REFLECTIVE THINKING BY TEACHERS AND

IMPROVEMENT IN TEACHING PRACTICES

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PRACTICES

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CHAPTER I

Introduction

Reflective thinking in any field is essential for improvement in practice. In work settings, reflection is increasingly seen as an essential factor in organizational learning, learning in the workplace, and competence improvement (Dohn, 2011). Reflection involves many complex skills. For every teacher, a learning environment where students are engaged is most important for encouraging reflective thinking. Flexibility is also a crucial attribute (Danielson, 1996, Koszalka, Song, & Grabowski, 2012).

Zeichner (1993) wrote, "From the perspective of the individual teacher, it means that the process of understanding and improving one's own teaching must start from reflection on one's own experience" (p.8). Bright (1996) stated, "It can be argued that reflective practice . . . is the process which underlies all forms of high professional competence" (p.166). Being reflective can become meaningful if the understanding that is gained from reflection is used to affect change (Adam, 2002). Individuals must critically question their own beliefs. If the component of reflection is not a part of the questioning, beliefs, may continue to be biased, or encapsulated in stereotypes, or misperceptions (Ash and Clayton, 2004). The concept of reflective teacher stands out as central to individual professional thinking and the change of a school . . . (Pereira, 2011).

Dewey (1991) believed when individuals reflected upon their beliefs they either accepted them blindly or they examined, altered, and then accepted them as their own.

Blind acceptance creates bias which serves prejudice. Examination leads to reflective thought. Careful consideration that incorporates conclusions constitutes reflective thought (Dewey, 1991).

A state of questioning can instigate reflective thinking. The questioning can become an action that investigates a suggested belief (Dewey, 1991). This increases uncertainty. Increased uncertainty causes increased activity within the senses. The senses then can work to meet the challenge of the uncertainty. Effort occurs attempting to affirm the thoughts surrounding the doubt. This kind of reflective thought leads to asking questions for clarity. Seeking answers to the questions can lead to possible solutions that guide the process of reflective thought to begin again (Dewey, 1991).

Researchers over the past decade have conducted studies to determine whether teachers reflect upon their teaching (Norlander-Case, Reagan, & Case, 1999). Darling-Hammond (2000) found that teachers who engage in reflective practice and clearly understand their purpose have the means to improve the quality of their teaching. Teacher educators are learning that when they conduct research regarding self-study in their own courses, the modeling yields improvements in their work which can be incorporated into the work of their students, future teachers (Zeichner, 2005). Self-study that is disciplined, with systematic values of professional learning, working to develop and better articulate knowledge of practice is quality study (Loughran, 2007).

Sprinthall and Thies-Sprinthall (1983) proposed five essential conditions needed for adults to develop reflective thinking. These conditions are roletaking, reflection, balance, continuity, and support.

Roletaking is the experience of teacher candidates in the real world participating in student teaching. Roletaking is different from roleplaying in that candidates work with students in a classroom rather than peers pretending to be students. Roletaking occurs before reflection and frames a candidate's reflection (Sprinthall and Thies-Sprinthall 1983).

The second condition is reflection, which refers to the ability to make an impression upon the cognitive-structural level of the adult learner (Sprinthall and Thies-Sprinthall, 1983).   Guided reflective discourse makes demands upon teacher consciousness about the process of learning (Reiman, 1999).

The third condition is balance. If teacher candidates participate in roletaking without taking the time to reflect, little may be gained. Likewise, if teacher candidates reflect but do not take the opportunity to resume the role of teacher in the classroom little may be gained (Sprinthall and Thies-Sprinthall, 1983).

The fourth condition is continuity. Teacher candidates participate in roletaking and reflect upon the actions that occurred during the roleplaying. Within a short period of time candidates may assume the role of teachers acting upon their reflections. The growth process may be delayed if too much time lapses between roletaking and reflection (Sprinthall and Thies-Sprinthall, 1983).

Support is the fifth condition. Support is the care that instructors exhibit to and about their connections with students. The amount of support is dependent upon student cognitive-developmental growth patterns (Sprinthall and Thies-Sprinthall, 1983).   In teacher preparation, beginning teachers are supported as they engage in a process which asks them to examine their own values and beliefs and to integrate these with knowledge

of theory research, and ethical guidelines. They are then to apply the best technical skills and create a classroom solution to meet the learning needs of individual learners or groups of learners (Campay, 2012). Reflective practice must be incorporated with passion and foresight if critical thinking is to be obtained.

Teachers must be encouraged and supported to contemplate the connection between theory and practice (Smith & Lennon, 2011).

If these conditions are not present, reflective thinking may be hindered (Sprinthall and Thies-Sprinthall, 1983). Brabeck (1984) proposed that reflective thinking was a developmental stage reached through life experiences. Zeichner and Liston (1996) proposed that reflective thinking could be taught. Allen (1998) believed that reflective thinking was developed through thoroughness of recall and experience. Choy and Oo (2012) studied reflective thinking and how it stimulated critical thinking. They found that teachers may not know how to teach critical thinking effectively because teachers did not reflect deeply upon their teaching practices and practiced critical thinking minimally. From this research, a debate has arisen over whether teachers can learn the reflective thinking process by themselves or whether it spontaneously occurs through life experiences.

For this study, a total of 43 elementary and 29 secondary teachers participated. The participants included ten special education teachers, two English Language Learner teachers, eight national board certified teachers, one alternative teacher, and 51 content area teachers. Content area teachers taught either reading, English, math, science, social studies, music, art, or foreign languages. Teaching experience of the 72 elementary and secondary teachers ranged from one through 33 years.

Statement of the Problem

The problem that gives rise to this study is a shortage of evidence about the connections between teachers' reflections to teachers' practice. Novice teachers have demonstrated an inability to answer questions regarding what happened in a teaching and learning event (Eisner, 1991, Loughran, 1995 and Allen, 1998). Empirical data has demonstrated that novice through master teachers have shown low levels of reflective thinking. Low levels of reflective thinking can be attributed to a lack of understanding about their own strengths and weaknesses as teachers (Van Manen, 1977).

Lack of understanding about strengths and weaknesses can limit teachers' ability to improve their teaching practices. There is a need for studies that further explain teachers' reflective thinking through self evaluation so that recommendations regarding teaching practices can be made.

Purpose of the Study

The purpose of this study was to investigate the connection of teachers' reflections and teachers' practice through self evaluation via video recorded lessons.

Hypotheses

Seven hypotheses were generated to investigate differences among four interventions. A pre-opinionnaire was given before interventions were introduced and before video recording had occurred. In Intervention One there was an absence of an advance organizer being read before video recording a lesson and an absence of a review

and discussion of the video recorded lesson with the principal. In Intervention Two an advance organizer was read before video recording a lesson. In Intervention Three a review and discussion of the video recorded lesson with the principal occurred after the video recorded lesson. In Intervention Four an advance organizer was read before video recording a lesson and a review and discussion of the video recorded lesson with the principal occurred after the video recorded lesson. A post-opinionniare was given after all interventions and video recordings occurred.

The four intervention options are the following:

Intervention One = NI (had no intervention, there was an absence of an advance organizer before video recording a lesson and an absence of a review and discussion with the principal after the video recorded lesson occurred.)

Intervention Two = AO (had an advance organizer before video recording a lesson)

Intervention Three = PD (had a review and discussion with the principal after the video recorded lesson)

Intervention Four = AO + PD (had an advance organizer before video recording a lesson and had a review and discussion with the principal after the video recorded lesson)

$H_{0\ 1}$: There will be no difference in the combined pre perceptions of teachers' reflective thinking and the combined post perceptions of teachers' reflective thinking as measured on the opinionnaire at each level of intervention.

$H_{0\ 2}$: There will be no difference in the perceptions of teachers' reflective thinking between Intervention One (NI) and Intervention Two (AO).

$H_{0\ 3}$: There will be no difference in the perceptions of teachers' reflective thinking between Intervention One (NI) and Intervention Three (PD).

$H_{0\,4}$: There will be no difference in the perceptions of teachers' reflective thinking between Intervention One (NI) and Intervention Four (AO + PD).

$H_{0\,5}$: There will no difference in the perceptions of teachers' reflective thinking between Intervention Two (AO) and Intervention Three (PD).

$H_{0\,6}$: There will be no difference in the perceptions of teachers' reflective thinking between Intervention Two (AO) and Intervention Four (AO + PD).

$H_{0\,7}$: There will be no difference in the perceptions of teachers' reflective thinking between Intervention Three (PD) and Intervention Four (AO + PD).

