Supporting Teacher Change Through Online Professional Development

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Abstract

This multiple case study examines elementary teachers' experiences as they participated in the online professional development course, *Cognitive Literacy Strategies for the Elementary Classroom.* This study explores teacher change and the elements necessary to facilitate the change. Issues concerning content, the change process, the online learning environment, and technology are examined. Findings indicate that online learning is a viable means of providing professional development and facilitating teacher change.

Introduction

"Children have a right to well-prepared teachers who keep their skills up to date through effective professional development" (International Reading Association, 2003, pg. 5). These professional development opportunities typically result in newly acquired knowledge and skills that teachers use in their instruction (Valencia & Wixson, 2000). The International Reading Association's (IRA) position statement of children's reading rights clearly details requirements for teachers: they need an enhanced understanding of the reading process and a broad repertoire of instructional strategies. In fact, Glatthorn (1997) suggests that teachers who participate in professional development activities operate from a deeper and more sophisticated knowledge base, which in turn, benefits their students. However, a growing area of concern is providing effective professional development opportunities for teachers that will result in positive instructional change for students. An Online Professional Development (OPD) program may be the answer.

Online Professional Development programs provide a managed supportive learning system with many possibilities: immediate research-based information, creative instructional platforms, and a supportive learning environment (Brown & Green, 2003; Richardson, 2003; Treacy, Kleiman, & Peterson, 2002; Rodes, Knapczk, Chapman, & Chung, 2000). An OPD program provides the opportunity for learning in real time where teachers immediately apply new information and skills, and thus, improve the quality of instruction. While an OPD program seems to offer positive benefits for the educational community, little empirical research has been conducted to investigate its effectiveness. The central research question addressed through this inquiry was: Does an OPD program support teacher change?

To explore this question, specific issues relating to content information, the learning process, and the Web-based delivery medium used in the present study were addressed. The following sub-questions addressed specific concerns of teaching cognitive literacy strategies using the cognitive learning theory in an online environment.

1. How does an OPD program enhance teacher's knowledge of cognitive literacy strategies?

2. How does an OPD program enhance teacher's knowledge of pedagogical skills?
3. How does an OPD program provide continuing support for teachers?

Theoretical Framework

Learning Explained

This study explored teacher change framed by the theories of Ausubel (1968), Vygotsky (1986), and Lave (1988) as they apply to learning. Participants in the study constructed their knowledge concerning cognitive literacy strategies based on their prior knowledge, information presented through the OPD program instruction, and the social interactions required during this study. In addition, the Transtheoretical Model of Change (Prochaska & DiClemente, 1983) and Phases of Learning (Paris, Lipson, & Wixson, 1983) provided a framework enabling us to view the affective and cognitive changes teachers made during the study.

The Change Process

Authentic change is evident through affective and cognitive behaviors. Affective changes were analyzed using the Transtheoretical Model of Change (Prochaska, DiClemente, & Norcross, 1997). This model purports that changes occur through six progressive stages: precontemplation, contemplation, preparation, action, maintenance, and termination. In Stage 1, precontemplation, the participant would be unaware of a need for change. Stage 2, contemplation, would find the teacher becoming aware of the problem and thinking of ways to change. Teachers in Stage 3, preparation; would begin to research ways to change. In Stage 4, action, teachers would engage in the change process. Stage 5, maintenance, would find teachers assessing and reflecting on the change. Finally, in Stage 6, termination, the participant would have accepted the change so completely that he or she would be an advocate for the new concept.

Teachers' cognitive changes were observed using Paris, Lipson, & Wixson's (1983) phases of learning: declarative, procedural, and conditional. This model provides a way to examine the depth of understanding. The declarative level of understanding is the phase where teachers were introduced to the strategies. Next, teachers deepened their knowledge at the procedural level by experimenting with the strategies. Last, the conditional knowledge level was acquired by

teachers who understood when the strategy should be used to achieve a certain purpose and evaluated the strategy's effectiveness on instruction.

A critical component of a successful change process is the support provided for teachers. Traditional and non-traditional support mechanisms were embedded into this learning environment. The traditional support was interwoven into a Learning Organization (Senge, 1990) where teachers created, acquired, and transferred knowledge as a learning community, not individuals. The OPD program provided non-traditional support for the content and learning process through the use of Web-based communication devices and online resources.

Teacher Change

Change occurs constantly for the classroom teacher: new students, new procedures, new materials, new practices, and so on. However, these are superficial changes. Authentic change occurs when a teacher's belief system and core values concerning teaching and learning are modified. In order for authentic change to occur, teachers need the opportunity to learn new information, time to experiment with the new concept, and the opportunity to evaluate its effectiveness (Levy & Murnane, 2004; Richardson, 2003).

