Current Issues in Education
Mary Lou Fulton College of Education
Arizona State University

Volume 11, Number 3 May, 2009 ISSN 1099-839X

Multimedia Observations: Examining the Roles and Learning Outcomes of Traditional, CD-ROM Based, and Videoconference Observations in Pre-service Teacher Education

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The purpose of this study was to examine the role and learning outcomes of three types of classroom observations in a teacher education methods course: video-based CD-ROMS, videoconference-supported observations, and traditional face-to-face observations. It was not the goal of this study to compare the effectiveness of each type of observation to the other ones; rather, the goal was to examine the role each observation type plays in the overall learning experience of the pre-service teacher, and to investigate the learning outcomes associated with each type of observation. Therefore, this study investigated three questions: 1) What are the advantages/ disadvantages of each observation type? 2) What do the students learn from each observation type? 3) How does the interaction of various types of observation support and/or enhance traditional face to face observations? Results indicate that although the majority of the students preferred face-to-face over technology-supported observations, this was based simply in their preference for being in a real classroom rather than on what they actually learned. More and higher level learning outcomes were associated with the CD and videoconference observations than from the face-to-face observations. Additionally, more advantages of the technology-supported observations were cited than were cited for their face-to-face counterpart.

The purpose of this study was to examine the role and learning outcomes of various types of classroom observations in a teacher education methods course in an elementary program through three types of interactions: video-based CD-ROMS, videoconference-supported observations, and traditional face-to-face observations. This research was conducted in an elementary methods course which is designed for pre-service teachers just beginning their teacher education program in elementary education. The objectives of the course are to introduce students to theories and principles of early childhood learning, as well as to instructional decision making and lesson plan design. A field experience is also a required component of the class. Traditionally, pre-service teachers are sent into a classroom to observe the instruction. However, these observations are typically not as effective as teacher educators might hope because the pre-service teacher has not been taught to view the classroom from a teacher's perspective; the classroom is still observed through their student lens. Instruction and preparation in how to observe teaching may be necessary for pre-service teachers before they are sent to a classroom to observe.

It was not the goal of this study to compare the effectiveness of each type of observation described here or to determine if one type was "better" than another; rather, the goal of this study was to examine the role each type of observation plays in the overall learning experience of the pre-service teacher, as well as to investigate the learning outcomes associated with each type of observation. Therefore, this study investigated three key questions: 1) What are the advantages/disadvantages and strengths/weaknesses of each observation type? 2) What do the students learn from each observation type? 3) How does the interaction of various types of observation support and/or enhance traditional face to face observations?

Guided Observations: Preparing for the Field Experience

The literatures that informed this study emanated from the research on learning to teach, as well as the literature on the role and type of field experiences available to teacher education. A predominant perspective for many years in the study of learning to teach frames this endeavor as a developmental process (e.g., Bolam, 1990; Borko & Putnam, 1996; Burke, 1987; Davis & Zaret, 1984; Feiman-Nemser, 1983; Fessler & Christenson, 1992; Huberman, 1993; National Center for Research on Teacher Learning, 1991; Putnam & Borko, 2000). Learning to teach can be considered a developmental process due to the fact it is a unique individual enterprise to which people bring varying beliefs, attitudes, abilities, values, and experiences (Putnam & Borko, 1997; Richardson, 1996). The process of learning to teach can also be likened to other aspects of a developmental process in that it occurs at different rates and at different times for each teacher (Borko & Putnam, 1996, Feiman-Nemser, 1983; Putnam & Borko, 2000) and it is necessary for early experiences to be concrete in nature. Additionally, similar to the Vygotskian notion of scaffolding, support from more experienced others must occur along with these early experiences in order to move the pre-service teacher into more complex understandings (Putnam & Borko, 2000). The question for teacher educators then becomes: What experiences or opportunities can teacher education programs provide in order to most effectively nurture that development?

A common response to this question has been providing the pre-service teacher with opportunities for early field experiences. The main purpose behind these field experiences has been to allow the inexperienced teacher to experience concrete, real-world applications of the theories and principles they learn about in the university classroom. Usually, field experiences begin with observations. A problem in this area has been that pre-service teachers still see the classroom with a student lens and have not yet learned how to view the classroom from a teacher lens. Training in what and how to observe in a classroom must occur before classroom observations can be effective or helpful in the education of the new teacher (Author(s)). Unfortunately, this has not always been possible as observations are usually conducted in a public school classroom without the presence of the university professor.