Limitations

Limitations of the study can affect the interpretations of the data results and the generalizations that could be made from the study. Limitations consider the errors in the design of a study, such as problems in regard to methods of sampling, imprecise measurements, or misjudgment. Limitations also include restrictions over which the researcher had no control (Rudestam and Newton, 2001).

Limitations of the study include the following:

1. The study was restricted to a relatively homogeneous group of teachers in one rural school district in Oklahoma.

2. A purposive selection of volunteer teacher participation was used rather than a random selection because random selection was not available. The school district superintendent would allow the school district to participate in the study only if the teachers could volunteer to participate.

3. The participants were unpaid as they are in some studies.

4. The pre- and post-opinionniares were based on two self-evaluations completed by four groups of 18 teachers, (N=72). Four interventions were introduced to investigate the differences between all of the interventions. The interventions occurred between the pre- and post- opinionnaires.

Assumptions

1. Participants answered the pre- and post-opinionnaires within their abilities.

2. Participants who were given the advance organizer to read also gave thought to the five questions contained within the advance organizer.

Definition of Terms

Following are the definitions of the terms used in the study:

1. Advance organizer – is five questions regarding teaching which were read and thought about by teachers but were not answered in written form. These questions directed the teachers' thoughts toward reflection before the video recording of a lesson (Ausubel, 1968).

2. Openmindedness **-** is the willingness to hear all sides nonjudgmentally (Zeichner and Liston, 1996).

3. Principal review and discussion – is the principal of the school site, who is given direct supervision over the teachers, reviewing and discussing the instruction of each teacher as demonstrated in their video recorded lesson.

3. Reflection-in-action **-** is teachers thinking about their teaching as it unfolds in the classroom (Schön, 1983).

4. Reflection-on-action - is teachers thinking on their teaching before or after the teaching occurred in the classroom (Schön, 1983).

5. Reflective thinking – is teachers using a multitude of different ways in which specific things they observed, remembered, heard of, or read about evoke suggestions that are pertinent to an occasion and serve to benefit the person engaged in the reflective thinking by making them alert students of education (Dewey, 1933, 1991).

6. Responsibility – is acceptance of short and long term consequences of all actions (Zeichner and Liston, 1996).

7. Wholeheartedness – is full, unconditional engagement as it applies to students (Zeichner and Liston, 1996).

Organization of the Study

Chapter One introduced the notion of reflective thinking, stated the problem to be studied, and the purpose of the study. Seven hypotheses were identified and outlined. The limitations, assumptions, and definition of terms were stated. Chapter Two is a review of the literature relating to adult development for action and reflection and reflective thinking as well as research regarding the use of advance organizers, video recording lessons, and principal review and discussion of teaching. The research design and methodology comprise Chapter Three. Chapter Four presents the analysis of the data collected during the research. Chapter Five includes the summary, conclusions, and recommendations for practice and research.

CHAPTER II

Review of Literature

Introduction

This chapter reviews literature about adult development for reflective thinking. The conditions for adult development as espoused by reflective thinking theory (Sprinthall & Thies-Sprinthall, 1983) provided the framework for the study. The five conditions for adult development for action and reflective thinking are roletaking, reflection, balance, continuity, and support (Sprinthall & Thies-Sprinthall, 1983). Reflection is the second condition and is reviewed at the beginning of the chapter. Zeichner and Liston (1996) identified three concepts, open-mindedness, responsibility, and wholeheartedness, from Dewey's (1991) studies about reflective thinking. These concepts comprise the foundation for the opinionnaire. The chapter reviews Schön's (1983) work about reflection-on-action and reflection-in-action that extends Dewey's work on reflective thinking as well as other scholars' research and definitions of reflective thinking.

The chapter also reviews various research techniques for self-evaluation such as the Seven Steps of Self-Assessment by Bailey (1981). Video recording teaching is another technique allowing teachers to repeatedly review their teaching. The next technique is using an advance organizer which is introducing material before a lesson is taught. Principals' participating in review and discussions with teachers, as they also supervise them, concludes the chapter.

Adult Development

The five conditions needed for adult development for action and reflection are roletaking, reflection, balance, continuity, and support (Sprinthall & Thies-Sprinthall, 1983). Being the teacher in a classroom meets the first condition of adult development, roletaking. Teaching provides the opportunity for experiences leading to the second condition, reflective thinking. In roletaking, reflection occurs as thoughts of an experience affect adults' cognitive thinking. Thoughts of an experience create the need for the third condition of adult development, balance. Balance must be maintained between roletaking and reflection; as each may be less effective if the other does not occur. Continuity is an iterative culmination of roletaking and action. Roletaking with reflective thinking causes an action, which incites more roletaking, and creates reflection. The fifth condition of adult development for action and reflection is support. Instructional leaders provide support as they assess and respond to the developmental level of the adult and the capacity for growth (Sprinthall & Thies-Sprinthall, 1983).

Reflective Thinking

Reflective thinking is the arrangement of understandable thoughts. These thoughts become what one believes or does not believe. They are often influenced by experiences (Dewey, 1991). An awareness of what is known and what is needed are essential to bridging the gap between learning situations (Sezer, 2008).

Components of reflective thinking are perplexity and inquiry. Perplexity is uncertainty about something difficult to understand which then challenges the mind and

signals a change in thoughts and beliefs (Dewey, 1991). Inquiry is exploring information which could lead thoughts in a particular direction. By allowing perplexity and inquiry to occur at the same time, a needed behavior change may be revealed. If reflection is minimized while dealing with the behavior, little change can be expected. Conversely, if reflective thinking is a habit, it offers a chance for possible behavior changes (Dewey, 1991). Thinking reflectively and changing behavior becomes a way of dealing with practical problems (Hatton & Smith, 1995). Teachers responding to their own prompts from their own teaching in the context of specific characteristics and concepts will be working to represent effective teaching practices (Gordinier, Moberly, & Conway, 2004).

Reflective thought brings two challenges. First, teachers must be observers of all that concerns the students in their classrooms. They must know all of the conditions that could make things better or worse for the students as well as the consequences of those conditions. Second, teachers must also know about the school organization and about the atmosphere surrounding a child's learning (Dewey, 1991).

In schools, observation is viewed as a process to discover what is not presently known regarding a student's learning. The observer can use many approaches, to include new and different ways of seeing situations, as well as familiar ways of observing. Observation reveals what needs to be obtained (Dewey, 1991). Tremmel (1993) referred to this observation as Zen-like mindfulness or awareness. Zen Buddhist teaching of mindfulness involves the ability of the individual to be fully attentive to the present and to concentrate fully on oneself (Tremmel, 1993).

Continuous reflective thinking practices can improve teaching and possibly provide potential for improvement and change. Reflection suggests that the process of learning to

teach continues throughout teachers' careers. No matter how good teacher education programs are, they may only prepare teachers to begin to teach. The heart of reflective thinking is cultivated when teachers take the responsibility to always reflect on their teaching (Zeichner & Liston, 1996). Becoming more aware of how to make appropriate instructional decisions through reflective thinking, begins to assist the process in becoming an automatic practice. The automaticity then becomes natural, purposeful; a disposition. The effectiveness of such a strategy must be modeled, nurtured, and explicitly taught in the classrooms for future teachers (Gordinier, Moberly, & Conway, 2004).

Teachers must be able to justify their decisions and actions in the classroom (Norlander-Case, Reagan, & Case, 1999). The process of thinking that transpires becomes reflection. If beginning teachers are taught to understand and apply their own epistemologies in preservice experiences, they can in turn develop higher empathetic and critical reasoning (Langone, 2008). When teaching in the classroom goes well, teachers critically reflect on how they might have affected student's learning. When teachers do not get the desired results in the classroom, they critically reflect by asking themselves what needs to be different (Norlander-Case, Reagan, & Case, 1999).

Openmindedness, Responsibility, and Wholeheartedness

Nonreflective teachers often choose to accept others' attitudes and ideas rather than reflect for themselves. Reflection is not only about following steps; it involves emotion and passion. Those who teach will grow to understand that teaching requires not only reflecting on their knowledge and expertise of skills, but also includes passion. In regard

to this passion, Dewey wrote to the following concepts: openmindedness, responsibility, and wholeheartedness (Dewey, 1991).

Openmindedness requires a willingness to listen to all sides involved, to give equal respect to each side presented, and to work toward understanding even if someone disagrees. Teachers who embrace openmindedness search for evidence of what may be painful to face. Openminded teachers ask themselves why they do what they do (Zeichner & Liston, 1996).

Responsibility is accepting the consequences of one's actions. Teachers who are being accountable think about such personal consequences: the effect on students' lives and self esteem, academic consequences, political and social consequences, and impact on the community (Zeichner & Liston, 1996).