Teacher change is defined as a highly personal process accomplished by the individual through experiences, emotions, cognitions, and behaviors over a period of time which transform a teacher's values and beliefs (Treacy, Klieman, & Peterson, 2002; Prochaska, DiClementa, & Norcross, 1997). This process of change assumes the teacher recognizes a need, makes plans to improve, engages in the improvement, and allows time to evaluate the effectiveness of the new practices.

Supporting teacher change through an OPD program

The National Reading Panel (NRP) (2001) states, "We need to find out how teachers can be supported over the long term to ensure sustained implementation of new methods or programs …" (5.15). The panel continues, "The use of simulated or real teaching … can provide supplemental experiences to classroom instruction in teaching" (5.16). Recent investigations into Web-based professional development programs suggest successful results (Levy & Murnane,

2004, Bybee & Loucks-Horsley, 2000; Steger, 2000; Rodes, Knapczyk, Chapman, & Chung, 2000). Therefore, the focus of this study is not *if* Web-based teaching and learning can be successful, but *how* a Web-based medium provides support for teachers when engaged in learning. Qualitative research provides the best avenue in discovering the intricate complexities and commonalities of this study.

Method

The Case: Context and Setting

This study continued for eight weeks at an intermediate elementary school with four participants. The school is home to approximately 50 teachers and 870 students located in a suburb of a southeast, mid-sized university town. The eight-week study was divided into two four-week sessions. During the first session, teachers were engaged in the OPD course, *Cognitive Literacy Strategies for the Elementary Classroom*. The second session allowed time for experimentation with and ownership of the content.

Participants

Four female, European American teachers were purposefully selected (Merriam, 1998) by the researchers and district curriculum supervisor to be involved in this multiple case study (Stake, 1995). The selected teachers were certified in their respective areas, volunteered for the study, and met the prerequisite of having basic technology skills. The selected teachers were: Mrs. Brown (All names are pseudonyms), a special educator in her first year of teaching; Mrs. Minor, a third grade teacher with eleven years of teaching experience; Mrs. Major, a fourth grade inclusion teacher in her third year of teaching; and Mrs. Jackson, a second-career educator in her fifth year of teaching third and fourth grade gifted students.

The OPD Program

The Content: Cognitive Literacy Strategies

The content presented through the OPD program provided an introduction to literacy, concept mapping (Novack & Gowan, 1984), word mapping (Schwartz & Rafael, 1984), and story grammar mapping (Mandler & Johnson, 1977) respectively. These strategies are visually representative strategies that require the reader to interact with the text and construct his or her

knowledge as reading occurs. Investigations into the use of these literacy strategies for comprehension instruction have been extensively studied and found overwhelmingly positive as reported in Pearson and Fielding's chapter in the *Handbook of Reading Research* (1996).

Lessons were designed using Gagne's Nine Events of Learning (Gagne, 1987) and instructional design criteria suggested by the Center for Online Professional Education (Kleinman et. al, 2000). Each lesson taught pertinent information concerning the strategy; modeled the strategy using the Direct Explanation Model (Duffy et.al, 1987) through text and digital photographs, required participants to experiment with the instructional strategy, reflect on each lesson, and demonstrate at least 80% mastery on the final quiz.

Instructional Delivery Techniques: OPD

To support the OPD program, specific features were included within the design of the course (Kleinman et al., 2000; National Staff Development Council, 2000). The features included ways to support the literacy content, the learning process, and the context. The design included links to the content information, an online quiz, threaded discussions, chat rooms, and E-mail addresses.

Procedures

The OPD program began with a traditional workshop at the end of a school day. The OPD instructor oriented participants to the content and OPD delivery method. New course content was placed on the Web site in incremental stages for the next four weeks.

During the course of each week, teachers learned new information and experimented with the content. They evaluated the effectiveness of the strategy by submitting a reflective journal via E-mail and participating in a weekly chat session. When the OPD concluded, teachers continued to use the strategies in their classrooms. Weekly classroom visits and observations continued for the next four weeks to document instructional techniques and pedagogical growth.

Data Collection Methods

Data were collected and triangulation achieved using participant observation, non-participant observation, unstructured interviews, and artifacts. Data were field notes, video recording

transcripts, electronic transcripts, and interview transcripts. Following each observation, field notes were expanded to include theoretical, methodological, and personal notes. Artifacts included electronic communications, student work examples, and digital photographs. The electronic communications included literacy philosophies, lesson implementation ideas, questions concerning the OPD, statements about the OPD experience, and personal reflections. Student work examples and digital photographs evidenced the instructional strategies in the classrooms.