Based on the studies reviewed for this research, pre-service teachers must be guided in connecting the theories and principles they are learning in their coursework to the observations they are doing in the public school classroom (e.g., Author(s); Hult & Edens, 2001; Pape & McIntyre, 1993). Other research has suggested that early field experiences may even have detrimental effects because the complexity of the classroom is more than the inexperienced teacher can understand without support and may, in fact, actually inhibit learning (Pape & McIntyre, 1993). Another drawback to traditional field experiences has been the lack of meaningful communication between the public school and the university classroom (McDevitt, 1996). Without such communication, it is difficult for the pre-service teacher to experience meaningful connections between their coursework at the university and their observations in the public schools. From the synthesis of the literature, it can be assumed that preparation for face-to-face field experiences is critical in order for meaningful and effective learning to occur.

CD-ROM based case studies have been one method used to train new teachers for how and what to observe in a classroom setting. Research has found them to be a successful strategy for allowing pre-service teachers to vicariously experience the realities and complexities of the classroom (Author(s); Harrington, 1996; Shulman, 1992; Sudzina, 1999). Other studies of case methods have shown that case studies can contribute to constructed knowing as in the work of Shulman (1992). Shulman argues for the need to use cases to teach theory. He asserts that teachers see the practical through the lens of the theoretical and that cases can give students the opportunity to apply principles to particular situations. He argues that this brings the theory studied throughout teacher education programs to life by situating the learning in a practical and meaningful context and by allowing theory to enter practice through teachers' judgments. Presenting dilemmas without clear-cut, right-wrong answers allows the students to problem solve and actively

apply theory they have studied to real world problems.

New possibilities related to the use of interactive video conferencing (IVC) are also being explored as one way to counter some of the negative aspects of traditional field experiences, which may include such problems as overcrowding in schools and classrooms, lack of supervision from the professor due to physical constraints, transportation difficulties, and lack of preparedness of the pre-service teacher for the observation. As Wilcox (2000) noted, IVC creates a learning environment that is both collaborative and communicative and that turns the synchronous, located nature of the traditional classroom into an asynchronous and distributed learning environment. With a learning environment that is more communicative and collaborative, comes opportunity for more meaningful connections to be created. IVC can support early field experiences in new ways that may also ultimately support and enhance traditional face-to-face observations. A classroom observation conducted via videoconferencing equipment provides one way to allow the university professor to be present with his or her pre-service teachers at the observation and to provide the guidance the literature suggests is necessary in early field experiences. This study sought to examine the roles and learning outcomes of three types of observations – face to face, CD-ROM based, and videoconferences –in the learning outcomes of pre-service teachers, as well as how the three types of observations may interact to support and enhance one another.

Methods

This study evolved from research conducted in one section of a teacher education general methods course at a large public research institution in the southeastern United States. The professor of the course led this project and conducted the research. Participants included 26 pre-service teachers enrolled in this course. All students were required to participate in the activities described in this research as they were a required component of the class. They were not required to participate in the research activities, but 100% of the pre-service teachers did elect to participate and data were collected from them in all categories of data collection except the focus group. Only 17 of the 26 students participated in a focus group. The pre-service teachers were not graded on their responses to any of the research activities and no names were required on any data solicited from them in order to prevent bias.

Procedures

As stated earlier, this research occurred in an elementary methods course in which a field experience is required. The pre-service teachers are required to teach 4 lessons to students in the public schools. They typically begin with a face to face observation, but this research looks at the way the addition of IVC and CD-ROM case study observations may prepare them for that observation. Therefore, for this research, the pre-service teachers participated in three types of observations of public school classrooms throughout the semester: CD-ROM based video observations, interactive video conferencing observations, and face-to-face observations.

Observation Schedule

Each type of observation was conducted twice, thus, each pre-service teacher participated in a total of six observations. The CD and videoconference observations occurred first, followed by the face-to-face observations. This was done to provide guided observation in order to help the pre-service teachers transition from seeing the classroom through their student lens to seeing it through a teacher lens, thus preparing them for the experience of being in a real classroom and to make their first face-to-face observation more educationally significant. All three observation types were completed prior to the pre-service teachers beginning their field experience so that the results related to what they learned would not be influenced by their participation in the field experience. The pattern of observations was as follows: CD, IVC, CD, IVC, face to face, and face to face. The pre-service teachers observed a different classroom each time so that they were being exposed to a different setting each time. All of the observations were completed within the first six weeks of the semester with one week in between each session. Along with each of these observations, students completed a KWOL sheet (What do I know, what do I want to know, what do I observe, and what did I learn?). Additionally, a reflective questionnaire was completed immediately upon completion of the observation. See Appendix A.