Teachers possessing wholeheartedness routinely question themselves about their own thoughts, actions, and attitudes. They strive always to learn how to understand their teaching. They desire to improve and to know how teaching impacts students and their lives (Zeichner & Liston, 1996).

Openmindedness, responsibility, and wholeheartedness when coupled with good skills in observation, inquiry, and analysis can make for a reflective teacher. These skills show a teacher's sincere commitment to their students and their own education. These skills do not mean reflective teachers are without flaws. When either they or their students or they make mistakes, teachers recognize the mistakes, make amends, and move forward. They judge neither their students nor themselves unfairly or harshly (Zeichner & Liston, 1996).

Schön's Concepts

Schön (1983) stated that reflective thinking refers to two frames of time. One is reflection-on-action and the other is reflection-in-action. Reflection-on-action defines reflection as occurring before or after an action. It is thinking about a lesson before it is taught, wondering about the expected results, and then thinking again about the lesson after it was taught. There is also evaluation of what went well or could have improved. Reflection that happened during the lesson as it was being taught is reflection-in-action. Reflection-in-action is thinking about what is being taught as it is being taught and becoming conscious of the whole of the situation and what should happen in that moment for maximum success for all students. Reflective practitioners engage in both kinds of reflection. Schön believed that teachers possess tacit knowledge that they often do not express. They use their understanding and judgments without thinking about them as they are teaching. They do not know where they learned this knowledge, but it is readily available to them (Schön, 1983).

Interpreting Schön's work about reflection-on-action and reflection-in-action, Killion and Todnem (1991) found it important to build upon Schön's concepts and add the notion of reflection-for-action. This reflection considers the outcomes desired from reflection-in-action and reflection-on-action. Norlander-Case, Reagan, and Case (1999), stated that reflection-for-action means thinking of outcomes to place into action for future teaching. These three reflection categories will grow within the novice teacher as they gain experience.

Schön's (1987) reflection-in-action, engages professionals to do the necessary work to transform their practice. Reflective practice reminds teachers that the roots of teaching

are in service to people, not systems. This practice could be involve renewal, reclamation and change, and invites participation (Smyth, 1989).

Gaining Experience in Reflective Thinking

As a means of gaining experience in reflection, Putnam and Borko (2004) suggested that teachers' actions and thinking may evolve into familiar routines and become restrictive. They argued that teachers may find value in taking an interpretive stance when analyzing classroom events.   Analysis such as looking at a teaching situation to understand what happened, what students thought about the subject matter, or how a teacher influenced student thinking can enhance interpretation.

Interpretation opposes a simple, surface evaluation of a situation.   By providing experiences that allow teachers to examine teaching and learning, they can be afforded opportunities such as participating in video recording analysis versus video recording viewing. Watson and Wilcox (2000) asserted that all teachers can benefit from research findings that suggest they adopt a self-reflective understanding. Teacher educators can model the process of reflective thinking by "thinking aloud" with their students, review what was effective and not effective, ask students to individually reflect upon what they observed and learned. They can then relay their learning to the instructor in a structural reflective log. Another class discussion takes place after information is gathered from the structural reflective logs (Gordinier, Moberly, & Conway, 2004).

A level of collaboration and professionalism provides an environment allowing for teachers to reexamine how to work toward being reflective thinkers. They can begin to create the knowledge of how to perform in the profession as an individual thinker and

collectively (Pereira, 2011). Even though classroom settings mostly are dominated by the technical factors of instruction often seeking the simplest approach to change, teacher educators working to stay committed to reflection could be one means of fostering teacher growth and improvement (Larrivee, 2008).

Definitions of Reflective Thinking

Scholars have offered many definitions of reflective thinking. These varied definitions represent an ongoing effort to arrive at a consensus about reflective thinking. They have been compiled by Taggart and Wilson (1998):

1. Dewey (1933, p.9) [Reflective thinking is] active, persistent, and careful consideration of a belief or supposed form of knowledge in the light of the grounds that support it and the further conclusions to which it tends.

2. Schön (1983, p.151) It [the cycle of inquiry] is initiated by the perception of something troubling or promising, and it is determined by the production of changes one finds on the whole satisfactory or by the discovery of new features which give the situation new meaning and change the nature of questions to be explored.

3. Ross and Hannay (1986), [Reflective thinking is] a process involving decision-making in a socio-political context, identification of problems, a search for satisfactory answers, and an investigation of social problems realized in living.

4. Ross (1989, p. 22) [Reflective thinking is] a way of thinking about educational matters that involves the ability to make rational choices and to assume responsibility for those choices.

5. Bigge and Shermis (1992) Reflective learning is problem raising and problem solving. Fact-gathering is combined with deductive processes to construct, elaborate and test hypothesis.

6. Lasley (1992, p. 24) Reflection . . . refers to the capacity of a teacher to think creatively, imaginatively and at times, self-critically about classroom practice.

7. Norton (1994, p. 139) [Reflective thinking is] a discipline inquiry into the motives, methods, materials, and consequences of educational practice. It enables practitioners to thoughtfully examine conditions and attitudes which impede or enhance student achievement.

8. Brubacher, Case, and Reagan (1994, p. 9) [Reflective thinking is] our attempts to understand and make sense of the world.

Self-Evaluation through Reflective Thinking

 Levin (1979) defined self-evaluation as teachers reflecting upon their own teaching, causing them to improve their instruction through modifications. Darling-Hammond (1997) identified what is required of teachers to be effective: knowing the subject matter, possessing knowledge of both pedagogy and child development, understanding differences among students, understanding motivation, knowing about learning processes, and demonstrating a command of teaching strategies. Teachers must also know about collaboration, analysis, reflection, curriculum resources and technologies to assess the affect of their teaching, and the refinement needed to improve their instruction.

Teachers must hold two questions in their thoughts at all times: (1) How am I moving the students toward high levels of understanding and proficient performance?

And (2) How am I taking into account what students know and care about as I move them toward curriculum goals and facilitate the growth of their talents and social abilities? Teachers must continually assess what students are thinking and understanding so they might modify their teaching approaches, and thereby use what they have discovered to improve their professional practice (Darling-Hammond, 1997).

The reflection posed in these two questions is a part of the self-examination process. The purpose is to become aware of personal classroom teaching effectiveness, to learn how to manage classroom instructional behaviors, and to become self-directed in instructional improvement activities. Self-improvement occurs when a teacher acquires competencies that allow intelligent decision-making about personal classroom teaching (Darling-Hammond, 1997).

Beginning in the 1970s, researchers were reviewing teachers' use of self-evaluation. Balzer, Evans, and Blosser (1973) reviewed the research about teacher behavior and found that teachers' attitudes toward self-evaluation ranged from neutral to slightly favorable. No evidence existed for self-assessment among teachers. They found that teachers have not generally been prepared to assess their instructional performances. Classroom teachers' self-perception may well result from their lack of awareness. Wolf (1976) found that teachers have not been encouraged to evaluate their classroom behavior. Teachers have not been overly optimistic about self-assessment because of its strong association with evaluation practices (Bailey, 1981). Sezer (2008) found that teachers appeared to be more interested in maintaining their own self worth rather than use feedback from students as a means of improving their instruction implying there may not be as high a metacognitive awareness of their own strengths and weaknesses.

McNeil (1986) stated that as teachers increasingly came under pressure for quality control through standardized tests, they narrowed their responses to students. They could have ceased to share all of their knowledge and experience with students and possibly reduced their teaching to the lowest common denominator. Such teaching may call for personal and professional transformation beginning with reflection (Wellington, 1991). It has become essential that public school educators be prepared to critically and reflectively think in the political and cultural climate that reinforces that teachers must teach state mandated learning goals in order for students to pass state tests (Smith & Lennon, 2011).

When teachers begin to form ideas and concepts from their craft, they can develop a consciousness of teaching. It could involve having the capacity for deep self-satisfaction at something well done, the shame at work done slovenly, or possibly even embarrassment at carelessness (Norlander-Case, Reagan, & Case, 1999).

Minott (2011) revealed after teacher candidates participated in a course teaching reflective teaching that positive effects were found in aiding in the development of reflective thinking. Teacher candidates learned what reflective thinking was, how to develop self awareness, question dispositions, and that reflection could be applied to their out-of-the classroom life. Further, they realized they needed to continue to learn about affective, professional skills, like how to control certain emotions, consistency, and how to prioritize among others.

Studies about Reflective Thinking

Reflective thinking involves questions that describe and inform, (Smyth, 1989), confront and reconstruct (Argyris & Schon, 1974). When these questions work together the results can lead to professional transformation. These questions can insist upon answers. For describing, the questions center on "What do I do?" For informing, the questions are about "What does this mean?" (Smyth, 1989). For confronting, the questions focus on "How did I come to be this way?" For reconstructing, the questions relate to "How might I do things differently?"(Argyris & Schon, 1974).