To conclude the study, an interview was held with each teacher. Research questions guided the unstructured interview where teachers discussed their experiences; things they had learned, cognitive literacy strategies, and the online learning experience.

Data Analysis Procedures

To analyze the data, we used the constant comparison method (Stake, 1995). Our goal was to establish categories, discover a correspondence of patterns, and develop natural generalizations. First, the sets of data were arranged by each teacher and read searching for (a) the answers to the research questions and (b) an emergence of patterns. After significant examination, data were coded and patterns began to emerge. In order to examine the patterns more closely, data were rearranged aggregating data sets. Again, using research questions as the guide, the patterns were confirmed and topics identified.

Data collection was maximized and verified through triangulation of data, member checks, peer review, and clarification of researcher bias (Denzin & Lincoln, 1998; Stake, 1995; Merriam, 1998). Specifically, all stakeholders reviewed the data throughout the analysis phase; themes were triangulated using the analysis of multiple data: electronic transcripts, classroom observation field notes, video transcripts, and interview transcripts; and participating teachers reviewed the analysis of the study.

Researcher Bias

After a thorough examination of OPD programs, we believed that the supportive features designed within the OPD program would facilitate a more efficient learning process and create a

learning environment for participating teachers (Senge, 1990). Additionally, we assumed that the convenience of online learning, immediacy of information, and time to experiment with the content would produce a successful experience (Brown & Green, 2003; Richardson, 2003; Treacy, Kleiman, & Peterson, 2002; Rodes, Knapczk, Chapman, & Chung, 2000; Bybee & Loucks-Horsley, 2000; Steger, 2000). Our findings support these assumptions.

Findings

Since the focus of this study was to determine *how* a Web-based medium provides support for teachers who are engaged in learning, a case study (Stake, 1995) approach was implemented. After careful examination of the four cases presented in this study, the two most extreme cases were purposefully selected "to discover, understand, and gain insight" (Merriam, 1998, p. 61). The teachers, Ms. Major and Ms. Minor (pseudonyms), as their names suggest, describe professionals at contrasting ability levels. While both understand the importance of learning new information, Ms. Major hits "grand slams" and Ms. Minor is happy with a "base hit". The following section underscores the findings of Ms. Major and Ms. Minor as they participated in this OPD program.

OPD program enhances teacher knowledge

Participation in the OPD program enhanced teachers' knowledge of cognitive literacy strategies as they read about the strategies, explored information on the Web, experimented with the strategies in their classrooms, and assimilated the information in a personal way. Ms. Major responded, "I like the way you had it [OPD] set up. You gave the background, told me how to do the strategy, went through the example, and let me do it." The OPD program offered a learning environment that fostered experimentation and knowledge that directly applied to the participants' teaching situations (Senge, 1990).

As we began the OPD program, teachers thought that they understood cognitive literacy strategies, specifically concept mapping, but realized that their knowledge was at a declarative level. Ms. Major indicated, "I didn't know why it worked. I just knew it did, so I used it." Ms. Minor responded that concept mapping was just "a circle with lines to me." After learning about the concept mapping strategy, they agreed that the strategy helped students organize information

so that "words are not just out there," but rather serve as strategic learning tools establishing what students did and did not know.

Ms. Major reached the maintenance stage (Stage 5) of change (Prochaska, DiClemente, & Norcross, 1997). She experimented with the change concept, cognitive literacy strategies, and assessed the value of it as it related to her instruction. The conditional knowledge level (Paris, Lipson, & Wixson, 1983) was also evident as she demonstrated her knowledge of literacy strategies, communicated with others, experimented with the strategies in her classroom, and reflected upon the importance to her instruction.

Ms. Minor met the criteria of the preparation stage (Stage 3) of change (Prochaska, DiClemente, & Norcross, 1997). She acknowledged that change was needed and contemplated making changes. Ms. Minor demonstrated the declarative knowledge level (Paris, Lipson, & Wixson, 1983) of cognitive literacy strategies; she knew what the strategies were and used them during instruction. However, she did not use them strategically.