The class met on Monday and Wednesday of each week. The instructor of the course introduced new content on Mondays such as direction instruction, lesson planning, or integrated curriculum and then, on Wednesdays, an observation occurred that supported the content taught on the prior Monday. Therefore, the instructor chose CDs and arranged videoconference sessions that focused on the content being covered in the university course. The first CD and IVC observations focused on direct instruction and the traditional six-step lesson plan. The second CD and IVC observation focused on integration of subject matter. The face to face observations were at the discretion of the teacher whose classroom we were observing, as is common with the traditional face to face observation.

Observation Types

The CDs used in this research were developed by Harris Video Cases ® based at Brigham Young University in Salt Lake City, Utah. The CDs chosen for use in this research included *The Larry Beaudin Case* (Harris, Beaudin, & Baker, 2000) focusing on instructional design and *The Peggy Hunt Case* (Harris, Hunt, & Baker, 2000) focusing on integrated science/math instruction. The CDs were projected to a large screen located in the university classroom and were viewed by the entire class together.

The videoconference observations were scheduled by a technology support person at the university involved in this research in conjunction with the professor of the course. The university participates in a public school network partnership in which public school teacher's work together with university professors to prepare pre-service teachers. The professor of the course contacted the technology support person with a request for a videoconference and provided details related to the focus of the lesson to be observed and the date desired. Once the technology support person had confirmed the details and scheduled the conference, the observation was conducted.

The face to face observations were coordinated by the instructor of the course. They were arranged to be held in the same school and in the same classrooms in which the pre-service teachers would eventually teach their four required lessons. During both the CD observations and the IVC observations, the university professor was present with the students guiding them in what they were seeing and drawing their attention to particular aspects of the instruction. The university professor was not present with the pre-service teachers during their face-to-face observations. Although the instructor was physically present at the public school where the pre-service teachers were observing, the pre-service teachers were placed in a total of four different classrooms throughout the school so the professor was not able to be present with each student during their observation.

Data Collection and Analysis

As discussed in the procedures, along with each observation, students completed a KWOL sheet. The KWOL chart was chosen as a tool to gather data related to the pre-service teachers' own perceptions of what they learned and what they observed. The researcher wanted to know what the pre-service teachers observed and learned without coercing them in any way. This tool lent itself well to that goal and to a qualitative study because the respondents were not given structured choices or guided in their responses in any way that may affect their response. Additionally, immediately upon completion of each observation, they also completed a reflective questionnaire. After participation in all observations, each pre-service teacher also completed a survey using a Likert scale response to indicate how helpful they perceived each type of observation to be in helping them learn about the concepts presented in class and about the complexities of teaching and being a teacher. See Appendix B. Finally, a total of 17 pre-service teachers, one group of 10 and one group of seven, volunteered to participate in one of two focus group sessions. See Appendix C for the interview guide.

Analysis of these data was based on qualitative methods using the constant-comparative method to determine patterns or themes in the representations (Glaser & Straus, 1967; Merriam, 1998). According to Merriam (1998), the "constant comparative method involves comparing one segment of data with another to determine similarities and differences. Data are grouped together on a similar dimension" (p. 18) and are given a name so that they become a category. The objective then becomes to locate patterns in the data and arrange them in relationship to each other. Each data source was analyzed using this method so that categories were developed. These categories then became the evidence for the findings described in this research.

Triangulation of the data was achieved in two ways. First, one form of triangulation this research employed was through the collection of multiple data sources. The use of multiple data sources ensured accurate interpretation of results by confirming and reconfirming similar patterns found throughout various types of data. A second form of triangulation was used known as member checking. Member checking was used when the students were asked to participate in a focus group. Results of the focus group discussion supported findings from the surveys, reflections, and KWOL sheets and were used as an aid in ensuring accurate interpretation of the data.