In his study about higher order thinking, Newmann (1991) compared outstanding teachers with their less successful colleagues. Twenty social studies teachers were selected out of a pool of 48 teachers from 16 different secondary schools. Ten of the 20 teachers were identified as outstanding and the remaining 10 as less than outstanding. This determination was made through observations of six dimensions of instructional practice designed to promote the thinking of students. A correlation was found between teachers' goals and perspectives and the climate of thoughtfulness perceived in their classrooms. Efforts to improve thinking that focused on instructional techniques and minimized opportunities for teacher reflection were unlikely to produce significant, long-term change. Newmann concluded that thoughtful classroom practices required thoughtful reflection-on-practice.

The Stanford Teacher Education Program, 1999-2000 (STEP), accepted 128 teachers into a twelve-month post-baccalaureate program, the California Professional Clear Single Subject Teaching Credential. This Crosscultural, Language, and Academic Development Certification or CLAD was a master of arts degree in education. It

involved taking 45 credits of graduate courses and working directly with university faculty, supervisors, and cooperating teachers. The participants were required to have previous classroom teaching experiences for at least one academic semester (Kunzman, 2003).

Extended practice of reflecting upon their teaching practices was a major part of this program. Seventy percent of the participants stated that it was only as they participated in the extended reflection that their personal weaknesses in teaching were revealed. These participants realized there was more to teaching than they knew. Furthermore, that the pressures of the job and the absence of time for reflection prevented them from noting those concerns at the time (Kunzman, 2003).

Twenty two percent found themselves in a situation that had hidden their weaknesses. Hidden weaknesses could have been due to the fact that their teaching experience had gone so smoothly that no problems were encountered. One participant shared the idea that the experience of teaching alone was not enough to sufficiently learn what needed to improve. It also took thought and action in the context of experiences to determine what should be valued in the learning process (Kunzman, 2003).

Whipp (2003) studied how to scaffold high levels of reflection through electronic discussions between intern teachers during field experiences. Intern teachers within urban schools compared students' email discussions for two semesters and video recorded their reflections about these discussions. The first semester revealed that higher levels of reflection were rare for the interns. After alterations were made and increased support was given to them, the analysis of the second semester showed higher levels of reflection.

New studies are emerging. After years of research through systematic studies of the neural basis of emotion, Davidson (2012) discovered six dimensions of Emotional Style. It is believed that these six dimensions have scientific validity and are traceable to events in the brain. This is of interest because two of the six dimensions are Self-Awareness Style and Attention Style. The other four dimensions are Resilience Style, Outlook Style, Social Intuition Style and Sensitivity to Context Style.

Davidson (2012) proposed that because of neuroplasticity, the brain has the ability to change its structure and function in significant ways. The brain can also change in response to messages generated internally---to our thoughts and intentions. Such change can alter the functions of brain regions and can strengthen and weaken connections between different regions. Therefore, since the brain can change in these fundamental ways, Emotional Style can change. Furthermore, self awareness and attention can change practically and effectively. Mental training can alter your brain activity and the very structure of your brain in a way that will change your Emotional Style and can improve your life.

Limitations of Reflective Thinking

Hatton and Smith (1995) conducted a research project in Sydney, Australia. They reviewed 16 research studies in a teacher pre-service program in which types of reflection were defined and then interpreted by students. Two of the studies were problem-centered but technical in their approach, four examined reflection at the program level, two engaged in action research, and the remainder used a variety of other studies including case studies and ethnographic studies. Problems were discovered with the definition of

reflection, with data gathering in reporting reflection, with cultural bias, and finally, with failing to include the problematic nature of schooling and necessary political concerns. This project focused upon the limitations and hindrances of studies about reflection (Hatton & Smith, 1995).

Schön's (1983) reflection-in-action has limitations primarily because it considers problem solving and does not consider the step-by-step analysis of the causes of a problem. Rather, Schön frames the dilemma of every practitioner of the profession choosing between what he labeled as high ground or low swampy land. The high ground, referred to the place where one can make the most effective use of research theory, techniques, and skills. The low swampy land, referred to a situation that Schön called messy because it did not follow research theory, but rather resulted in a non technical solution. When posed with the question, "What should the practitioner choose, the high ground or the low swampy land?" Schön (1983) would say, go to the swampy lowlands because there one can engage in all possibilities that can solve the problem.

Another concern of Schön's (1983) reflection-in-action theory is that the theory is too narrow because it focuses only upon the individual teacher. Focus regarding only the individual teacher implies a teacher reflecting in the classroom will cause immediate changes in students and in the teacher. Actions for change are not only about the classroom, but also about the school, the community, and the larger society (Liston & Zeichner, 1991).

I'anson, Rodrigues, and Wilson (2003) examined strategies that promoted reflection. They found reflection difficult to study due to its complex nature such as learning that an individual's values are deeply rooted within their reflections.

Additionally, there was a large range of development which was not fully captured within the term reflection. Lastly, approaches to the problem needed to be both analytical and intuitive.

Techniques for Self-Assessment

  Video Recording

 Bailey (1981) defined self-assessment as more than a method. It was called a comprehensive approach that included a philosophical attitude and strategies providing for total instructional improvement. For effective self-assessment, Bailey recognized seven steps called the Seven Steps of Self-Assessment, examining the myths associated with teacher self-assessment, developing a philosophical overview, using video recordings, identifying basic teaching skills and behaviors needing to be analyzed, identifying verbal cues, identifying nonverbal cues, planning and evaluating instructional behaviors, and using observation forms.

 Three effective behaviors are required for effective implementation of these seven self-assessment steps (Bailey, 1981). First, teachers must be aware of what they do both verbally and nonverbally in the classroom.   Next, they must identify and desire to improve the problem areas, note their strengths and maintain them, and practice new behaviors they have gained. Third, new behaviors gained should be continually evaluated to determine their effectiveness before the whole process starts anew.   The self-assessment steps were designed to be executed solely by the one implementing the steps.

According to Allen and Ryan, (1969), other techniques have been researched for self-assessment: microteaching, interpersonal process recall, and interaction analysis. Microteaching is teaching a small group within a larger classroom while observing specific teaching skills. It is based upon the premise that teaching can be analyzed and improved upon by focusing upon the important skills of teaching such as the introduction, presentation, questioning techniques, use of examples, and closure of the lesson.

Interpersonal process recall technique is video recording a lesson and having it critiqued by an expert while a trained facilitator observes. The facilitator contributes to the process by assisting the participants to beneficial self assessment (Kagan, 1975).

Interaction analysis is the counting of interactions that take place in a classroom. The interactions are associated with a scale with designated number values. A higher tally of interactions equates to more occurrences of interactions (Flanders, 1970).

Microteaching

Microteaching provides prospective teachers an avenue for practice and feedback on basic teaching skills. The setting should be controlled, a pseudo-setting for an entire classroom. It should be made safe for novice teachers to feel the freedom to experiment and experience criticism without fear and anxiety (Allen & Ryan, 1969).

Microteaching should be five- to ten- minute practice teaching sessions which are video recorded and reviewed by the student and several peers. After the playback, the participants discuss the skills demonstrated in the video recordings. They are asked to focus on the skills before they teach the lesson. The microteaching is repeated. The presenter or teacher candidate has an opportunity to change and improve upon the skills identified in the first video recording (Allen & Ryan, 1969).

The quality of the feedback is limited by the expertise of the participants. A supervisor with experience would focus upon critical issues while avoiding harsh confrontation. The effectiveness of this technique depends on clarity and agreement between both the participant and the observer. Microteaching can be a good technique for introducing teachers to the use of video recording as an effective means of self-assessment (Millman, 1981). Ideally the best setting for microteaching would include a split screen so the responses of both teacher and students could be monitored simultaneously (Millman & Darling-Hammond, 1990).

Potentially, microteaching can promote reflection. This strategy could enable a teacher to review their priorities, set attitudes, assumptions, and values. While microteaching may help to draw evidence, it does not offer guaranteed solutions. It may assist teachers in shifting from viewing a teaching situation from one's own lens to reviewing the situation through another set of eyes (I'anson, Rodrigues, & Wilson, 2003). Fernandez and Robinson (2006) found that microteaching lessons can be one source to help new teachers understand that theory and research about teaching and learning are important for their practice and could be a support throughout their life of learning.