OPD program enhances pedagogical skills

The OPD program enhanced individual teacher's knowledge of pedagogical skills through communications with other teachers and increased knowledge of cognitive learning theory. The OPD program provided a reason and an avenue for the participating teachers to communicate with each other. As Ms. Major pointed out, "Very rarely do we have the opportunity to talk with other teachers to see what they are doing in their classrooms and how they are doing things in their classrooms. The OPD program helped us do that." These teachers discussed instructional techniques, shared instructional material, and developed cohesiveness among their group. They helped and befriended each other. Ms. Minor explained, "The OPD helped me because as I learned new information; I started talking with the other teachers about the things that we had read. I could also get some ideas about the things that they did in their class." The OPD program provided a way for teachers to enhance their pedagogical skills by collaborating and communicating with each other.

The teachers also enhanced their knowledge of cognitive learning theory through the OPD program. They learned the importance of linking prior knowledge with new information. Ms. Major responded, "I learned how important it was to link things and get their prior knowledge before we started [on a lesson]." Additionally, Ms. Major demonstrated relationships among concepts by illustrating them on the chalkboard or overhead projector. The visual representation helped her students comprehend new concepts.

In contrast, Ms. Minor verbalized the importance of "linking their ideas together" in E-mails and the interview, but her classroom instruction did not demonstrate this. For instance, during a writing activity one student wrote, "The best thing about my school is recess." Ms. Minor asked him to explain more about why he liked recess. "What do you like to do at recess? Do you see friends? Do you play? Why do you like recess?" While this situation offered a perfect "teachable moment," Ms. Minor used only verbal connections. She did not use the strategies taught through the OPD program to scaffold his reading and writing process. And thus, the student did not add to his writing. It was evident that Ms. Minor understood the importance of linking information; however, she did not follow through with her instructional practices.

Although these teachers gained information concerning pedagogical skills through the OPD program in different ways and at different levels, change was observed. Ms. Major demonstrated conditional knowledge (Paris, Lipson, & Wixson, 1983) of cognitive literacy strategies and the maintenance level (Stage 5) of change (Prochaska, DiClemente, & Norcross, 1997). Ms. Minor exhibited procedural knowledge of the literacy strategies and was in the preparation stage (Stage 3) of change.

OPD program provides continuous support for teachers

The OPD program provided support for teachers through the convenience of online learning, immediate feedback, and relevant content information. Teachers participating in this OPD program appreciated the flexible scheduling, the constant availability of information, being able to access the course at home or the classroom, and maintaining instructional time in their classrooms. All participants agreed with Ms. Major when she said, "I think an OPD is phenomenal for teachers because you don't have to be out of your classroom to do it. You can

learn and gain experiences in front of your computer. You don't have to leave your classroom for an entire day and drive somewhere to get your information."

Conclusions

The OPD program supported teachers as they learned cognitive literacy strategies. These teachers successfully implemented the strategies in their classroom, albeit at different levels of understanding. They communicated with each other, both electronically and traditionally, learning with each other as they collaborated on issues relating to teaching and learning. This study found that teachers needed content and technology support to be successful in an OPD. Technology provided the method of delivering content information and a way for teachers to communicate with each other and the instructor. Content, based on scientific reading research, was designed so that teachers could learn, experience, and transfer information into the classroom. Technology and content information complemented each other in this OPD program; without either one, the program did not exist.

Conveniences of online learning also supported the OPD experience (Treacy, Kleiman, & Peterson, 2002). Teachers were pleased that they did not need to travel, write substitute lesson plans, or change their schedules. They appreciated being able to work in their classrooms or at home and at their own pace. Teachers enjoyed the freedom of learning online.

Implications

Several implications were revealed through this study. First, learning in a virtual environment offers a wide variety of opportunities for teachers. Other literacy concepts should be explored and presented as Web-based professional development courses.

Secondly, developing a learning community among teachers is critically important to newly implemented programs. Teachers need the opportunity to discuss philosophies, experiment with new techniques in their classroom, and evaluate its effectiveness. The development of a learning community ensures successful change among participants.

Third, this OPD program was successful in part because of the interactions between the participants and instructor. The OPD instructor responded quickly to their E-mails, held weekly chat sessions, and visited their classrooms at least once each week. A strong implication of this study is that personal contact by the instructor facilitates successful change.

Last, the participants' experiences were not equal. Significant research needs to be conducted to ensure those with less technology skills or content knowledge maximize their learning experiences.

In conclusion, an OPD program is a viable means of enhancing one's personal and professional knowledge - regardless of a "Major" or "Minor" status. An OPD program supports teacher change by providing immediate content knowledge, a system that enhances pedagogical skills, and an environment where teachers learn together. The power of the Internet provides a convenient and enriching professional development experience.

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