Findings

Results indicate that although the majority of the students preferred the face-to-face observations over the CD-ROM videos or the videoconference observation, this was based more in their preference for being in a real classroom versus what they actually learned from the experiences. Analysis of the survey revealed that the face-to-face observations were rated higher than the other two types of observations on helping the pre-service teachers understand the complexities and realities of teaching and on helping the students connect the concepts and theories they were learning in class to the practical applications in the classroom; however, results from

the KWOL charts and reflective questionnaires indicated more and higher level learning outcomes from the CD and videoconference observations than from the face-to-face observations. Additionally, more advantages of the technology-supported observations were cited than were cited for their face-to-face counterpart. Nevertheless, in the end, the pre-service teachers valued the face-to-face experience most highly.

A brief overview of what the students perceived the advantages and disadvantages of each observation type to be is discussed first, followed by a closer examination of what the pre-service teachers reported they learned from each type of observation. Finally, the interaction of each type of observation in preparing pre-service teachers for the actual experience in the classroom is also discussed.

Advantages and Disadvantages of Each Observation Types

The students were asked after each observation type to offer their opinions on the advantages and disadvantages of that particular type of observation. The purpose of this research was not to compare the effectiveness of each type of observation to one another; rather, the purpose was to examine each type of observation in regard to what outcomes exist for student learning and how the interaction of each type may support and enhance one another. Therefore, a discussion of the advantages and disadvantages of each type is shared to consider how the challenges of one situation may be mediated by the strengths of another.

CD-ROM Observations

For the CD-ROM based observations, the advantages listed included: a) convenience – no traveling to a school was required, b) instruction – students were exposed to a CD that showed them the steps involved in a direct instruction lesson, c) ability to pause and discuss – students mentioned the instructor's ability to pause the CD to discuss parts of the lesson plan or classroom management issues as an advantage, d) view of the classroom – the camera went around the classroom and showed views of the classroom from several angles and got close-ups of student work, so the students felt they had a really strong "view" of the classroom. The disadvantages of the CD-ROM videos mainly consisted of the fact that the students could not talk directly with the teacher or students and ask questions for clarification. They felt a definite disconnect between the university and the public school classroom with this arrangement.

Videoconference Observations

Advantages of the videoconference observations were similar in some ways to the CD observations, but had distinct differences as well. The pre-service teachers again mentioned the convenience of an observation via videoconference; however, in this type of observation, many of them stated they felt as if they were really there without having to be physically in the classroom. Many of them stated they did not experience the disconnect they felt with the CDs. The CD observations had obviously been pre-recorded and did not have the same feel of immediacy and relevance to the pre-service teachers. They stated they felt the videoconference observation was more similar to the "real thing." Also, they again pointed out that instruction was an advantage because the instructor could help them understand what they were seeing and "point out things;" however, it was a disadvantage that the observation via videoconference could not be stopped, reviewed, and discussed. The biggest advantage of the videoconference observations for the pre-service teachers was the ability to talk with the teacher after the lesson and ask questions. The disadvantages of the videoconference observations involved video and audio. It was often difficult to hear student questions/responses because placement of the microphone may not be near the speaking student. Also, the camera is positioned in one place in the classroom and does not move around so as not to be a distraction to the children. However, this limits the view of the pre-service teachers and they felt they did not receive an entire view of the classroom.

Face-to-face observations

There was one advantage of the face-to-face observations mentioned by all 26 pre-service teachers and that was the ability to see and hear clearly. Interestingly, no other advantage was noted. Disadvantages included: a) the pre-service teachers felt they were a distraction to the children, b) the pre-service teachers were not able to discuss the observation with the instructor, c) the classroom was crowded with the addition of the pre-service teachers to the classroom, and, d) transportation was difficult with a tight time schedule to get back for their next class. In the next section, findings related to what the pre-service teachers reported they learned from each observation type are discussed.

Student Learning

During each observation type, the pre-service teachers completed a KWOL chart, a variation on the traditional KWL chart. Prior to each observation, the pre-service teachers were asked to record what they already knew and what they would like to know. During the observation, they were asked to jot down what they observed and immediately following the observation, they were asked to write down what they learned. Additionally, they were asked in their reflective questionnaires, after each observation, what they felt that observation

had helped them learn about lesson planning and about teaching.

The findings discussed below suggest that it is not so much the type of observation that determines what the pre-service will observe and learn from the experience; rather, it is the pre-service teacher's developmental ability in "seeing" the classroom. This also suggests the importance of the role of the professor during observations to train the pre-service teachers in what they are seeing and how it connects to what they have learned in the university classroom.