Interpersonal Process Recall

Another technique used in the training of counselors, that has been applied to teacher preparation, is interpersonal process recall (Kagan, 1975). Interpersonal process recall involves video recording a teaching lesson. There are two participants, the teacher and a colleague of expertise. There is also a trained facilitator who participates in the playback sessions of the video recordings. With the primary role as an unbiased investigator, the facilitator questions but hesitates to judge, advise, direct, or contradict

the other participants. The emphasis is upon the reciprocal feedback between the teacher and a colleague of expertise. The facilitator must be skilled in identifying the areas of confrontation, keeping the focus of the session, and leading the teachers to self-discovery (Kagan, 1975).

According to Millman (1981), the purpose of the playback session is for the teachers to gain insight through sharing their recall of the feelings and thoughts they experienced while watching others. They also shared how the behaviors of others affected them. Video recorded playback can offer enumerable opportunities for self-assessment. Teachers may derive little insight by viewing their video recordings in isolation.

Interaction analysis

Insight can also be gained through interaction analysis, the counting and categorizing of interactions taking place in the classroom. This provides a vehicle for describing the types of activities that characterize one's teaching. An observer assigns behaviors to note in a video recording that correspond to one of the categories regarding an interaction analysis scale. The observer then tallies the behaviors seen and uses the sum to describe patterns of interaction that take place in the video recording. A larger number of tallies indicate numerous occurrences of the behavior (Flanders, 1970).

The technique of using video recordings to evaluate teachers can involve direct observation instruments such as self-rating forms. These tools allow teachers to see themselves more objectively by diminishing anxiety and clarifying what is observed. Many have stated video recording is a powerful self-assessment technique because the one being evaluated receives honest feedback. For maximum results with this technique,

first, teachers should know what to expect. Second, they should understood when they are not meeting the standard. Third, upon acceptance of the feedback and making changes, new desired behaviors can develop (Lewis & Barber, 1986).

Reflective Thinking Through Video Recording

Video recording captures the observation of the teaching in the classroom. The video recorded image then becomes a model to be repeatedly viewed by other teachers desiring to improve the same teaching behavior or skill (Lewis & Barber, 1986). Video recording can be most useful for evaluation when post-observation discussion is included. When teachers enlist the assistance of an instructional expert, such as a principal, in the review of their self-assessment meaningful insight can be gained by the teachers regarding their teaching (Cranton, 1978).

Fuller and Manning (1973) conducted extensive reviews of video recorded playbacks in teacher education and how to use them to achieve change in teachers' behaviors. They asserted that achieving change requires not only acceptance and empathy, but also confrontation. Confrontation comes when a supervisor observes a teacher's practice and the observation is discussed in an honest manner. The observer can help the teacher focus on the teaching. Viewing the video recording alone eliminates the confrontation and the feedback, possibly decreasing the chances for changes in behavior; conversely, the low threat situation of solitary playback may be of some benefit to some teachers. Without the inclusion of some focus before the video recorded review, behavior may change minimally with feedback alone. Fuller and Manning (1973)

concluded from the reviews of video recorded playbacks, that goal setting and focused

feedback were necessary to achieve changing teachers' behaviors.

Moreover, goal setting and focused feedback can be enhanced by advance

preparation. Before viewing the video recording, the teacher and an experienced

colleague can agree upon common goals they hope to see in the video recording. Through

discussions they can determine the type of feedback they want to use for the experience.

Reviewing teaching methods and observational techniques are also beneficial (Millman,

1981).

Self-assessment is best in a non-punitive environment supported by an internal

drive to constantly improve one's teaching. Once this drive is sparked it demands better

performance and continual improvement. A factor of desiring change in oneself is

stronger than any demand by others upon teachers. Non-threatening professionalism and

modeling are also effective opportunities to improve teacher performance.   Video

recording feedback is potentially the most powerful means of self-assessment (Millman

& Darling-Hammond, 1990).

Van Es and Sherin (2002) asserted that video recording analysis, self-assessment

using video recordings, enables teachers to engage in practices that are different from

their classroom experiences. The video recording can be reviewed repeatedly, it can be

re-wound and re-viewed from different perspectives. Latour (1990) stated that video

recordings can be reorganized and edited into different formats. Teachers can remove

themselves from the classroom where they make decisions in the moment and afford

themselves the opportunity to closely examine the events of teaching and learning (Van

Es & Sherin, 2002). Van Es and Sherin (2002) found that in order for change to occur,

teachers must notice what needs to be changed or they cannot make decisions to act differently. Kennedy (2005) studied what teachers learned by viewing video recordings of teaching. Seemingly many teachers learned not from positive teaching experiences but primarily from negative teaching experiences.

When teachers were given a choice, they consistently preferred the following opportunities to assess their teaching: video recording, modeling, and discussion with a colleague in a non-threatening atmosphere. The teachers viewed these techniques as effective and valuable for improving their craft (Millman & Darling-Hammond, 1990).

Rosaen, Lundeberg, Cooper, Fritzen, and Termstra (2008) conducted a study to investigate if video recorded-supported reflection, self-assessment using video recordings, enabled pre-service teachers to write more specifically about their teaching than writing from memory. They found that video recorded-supported reflection helped interns write more specific comments about teaching than did writing from memory. In addition, video recorded-supported reflection shifted the content of the reflections. The focus changed from memory-based reflection about classroom management to a focus on instruction. The reflection became more about the children than the intern (Rosaen, Lundeberg, Cooper, Fritzen, & Termstra, 2008).

Moreover, the technology allows for closer observation through continual replay which assists interns in noticing what was missed in the first viewing. This creates a dissonance which is compelling due to the close analysis of video recordings as opposed to recall from memory. This dissonance can shake up complacency which can lead to learning (Rosaen, Lundeberg, Cooper, Fritzen, & Termstra, 2008).

Experienced teachers have enlisted their colleagues to join them in teacher video recording clubs, in which teachers video recorded a lesson and shared their video recording with other teachers in the same discipline. The teachers then discuss and reflect on the strengths and weaknesses of the teaching in the video recording and possible improvements to the lesson (Artesani, 1996). According to Gill & Hayes-Butler (2001), others have studied the possibilities of using video recordings along with role playing to design interventions in support of school discipline programs. Video recording and feedback techniques have been utilized in a variety of ways, including constructing video recorded cases about pre-service teachers' teaching (Beck, King, & Marshall, 2002).

Sewall (2009) stated that in order for novice teachers to better articulate and reflect upon the reasons and beliefs behind their teaching actions, and to provide opportunities for supervisors and mentors to gain better insights into those reasons and beliefs so they might become better "artful coaches", there is evidence that video recorded-elicited reflective debriefing offers an effective, efficient approach more conducive to meeting those ends than does traditional observation debriefing alone.

Scherer (2012) when interviewing Linda Darling-Hammond about working with preparing and supporting new teachers on how to survive the first critical years in the classroom, she stated that it is powerful professional development program models for schools that results can be gained. These programs are coherent programs in which all courses are connected to the clinical work. Many of the new teachers are enrolled in student teaching from their first course until their last course. In such programs, students learn specific strategies and practice, go into the schools, work on the practice and bring the experience back sometimes with a video recording of the teaching or evidence of the

students' work. The new teacher debriefs and reflects, solves problems presented in the learning, learns some more strategies and practices, and returns to the classroom to use what has been learned.

Limitations of Video Recording

The technique of self-assessment, involving teachers reflecting upon their own teaching behaviors and skills, has proven effective for improving teaching, but is not without limitations. The limitations include lack of objectivity, accuracy, and reliability. The evaluation through self-assessment can become a self-justification. Mediocre teachers may tend to be less accurate in self-assessment than are superior teachers (Millman & Darling-Hammond, 1990).

There could be a tendency to rely only on the colleague's review of a video recorded lesson and exclude valuable self-assessment. The opposite notion could occur, being more self-discriminating than is fair and honest. Teachers may place the focus on cosmetic items of the taping such as their physical features or mannerisms rather than substantive matters (Millman & Darling-Hammond, 1990).

Video Recording Annotation Tools

An emergence of video annotation tools has arisen due to the emphasis upon cognitive models in the late 1980s and 1990s (Rich & Hannafin, 2009). Educators and researchers alike wanted more systematic observation, analysis, and reflection regarding teaching practices (Hewitt, Pendretti, Bencze, Vaillancourt, & Yoon, 2003). These technologies are reviewed to provide an understanding of the advances that have been made that may enable reflection.

VAST (http://www.professional-vision.org/): Video Analysis Support Tool allows resources that are non-video to be incorporated into a display screen while a video recording is being analyzed (Rich & Hannafin, 2009). VAST is a stand-alone application that has been used in mathematics and science education programs for pre-service teachers.   It was developed at Northwestern University (Van Es & Sherin, 2002). VAST has been reported to help enhance teachers' reflection on how student learning may be influenced by their practices (Rich & Hannafin, 2009).

