggest that advocates of computer technology believe computers and telecommunications are the primary, if not the exclusive tools for implementing constructivist-teaching methodologies.

Two research questions will ultimately be examined as a result of the implementation of this project. One question is whether collaborative efforts between a 6-12 school and a college, based on an infusion of technology, can accelerate the use of technology in learning and teaching in that school? A second research question will examine whether the model will contribute to the acceptance by teachers of the role of technology as critically related to constructivist learning?

The Partners in the Collaboration

Manhattan College is a private co-educational college with a graduate division, situated in the Bronx Borough of New York City. The School of Education has always addressed the needs of urban educators who required advanced degrees and in service training. There is a commitment on the part of the faculty to encourage its students to consider a career in an urban school setting.

IN-TECH is a newly developed middle school that will ultimately become a 6-12th grade school. The vision of those who worked from the beginning on this school was that of a school focusing on technology, in particular information and network technology. The collaboration with Manhattan College began at the earliest stages of development with faculty representation on the original committee that developed the vision and the curriculum. Manhattan College continues to play an active role in the development of the school with faculty representation on the Leadership Committee and because of the inclusion of IN-TECH in TITAN (Transforming Instruction through Technology and Networking), a technology grant received by the college.

At the core of this continually developing relationship are the people who engage in this work, both at IN-TECH and Manhattan College. Increasingly evident is the role of advanced technologies, which are being used to link the IHE and this 6-12 school. Of course, the most important focus of the partnership is the children. There is an implicit understanding that the child's learning of technology is not only impacted by their direct interaction with it, but also by those who teach the teachers of the children.

Collaborative Efforts

Early collaborative efforts focused on traditional shared experiences such as the placement of student teachers and counselors-in-training at IN-TECH. Due to the TITAN grant, technology began to strengthen the collaboration. The College has provided campus space and computer facilities to IN-TECH for its past two summer teacher workshops prior to opening in the fall.

One of the projects of TITAN is the development of "curriculum revision teams" which are made up of faculty from the School of Education, professional educators from the schools and graduate/undergraduate students from the college. The teams are assigned

a few tasks: to review the curriculum of the professor's class, suggest ways to infuse technology, to review their own courses, and to examine technology standards in relation to curriculum. Teams engage in a "discrepancy analysis," in which the NETS are used as the basis for finding a base line of technology use and then suggesting ways to implement technology. Besides these tasks, the teams come together to learn new technologies, talk about applications of technology to everyone's work, review writing on this topic through threaded discussions on an on-line asynchronous team course (Blackboard), and generally enjoy engaging in a collaborative learning experience. The revision team is one of the most popular and sought after activities of the TITAN grant. IN-TECH faculty are well represented on the TITAN teams; technology has been shared.

Sharing of Advanced Technologies

As the grant has developed, more advanced technologies (e.g., video editing) have been learned by faculty and educators during team meetings. One example of the application of this technology is in the work of assistant principals with novice teachers. Edited videotapes of master teachers are being used in conjunction with PowerPoint to develop a presentation that can be used as an illustration of best teaching practices for new teachers based on real teachers in their school. The learning of the technology to do this was done during the TITAN team meetings and with the Senior technology consultant on the TITAN grant.

The grant has also enabled the development of two new servers, one for video and one for WebPages that in some cases will be shared with IN-TECH. For example, an on-line mentoring website is being developed that will allow novice teachers to ask questions to and dialogue with master teachers on-line; included in this project's website will be edited videos that capture some every day New York City samples of good educational practices. In addition, the website's videos will feature discussions and scenarios related to behavior management problems as viewed from an urban perspective.

Videoconferencing

This technology has been available for use for some time. Our vision for its use collaboratively is unique and responds to a growing need for real time connections between the real world classroom and students learning to become professional educators.

Our vision is to use this technology to allow students and faculty at the college to experience live, teaching and learning; no other medium captures a real experience for an audience. Our interactive software will not only allow students to watch the teacher and students at IN-TECH, but also will allow our students to interview the teacher right after the class session if that teacher is available, to get immediate feedback on their questions about the teaching and the management. Likewise, we hope to have staff from IN-TECH tune into our classes on, for example, social studies methods or counseling the at risk student, to comment on issues brought up in the classes. We have just started using this technology at IN-TECH but we expect that it to be yet another technology to support our efforts toward the development of professional educators.

Technology-Based Outreach Programs

Our collaboration based on technology has expanded beyond interactions between faculty at IN-TECH and faculty at the college. Ultimately, the children are at the center of all of these endeavors, so we wanted to somehow connect to them and those important people in their lives. Manhattan College graduate engineering students took an active role in the mentoring of groups of children who were in a Robotics competition, called the "Arctic Challenge Competition." The children engaged in developing a robotics' project for the competition and then went to the competition. The mentors provided guidance but did not direct the projects. IN-TECH placed first in the "Hypothesis" contest. They had the best explanation of what their project was and why it worked the way it did.

Our most recent and exciting sharing of technologies project is also an outreach program. Our Senior technology consultant and another staff member of TITAN worked with the Assistant Principal to implement a Parent Program in computer skills. All children at IN-TECH receive a computer, which they may take home. Although many parents have basic computer skills, many did not know how to use a laptop or how to surf the Internet. A website for the program, where the parents can show their work and let their children see it, is being developed on the TITAN server. The program takes place on Saturday mornings. Part of the program will include a counselor-in-training helping the parents to write resumes and cover letters for potential employment positions.

Future Directions

Professional Development Schools must "break ground, build a foundation, and keep house" in order to renew their place in education in the 21st century. Likewise, technology has been touted as a critical component of successful schools in the U.S. in the 21st century. The current collaboration illustrates how faculty from a college and faculty from a school can learn together and engage collaboratively in the development of a technology-enriched environment for K-12 children and college students who want to become professional educators.

Early in the development of this collaboration, faculty at IN-TECH were surveyed about their attitudes regarding the role of technology in their work. Other formative and summative assessments are being utilized to capture the impact of this model on the teachers at IN-TECH. Future research will focus on which technologies seem to be most effectively learned and used by faculty and whether the more advanced technologies (videoconferencing, networking) are more likely to be more readily used.

It may well be that the technology bridge described herein will provide a new direction for PDS's in the 21st century.

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