During the first observation, which was a CD observation, the pre-service teachers focused nearly solely on the teacher, almost to the exclusion of what the students in the video were doing. They observed that the teacher used humor, the teacher was enthusiastic, the teacher stated the objective, the teacher moved around the room, the teacher had good control of his classroom, and the teacher used "props" (which they later in the semester correctly referred to as "visuals.") In the second observation, which was a videoconference, the pre-service teachers still noticed the teacher to a large degree, but also began noticing how the teacher interacted with the children. For example, the pre-service teachers noticed that the teacher involved the students, moved around the room, and used questioning. They also began to notice integration of curriculum and the phases of the lesson plan and could identify what part of the lesson was occurring. By the third observation, another CD, the pre-service teachers were identifying more specific components to the teaching process such as group activities, giving clear directions and expectations, and learning with active methods rather than using worksheets. In the fourth observation, another videoconference, the pre-service teachers continued to grow in the sophistication of viewing the classroom from a teacher's, rather than a student's, perspective as they noticed such things as the use of examples and models, smooth transitions, and, again, the use of questioning and clear directions. By the face to face observation, they were more clearly focused on the children in the classroom, rather than so intently focused on only the teacher. The pre-service teachers began mentioning the students who looked bored or who were not on task or those who were interested and attentive. They also mentioned the interaction between the teacher and the students.

Interaction of Observation Types

As can be seen so far in these findings, the difficulties of one observation type are often the strengths of another. For example, the technical difficulties that may exist with a videoconference are offset by the medium's ability to provide access to an experience of which the pre-service teachers may not have otherwise had physical access. The ability for an instructor to guide his or her students' observation is limited in a traditional face-to-face setting, but the students are experiencing the realities of a classroom in a real classroom without the technical difficulties of computers and videoconferencing equipment. Therefore, the findings suggest that the interaction of the three types may provide a more complete preparation for field experiences.

In addition to their reflective questionnaires and KWOL charts, each pre-service teacher completed a survey which asked them to rate the perceived helpfulness of each type of observation in helping them understand about the concepts presented in class and about teaching. The students responded to a five-point Likert scale with one being not helpful at all to five being extremely helpful. Finally, the pre-service teachers were asked to think about the observations overall and rate how helpful they were in helping them connect the concepts and theory they were learning in the university classroom to their practical application in the public school classroom. The results are displayed in Table 1.

Table 1.

Learning Outcomes via Observation Type

Learning Outcome	CD Observation	Videoconference Observation	Face to Face Observation	Overall
Course Concepts	3.74	4.06	4.68	
Teaching	3.61	3.93	4.81	
Theory to Practice				4.78

Within each data source used in this research, the pre-service teachers consistently commented they learned concepts and theories through our discussions of the CD-ROM and videoconference observations and that these observations and ensuing discussions are what made their face-to-face observations more meaningful. For example, one pre-service teacher stated, "I probably would not have even noticed the things I noticed when I saw the classroom teacher teaching, but you had told us when we watched the video to notice how the teacher was teaching by asking a lot of questions instead of just telling the kids stuff and so then I noticed it when the teacher did it."

It also appears by looking at this chart that as contact with a "live" experience goes up, so does the perceived learning outcomes. On the survey, the pre-service teachers rated the face-to-face observations as most helpful in helping them learn course content and teaching strategies. Likewise,

when asked in the student focus group which observation they found most helpful in helping them learn about course content and teaching, 100% of the pre-service teachers stated the face-to-face observations were the most helpful. However, analysis of the KWOL charts and reflective summaries revealed a different picture. The pre-service teachers did not have strong face-to-face observations this particular semester. During the first face-to-face observation, the teachers forgot the pre-service teachers were even coming, so all the pre-service teachers saw was the children watching a video for a reward. They even commented on their KWOL charts and reflective questionnaires that they really did not get to see much, yet, in the end, they felt their face-to-face experience to be the most helpful.