VITAL (http://vital.ccnmtl.columbia.edu): Video Interactions for Teaching and Learning is designed to use video recorded clips and reference them as hyperlinks using narrative (Rich and Hannafin, 2009). VITAL is web-based and was developed at Columbia University Center for New Media Teaching and Learning. Its purpose was to train student teachers how to observe and interpret children's behavior. VITAL has been reported to assist teachers in better connecting their practice to theory (Rich & Hannafin, 2009).

VAT (http://vat.uga.edu): Video Analysis Tool uses select video recorded clips to focus and guide analysis. Others may also access the clips and annotate the events and share in a discussion with the approval of the video recording owner. VAT is web-based and was developed at the University of Georgia and has been used in the social studies, science, and elementary education programs. VAT has been reported to assists teachers to reflect upon the alignment of their beliefs and practices (Rich & Hannafin, 2009).

Video Traces (http://depts.washington.edu/pettt/projects/videotraces.html): Video Traces software use video recorded portions with narration and allow for drawing tools such as pointers to be used for highlighting (Saxena & Stevens, 2007). Teachers can

respond to each other's traces to begin discussions. Video Traces is a stand-alone

application and was developed at the University of Washington. It was first designed to

allow museum visitors to reflect upon an exhibit. Video Traces has been reported to

possibly assist pre-service teachers in reflecting about instructional decisions but may not

be as reliable when used by other stakeholders (Rich & Hannafin, 2009).

      VideoPaper (http://vpb.concord.org/): VideoPaper selects portions of video clips

and allows for persons to comment upon embedded hyperlinks. When a hyperlink is

selected, the video recording plays just the portion previously selected.   VideoPaper is a

stand-alone application which can be exported to web-based. It has been used at Tufts

University to enhance self-reflection. It was designed as a part of *Bridging Research and*

Practice project at Technical Education Research Centers and was funded by the

National Science Foundation. VideoPaper has been reported by faculty to highlight a

level of analysis that pre-service teachers recognize as better reflection on their practices

(Rich & Hannafin, 2009).

      MediaNotes (http://www.bluemangolearning.com/products/medianotes):

MediaNotes use annotations by taking video recorded segments which then allow the

adding of comments and tags for a given video recorded segment. The tags have

predefined codes in connection with particular video recorded clips. The analysis is

guided by a framework. MediaNotes is a stand-alone application and was developed at

Brigham Young University for use by law and dance students but is now also used in the

business, engineering, and teacher education programs.   MediaNotes has been reported

by induction teachers to have assisted them in gaining self-understanding about the

actions that could make them effective teachers (Rich & Hannafin, 2009).

StudioCode (http://www.studiocodegroup.com): StudioCode allows users to create codes to select specific video recorded clips.   It is a stand-alone application and was first designed to be used for sports events. Researchers at Pennsylvania State University and Brigham Young University have used this tool in their science and physical education programs. After approximately two hours of training and practice, novice teachers can become moderate users of the coders' ratings within StudioCode. The coders' rating could assist them in noting the standards-based practices they use in their classrooms (Rich & Hannafin, 2009).

Advance Organizer

An advance organizer is introductory material presented to learners at a higher level of abstraction, generality, and inclusiveness than the actual material to be learned. This definition also includes a summary of the key points in a learning passage.   While an advance organizer omits some details, it can bring a picture to mind (Ausubel, 1968).

The purpose of advance organizers is to maximize clarity of new materials to be learned.   The new materials can become meaningful by relating the elements to prior knowledge. An advance organizer provides focus and scaffolding for ideas to secure integration and retention of the more detailed material that follows in the learning passage (Ausubel, 1968). Langan-Fox, Waycott, and Albert (2000) believed advance organizers integrated information, discriminating between new and existing ideas that are different but seem somehow similar.

The most benefit can be gained from an advance organizer if it is learnable and stated in familiar terms (Ausubel, 1968). In the classroom, an advance organizer can

foster meaningful learning by helping students think of concepts already present within their background knowledge, and could provide a context of general concepts into which students could incorporate new and different details (West & Wolff, 1991).

There are two kinds of advance organizers, expository and comparative. An expository organizer is composed of questions given as a pretest before new material is presented. A comparative organizer is composed of statements relating to familiar or relatable learning materials to previously learned ideas. For this learning, the organizer is used to increase the discrimination between the new ideas and the formerly learned ideas by focusing upon the primary similarities and the differences between them (Ausubel, 1968). One of the most effective organizers in education is the graphic organizer, a visual tool teachers use to depict key content ideas.   Some graphic organizers used during instruction are cause and effect diagrams, main idea and detail charts, compare and contrast diagrams, and sequence charts (Baxendell, 2003).

Constructing an advance organizer to be used in accordance with a learning passage always depends upon the nature of the learning material. The age of the learner as well as the degree of familiarity of the learner with the learning passage should be considered.   Conceptual pre-questions yield a higher recall and more highly structured memories than conceptual post-questions.   Conceptual pre-questions, unlike verbatim post-questions, increase delayed immediate recall. Like an advance organizer, meaningful post-questions facilitate recall for those who lack comprehension as opposed to those who do comprehend well (Ausubel, 1968).

Lagerwerf, Corneils, De Geus, and Jansen (2008) found that advance organizers could lead to improved learning and recall of information. The study involved large

documents being read under pressure while graphic and verbal advance organizers were strategically arranged into six sections of an advisory report. One hundred fifty nine professional readers in a between-subjects design were given a short amount of time to encourage them to read selectively. The results revealed the graphic organizers facilitated selective reading, however, they did not improve recall. Verbal advance organizers which introduced a problem seemed to enhance recall.

Benefits of advance organizers have entered the electronic environment for special learners. WebQuest is being used to instruct learning disabled students. A WebQuest is an structured, online tool designed to assist in researching a topic. A list of Web sites is provided to complete an assignment. The goal is to focus students on using information rather than looking for information (Skylar, Higgins, & Boone, 2007). The important aspects of a WebQuest include an introduction, identified Internet sources are provided, clear steps are outlined for completing the task at hand, next, directions are given for assembling the research obtained, and the last step is a conclusion (Dodge, 1995).

Research has revealed various strategies that can assist with making WebQuest accessible for students such as study aids in the form of advance organizers, study guides, and graphic organizers. They can possibly aid in comprehension and identification of information (Mastropieri, Scruggs, & Graetz, 2003).

Hung, Smith, Harris, and Lockard (2010) examined how a proposed instructional design framework based on Ausebel's (1963) advance organizer theoretical approach could be used to address inherent problems of technically drive performance support systems (PPS). The study followed the design of Richey and Klein (2007) for tool

development research to review the development of a performance support system for teachers regarding classroom behavior management.

Findings suggested that data collected from the user system appraisal regarding the incorporation of an advance organizer based upon an instructional design approach facilitated participants' cognitive awareness when exploring and searching for relevant information. It was believed that the design strategies proposed in the study provided a potential solution to address typical performance support systems technology opposed to the catch-all design approach. The advance organizer conceptual framework afforded participants a complete view of the knowledge domains related to the problem of their interrelationships and improved participants' awareness of available interventions (Hung, Smith, Harris, & Lockard, 2010)

An advance organizer is used as a tool to focus one's thoughts. By connecting previous learned information to new learning through an advance organizer, a learner can have a good experience while learning. Asking the questions after a learning experience has taken place may not be as effective as when the questions are posed in an advance organizer before the learning experience (Ausubel, 1968).

Principal Review and Discussion

The indirect work of principals and superintendents powerfully affects student learning followed by the quality of teaching and the curriculum. These effects have the greatest influence in schools where the students learning needs are most dire (Education Commission of the States, 2005, p. 2).

In an average sized school, researchers determined that an effective leader can make the difference between students scoring at the 50th percentile or achieving a score of 10 percentile points higher on a given test (Education Commission of the States, 2005, p.3). The study further revealed factors that can contribute to failing leadership. Factors included not understanding how to make the correct changes in a school while protecting the culture and values of the school and not knowing elements that need to be aligned for success such as practices, resources, and incentives. Additional factors are not knowing how to manage the magnitude of changes necessary or the strategies needed to make the changes for a school. Lastly, not understanding and valuing the people of the organization and not creating an environment that provides the support needed for success can contribute to failing leadership (Education Commission of the States, 2005, p. 3).