Summary

One thing important to remember in interpreting these results is the dual role of the researcher/instructor. These observations were structured in such a way as to enhance and support the instruction occurring in the university classroom. While the pre-service teachers were learning the parts of a direct instruction lesson and how to write a lesson plan, the first CD was viewed in which the focus of the CD was a direct instruction model. Again, when the pre-service teachers were learning about integrating standards from the curriculum, the instructor arranged a videoconference that provided the pre-service teachers the opportunity to see an integrated lesson. This type of supportive arrangement continued throughout the duration of the observations. Therefore, the pre-service teachers were likely to notice what had been emphasized in the classroom instruction. The strength of these observations seems to come from the fact that when pre-service teachers see "real" teachers using the strategies they have learned about in the university classroom, it not only makes an abstract concept concrete for them, it also serves as validation that what they are learning in the university classroom really does happen in practice. In the findings, the researchers did notice a trend for the pre-service teachers to "validate" the university experience through their experiences with the classrooms and teachers involved in the observations.

These findings extend the research conducted by Author(s), Hult and Edens (2001), and Pape and McIntyre (1993) on the role of field experiences in teacher education programs by supporting the notion of guiding the pre-service teachers in their preparation for observations in the public school classroom. The findings from this research suggest that guided observation is an effective way to prepare for, as well as to enhance and support, traditional face-to-face observations. Moreover, this research illustrates the importance of the guidance of the professor during these early observation experiences in schools and how these experiences shape and guide the development of the teacher. Finally, this research extends the literature on alternative opportunities for field experiences and the role such advanced technologies may play in supporting and enhancing our work in the education of teachers.

In considering the use of IVC and or CD-ROM videos as additional opportunities for observation, a basic concern, as with the development of any type of technology as a tool for teacher education, is that the efforts to use technology should be based in the needs of learning rather than on the powers of the technology (Talley & Martinez, 1998). Sarason (1984) notes that, ". . . everything possible is not desirable. And desirability is not justified by technological possibilities; it requires independent, non-technological bases to provide good reasons" (p. 112). This study investigated one way that technology truly can support the needs of education and the learner rather than the other way around.

References

Alvarez, H. K. (2007). The impact of teacher preparation on response to student aggression in the classroom. *Teaching and Teacher Education, 23*, 1113-1126.

Bolam, R. (1990). Recent developments in England and Wales. In B. Joyce (Ed.*), Changing school culture through staff development: The 1990 ASCD yearbook* (pp. 147-67). Alexandria, VA: Association for Supervision and Curriculum Development.

Borko, H., & Putnam, R. T. (1996). Learning to teach. In D.C. Berliner & R.C. Calfee (Eds.), *Handbook of educational psychology* (pp. 673-708). New York: Simon and Schuster Macmillan.

Burke, P. J. (1987, April). *The teacher career cycle: Model development research report.* Paper presented at the American Educational Research Association, Washington, D.C.

Davis, Davis, M. D., & Zaret, E. (1984). Needed in teacher education: A developmental model for evaluation of teachers, pre-service to in-service. *Journal of Teacher Education, 35*(5), 14-18.

Feiman-Nemser, S. (1983). Learning to teach. In L. Shulman & G. Sykes (Eds.), *Handbook of teaching and policy.* New York: Longman.

Fessler, R., & Christenson, J. (1992). *The teacher career cycle: Understanding and guiding the professional development of teachers*. Boston: Allyn & Bacon.

Glaser, B. G., & Straus, A. L. (1967). *The discovery of grounded theory*. Chicago: Aldine Harrington, H. (1996). *Learning from cases*. Paper presented at the annual meeting of the American Educational Research Association, New York.

Harris, R. C., Beaudin, L., & Baker, D. (2000). *The Larry Beaudin Case: A Video Ethnography of Teaching in a Fourth Grade Writing Workshop Lesson* (Version 2.5.3) [Computer Software]. Provo, Utah: Harris Video Cases.

Harris, R.C., Hunt, P., & Baker, D. (2000). *The Peggy Hunt Case: A Video Ethnography of* Teaching in a 2nd, 3rd, and 4th Multigrade Science Lesson [Computer Software]. Provo, Utah: Harris Video Cases.

Huberman, M. (1993). Burnout in teaching careers. *European Education, 25*(3), 47-69.

Hult, R.E., & Edens, K.M. (2001). Videconferencing: Linking university and public school classroom experiences. Paper presented at the annual meeting of the American Educational Research Association, Seattle, WA.

McDevitt, M. (1996). A virtual view: Classroom observations at a distance. *Journal of Teacher Education, 47*(3), 191-195.

Merriam, S. B. (1998). *Qualitative research and case study applications in education.* San Francisco: Jossey-Bass.