Studies since the 1970s have found significant evidence that successful leadership plays a considerable role in improving student learning especially in schools with a large number of disadvantaged students. Furthermore, there is no documentation proving that troubled schools can show improvement without effective leadership. There are other factors as well, but, leadership is the catalyst for change (Education Commission of the States, 2005, p. 2)

Principals play a critical role in developing teachers who understand teaching behaviors and how to foster reflection in order to improve teaching and learning (York-Barr, Sommers, Ghere, & Montie, 2001). "Principals identified as effective instructional leaders intentionally promote reflection and collegial interaction among teachers, which

is focused on teaching and learning" (York-Barr, Sommers, Ghere, & Montie, 2001, p. 130-131).

Blasé and Blasé (1999) conducted an open-ended survey of more than 800 teachers about the effectiveness of their principals. They reported that principals who consistently engaged with their teachers, about instruction and continually encouraged them could influence them to reflect upon their professional practice. Principal engagement was accomplished by making suggestions, providing feedback, modeling practices, using inquiry, soliciting advice and opinions, and giving praise. The principals in this study actively promoted professional growth of teachers by emphasizing the study of teaching and learning, supporting collaboration, coaching relationships among teachers, and encouraging and supporting the redesign of programs. They also encouraged applying the principles of adult development to staff development opportunities and implementing action research to inform instructional decision making.

The data suggested principals used a broad-based approach, integrating reflection and growth, to build a school culture of individual and shared critical examination for improvement. They appeared to embrace the challenges of growing and changing. Mostly they talked openly and frequently with teachers about instruction (Blasé and Blasé, 1999).

Principals as Instructional Leaders

Ronnenberg (2000) focused a multi-site case study upon the specific practices used by principals identified as instructional leaders. Ronnenberg found these principals intentionally fostered reflection and learning while using dialogue as a primary means for

learning. Some of these practices were, keeping the focus of staff learning about student achievement, aligning all staff members' learning activities upon the shared vision of the school, and scheduling time for collaborative teams to plan and have dialogue.

For principals to establish themselves as instructional leaders, they must involve themselves in two important tasks: enhancing collegiality through relationships and developing teacher leaders in an atmosphere where that may have previously fostered dependent relationships (Lambert, 1998). According to Ronnonberg (2000), the role as principal is more important than ever and is much more complex because it demands more sophisticated skill sets and understandings. Likewise, it is an easier task to evaluate and supervise teachers than it is to allow them to become full partners with the principal in decision making, because it involves working together on difficult tasks. Embracing this manner of operating requires leadership be shared between principals and teachers. To become leaders of practice, principals must demonstrate capacity to understand themselves as individuals and as social beings and understand that systems are mutually relating, interacting, and continually changing. They must take the perspective of another, and engage in dialogue (Drath & Palus, 1994).

The most powerful influence principals, as instructional leaders, can have over teachers are to model ongoing reflection and to be willing to learn more about the practice of reflection (York-Barr, et al, 2000). Principals can become a force for personal improvement by participating in their own serious reflection and the reflection of their teachers. Many principals who desire to be instructional leaders pose the questions: What have I, the leader, learned since the last teacher evaluations? What are my strengths and weaknesses to which I should give greater attention? What examples can I, the leader,

provide for teachers where I made decisive leadership decisions and have impacted other individuals and the organization as a whole? Regardless of their responses to such questions, principals cannot expect students or their teachers to be reflective learners for the work they do each day, if the leader does not model rigorous self-analysis (Reeves, 2004). Taking steps to move toward reflective practice at the school-wide level can be considered a courageous move for principals because of uncharted waters; the risks as well as the potential could be tremendous (York-Barr, et al, 2000).

How then do principals participate with their teachers and begin the work of cultivating collaboration? Principals must concentrate on fostering vision building. They must encourage collegiality that respects individuality, and inspires a sense of continuous improvement by learning from problems. Developing conflict resolution strategies and life-long learners involves inquiry, reflective practice, collaboration, technical skills, and restructuring initiatives. Principals do not have all the answers and their visions should be open to change (Fullan & Hargreaves, 1991).

Bickman, Goldring, Andrade, Breda, and Goff (2012) evaluated the efficacy of a feedback and coaching intervention to improve the quality of principal leadership. Principals received feedback from their teachers regarding their instructional leadership and how they trusted them. Principals participated in self-ratings and then compared the ratings from their teachers to their own self-ratings. Principals received feedback from their teachers regarding their leadership in the first year of the study and in the second year, they received feedback from the teachers and coaching for improved leadership.

The results indicated that teachers' perceptions of instructional leadership and trust of principals was enhanced when principals received only feedback from the teachers.

However, when coaching for improved leadership was added, the results revealed a more powerful effect. The effect depended upon how valid the principals perceived the feedback to be and the number of coaching sessions attended. Up to fifteen coaching sessions were offered. On the average, principals participated in seven coaching sessions for approximately an hour each (Bickman, Goldring, Andrade, Breda, & Goff 2012).

Educational Leadership Standards

In thinking about the framework of performance of educational leadership for the future, The Interstate School Leaders Licensure Consortium (Reeves, 2004), a program of the Council of Chief State School Officers, developed standards forged from research and gleaned from educational leadership. This organization tapped into the knowledge of colleagues and the assistance of 24 state education agencies as well as representatives from many other professional associations. These standards were designed to be compatible with the new National Council for the Accreditation of Teacher Education (NCATE), *Curriculum Guidelines (2004),* for school administration. NCATE's six major standards are each connected to knowledge, disposition, and performance elements. The six standards reflect the core of effective leadership and hold the success of students as paramount. Therefore, each standard states, ". . . school administrators, as educational leaders, will ensure all students will be successful . . ." (Marockie, Cody, Bartman, Ambach, Martin, Shipman, & Murphy, 1996).

Of the six major standards, the one that speaks to principal participation and its importance to teachers is Standard Two. It states a school administrator, as an educational leader, will ensure all students are successful by advocating, nurturing, and

sustaining a school culture and instructional program conducive to student learning and staff professional growth. The knowledge under this standard that relates to principal participation discusses the administrator having knowledge and understanding of the principles of effective instruction and adult development and professional development models. They also must have knowledge of the role of technology in promoting student learning, professional growth, and school cultures (Marockie, et al., 1996).

The dispositions of Standard Two further relate to principal participation by stating administrators' dispositions should be those of believing, valuing, and committing to life-long learning for themselves and others, and including professional development as an important part of school improvement. Finally, the performances under the dispositions of Standard Two that connect to principal participation are that the administrator facilitates, processes, and engages in activities ensuring acknowledgement of the responsibilities and contributions of each individual. They set a culture of high expectations for self, student and staff performance, assessing school culture and climate routinely. In addition, they establish multiple sources of information regarding performance to be used by staff, students, and a variety of supervisory and evaluation models (Marockie, et al., 1996).

These standards, knowledges, dispositions, and performances set the stage for principals to participate in various ways to address the high expectations and standards that are expected of them by their school districts. Through involving today's teachers in video recording lessons, then dialoguing with teachers about the teaching that was video recorded, principals may find beneficial methods for working toward meeting Standard Two as well as for setting high expectations for life - long improvement. While much

can be learned, sustaining a school culture through advocating and nurturing student and staff growth cannot be accomplished in a one-time event or research project. School administrators must participate and engage in varieties of best practices as supported in research, and operate with the understanding that building a culture occurs over time (Marockie, et al., 1996).

It must be noted that the Education Commission of the States, (2005, p. 3), found that one quarter of the leadership practices shown to be significant in connection with student achievement are not reflected in the Interstate School Leaders Licensure Consortium (ISLLC) developed in the mid-1990s.   Moreover, the ISLLC standards lack clarity regarding the 184 separate indicators grouped into six categories regarding leadership responsibilities and practices which have the greatest impact upon student learning (Education Commission of the States, 2005, p. 3).

The Education Commission of the States did not advocate disregarding the ISLLC standards rather they called for revisions that better show the growing quantitative research in school leadership and better identification of clear leadership responsibilities that are strongly connected to student success (Education Commission of the States, 2005, p. 3).

Summary

Improving how teachers think about their craft in the classroom is an ongoing process for public schools in the recent atmosphere of accountability generated by the No Child Left Behind legislation. This atmosphere brings to the forefront public school concerns about the education of students, and the continued education of teachers

whether they are beginning their career or are well into their careers. Within the many standards and criteria that teachers are expected to follow today is the idea that reflectively thinking about their teaching could bring changes in practice that might improve student learning.

The literature suggests that teachers could learn through video recording their lessons, being subjected to advance organizers, and reviewing the video recordings with their principals. Such individual and collective efforts draw upon a theory of adult development for action and reflective thinking (Sprinthall & Thies-Sprinthall, 1983).

CHAPTER III

Methodology

The purpose of the study was to investigate the connection between teachers'
reflections and teachers' practice through self evaluation via video recorded lessons.