National Center for Research on Teacher Learning. (1991). *An agenda for research on teacher learning.* Washington. D. C.: Office of Educational Research and Improvement.

Pape, S., & McIntyre, J. (1993). *Student reactions to using video cases for evaluation of early field experiences.* Paper presented at the Summer Workshop of the Association of Teacher Educators, Pittsburgh, PA.

Putnam, R. T., & Borko, H. (2000). What do new views of knowledge and thinking have to say about research on teacher learning? *Educational Researcher, 29*(1), 4-15.

Richardson, V. (1996). The role of attitude and beliefs in learning to teach. In J. Sikula (Ed.), *Handbook of research on teacher education* (pp. 102-119). New York: Macmillan.

Sarason, S. B. (1984). If it can be studied or developed, should it be? *American Psychologist, 39*, 477-485.

Shulman, L. S. (1992). Toward a pedagogy of cases. In Shulman (Ed.), *Case methods in teacher education* (pp.1-30). New York: Teachers College Press.

Sudzina, M. R. (1999). *Case study applications for teacher education: Cases of teaching and learning in the content areas.* Needham Heights, MA: Allyn & Bacon.

Talley, S., & Martinez, D. (1998, March). *Tools for schools: School reform models supported by the National Institute on the Education of At-Risk Students* (Publication No. AR-98-7101). Department of Education/Office of Educational Research and Improvement. 135 pp. [Online] Available: ERIC Document ED 418174

Wilcox, J.R. (2000). *Videoconferencing: The Whole Picture*. Penguin Books.

Appendix A

Reflective Questionnaire

1. How did watching this teacher help you understand more about planning lessons? What was clarified?
2. How did watching this teacher help you understand more about teaching in general? What was clarified?
3. State at least one question you are left with about lesson planning.
4. State at least one question you are left with about teaching.
5. What were the advantages of using videoconferencing equipment to observe a classroom?
6. What were the disadvantages of using the videoconferencing equipment to observe?

Appendix B

Survey

On a scale of 1 to 5, please rate your opinion of the following:
1= not helpful at all 2= not very helpful 3=somewhat helpful 4= very helpful 5= extremely helpful

CD Observations
1. How helpful were the CDs in helping you understand the concepts presented in class?
2. How helpful were the CDs in helping you understand the complexities of teaching and of being a teacher?

Videoconference Observations
3. How helpful were the Polycom observations in helping you understand the concepts presented in class?
4. How helpful were the Polycom observations in helping you understand the complexities of teaching and of being a teacher?

Face-to-Face Observations
5. How helpful were the face-to-face observations in helping you understand the concepts discussed in class?
6. How helpful were the face-to-face observations in helping you understand the complexities of teaching and of being a teacher?

Course
7. How helpful overall was this class in helping you understand the concepts involved in designing lessons?
8. How helpful overall was this class in helping you understand about the field of teaching and about being a teacher?
9. How helpful do you feel the observations in this class were in helping you connect the theory and concepts you learned about in class to the practice of teaching?

Appendix C

Interview Guide for Focus Group

1. Thinking about the various types of observations we experienced this semester, which type did you find most helpful? Why?
2. What did you consider to be the advantages of each type of observation?
3. What did you consider to be the disadvantages of each type of observation?
4. What did you learn from the observations this semester about lesson planning?
5. What did you learn from the observations this semester about teaching?
6. How did the observations help prepare you for your practicum experience? Were there times when you were teaching that you thought about something you observed and used that to guide your actions? If so, what were they?
7. Would you leave out any of the forms of observation? If so, which one and why?
8. How did all the observations work together to help you understand more about lesson planning and teaching? Did they support and enhance one another? If so, how?

2009 Article Citation
Greene, H. C. (2009, May). Multimedia Observations: Examining the Roles and Learning Outcomes of Traditional, CD-ROM Based, and Videoconference Observations in Pre-service Teacher Education. *Current Issues in Education* [On-line], *11*(3). Available: http://cie.ed.asu.edu/volume11/number3/

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2015 Article Citation
Greene, H. C. (2009). Multimedia observations: Examining the roles and learning outcomes of traditional, CD-ROM based, and videoconference observations in pre-service teacher education . *Current Issues in Education*, *11*(3). Retrieved from http://cie.asu.edu/ojs/index.php/cieatasu/article/view/1574

Current Issues in Education
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