The study examined teachers' perceptions of their reflective thinking. The work of
Sprinthall and Thies-Sprinthall (1983) provided the theoretical basis for the research.
Their model of five conditions for adult development include roletaking, reflection,
balance, continuity, and support (Sprinthall & Thies-Sprinthall, 1983). Reflection, the
second condition, was previously reviewed in Chapter II as well as Dewey's (1991)
research and theories about reflective thinking.

Participants were asked by email to respond to an opinionnaire by identifying their
perceptions about three reflective thinking processes: openmindedness, responsibility,
and wholeheartedness. The baseline data were compared to responses to the same
opinionnaire taken after the intervention in order to determine whether their perceptions
had changed after the interventions.

 Participants were divided into four groups.   Participants in the first group video
recorded their lessons. They each reviewed their video recordings alone. Participants in
the second group read an advance organizer before they video recorded their lessons.
They reviewed their video recordings alone. Participants in the third group video
recorded their lessons and then reviewed their video recordings with the school principal.

Participants in the fourth group both read an advance organizer before they video recorded their lessons and then reviewed their video recordings with the school principal.

A total of 43 elementary teachers and 29 secondary teachers compiled the four groups. The total group included ten special education teachers, two English Language Learner teachers, eight national board certified teachers, one alternative teacher, and 51 content area teachers. Content area teachers taught either reading, English, math, science, social studies, music, art, or foreign languages. Teaching experience of the 72 elementary and secondary teachers ranged from one through 33 years.

The remainder of this chapter describes the statistical methods of the study for validity and reliability. The three interventions are reviewed: video recording lessons, the advance organizer, and the discussions with the principal. The pilot study and the composition of the participant groups are explained.

Statistical Methods

The Mental Measurements Yearbook (2004) was reviewed to find an instrument for measuring teachers' perceptions about reflection regarding openmindedness, responsibility, and wholeheartedness (Zeichner & Liston, 1996). The review failed to produce an instrument that included these concepts. Subsequently, an opinionnaire was constructed to examine these concepts (See Appendix A). The opinionnaire was used before and after the video recorded lessons.

A panel of experts reviewed the opinionnaire during its development. Dr. Patrick Forsythe, The University of Oklahoma, suggested the review of the Mental Measurements Yearbook (2004). Dr. Ken Stern, Oklahoma State University, reviewed the statements of the opinionnaire. Dr. Kay Bull, Oklahoma State University, assisted

with the statistical aspects; he suggested that the Likert-scale contain six responses to each statement. Dr. Ed Harris, Oklahoma State University, administered the opinionnaire to his classes and assisted in the reliability study. Dr. Chan Helman, The University of Oklahoma, examined the statistics. The Superintendent of the school district where the study took place also reviewed the opinionnaire.

Statements for the opinionnaire were derived from Dewey's concepts of engagement in reflective thinking: openmindedness, responsibility, and wholeheartedness. Statements were also extracted from Schon's (1983) reflection-in-action and reflection-on-action. Forty six statements were developed for the opinionnaire (Zeichner and Liston 1996, pp. 4-18).

Items 1 through 19 of the opinionnaire were developed regarding openmindedness. Items 20 through 30 pertained to responsibility and items 31 through 46 related to wholeheartedness (Zeichner and Liston, 1996, pp. 10-12). Items were scored with a six point Likert-type scale based upon The Profile of a Reflective Teacher (Taggart & Wilson, 1998). The Likert-type scale is a one-dimensional, ordered scale. Respondents choose the best option that aligned with their views. There are typically four to seven options. A benefit of this scale is that the questions are usually easy to understand and tend to lead to consistent answers. The scale is scored by assigning numbers to each option. The scale for this study assigned numbers one to six respectively for the following responses, Always, Very Frequently, Frequently, Infrequently, Very Infrequently, and Never (Likert, 1931).

Validity

Validity is the degree to which a test measures what it claims to measure. Internal validity is the testing of the strength of the claim that changes in the dependent variable are due to the independent variables and are not attributable to other causes (Creswell, 2003). Internal validity determines whether the instrument used measures that the researcher intended it to measure. External validity is the extent to which the study's results can be extrapolated to a real-life population (Gay & Airasian, 2000). The Statistical Package for Social Sciences (SPSS), version 11, was the statistical instrument that measured the validity of the study.

The one way analysis of variance, ANOVA, was chosen as the statistical method for the study because two groups were compared to each other. ANOVA seeks to answer the question: Are observed differences in means the result of chance? ANOVA does this by calculating and comparing two sources of variability, variability between groups and variability within groups. If the variability between groups is significantly greater than the variability within groups this is considered evidence of an intervention effect (Shavelson, 1996).

In ANOVA, the total sum of squares (the sum of squared deviations of scores from the grand mean which is the mean based on the total N or number in the study) is divided by the sum of squares between groups (the sum of squared differences between each of the group means and the grand mean) and the sum of squares within groups (the sum of squared differences between each score in a group and that group mean) (Shavelson, 1996).

One way ANOVA is summarized in a table with the following information, sum of squares, degrees of freedom, mean squares, the F statistic, and significance. An asterisk can denote statistical significance as a given probability (*=a 0.05 or *=a 0.01). The statistical significance for the study is 0.05 (Shavelson, 1996).

The one way ANOVA is within the hypothesis-testing framework. It is assumed the null hypothesis is true. The null hypothesis states there is no difference between the means of the populations from the groups in the study. If the null hypothesis is true, it is expected that the ratio between-groups variance (error + intervention) and within-groups variance (error) will be close to one. The result is the F statistic. This formula makes it clear that the greater the intervention effect, the greater the value of F (Shavelson, 1996).

MANOVA was enlisted to determine how the dependent variables of all pre-opinionnaire scores when combined with all post-opinionnaire scores were affected by the independent variables. MANOVA compares more than one dependent variable (pre-opinionnaire scores and post-opinionnaire scores) to all of the independent variables. To do this the tests of between-subjects effects was used. The MANOVA procedure creates one, new dependent variable into a weighted, linear combination from multiple dependent variables. It then assesses whether or not the new dependent variable differs significantly between the independent variable groups.

As with the one way ANOVA, MANOVA calculates the sum of squares and the variances (mean squares). When calculations are complete, the sum of squares is divided by their respective degrees of freedom in order to get the mean squares. MANOVA design produced the intercept (grand mean) + Pre (1) Post (2) + Group + Pre (1) Post (2)*

Group. An F statistic is calculated for each of these three effects by dividing the variability for each effect by the within-group variance.

MANOVA is summarized in a table with the following information, sum of squares, degrees of freedom, mean squares, the F statistic, and significance. An asterisk can denote statistical significance as a given probability (*=a 0.05 or *=a 0.01). The statistical significance for the study is 0.05 (Shavelson, 1996). The results will be discussed in Chapter IV.

Reliability

Reliability is the degree to which a test consistently measures what it is designed to measure. The internal consistency approach of reliability measures how consistent test items are among themselves and within the test as a whole. This approach is used when the same instrument is implemented for the pre- and post- results. The study used the same opinionnaire for the pre- and post- results. The pre- and post-opinionnaire responses were compared to determine whether there were any significant differences among the four groups of teachers.

The Statistical Package for Social Sciences (SPSS), version 11, was the statistical instrument that measured for reliability with the following methods. First, the means, standard deviations, and ranges were calculated for each of the four groups and then the means and standard deviations were calculated in the one way ANOVAS.

The Statistical Package for Social Sciences (SPSS), version 11, also examined the internal consistency of the survey with Cronbach's alpha. Cronbach's alpha is the most common statistical method for measuring the assumption of unidimensionality.

Unidimensionality means that the items taken for the construct measure was what was intended to be measured. Cronbach's alpha is applied to tests with more than two choices in the answer. The survey contained six choices for responses. When a measurement is obtained through Cronbach's alpha, a smaller measurement of error indicates a more reliable test. Although zero would represent perfect reliability, no test has perfect reliability. The value of the Cronbach's alpha should be greater than 0.7 to measure the assumption of unidimensionality (Gay & Airasian, 2000). The results of Cronbach's alpha are discussed in Chapter IV.

Reliability Study

Seven professors administered the opinionnaire to multiple classes of graduate students for the purpose of reliability. Respondents to the survey were current or former school teachers. Eighty-two usable opinionnaires were collected at that time.

Various statements were explained upon request. One respondent asked if a difference existed between reflecting about individual students in a classroom and reflecting about the classroom as a whole. It was explained that the opinionniare addressed both situations to determine whether there was a difference between reflecting about individual students and reflecting about groups of students.

Approximately eight respondents commented in writing that some of the statements were difficult to understand. Each statement was then reviewed and edited to clarify the intended meaning. Most persons who completed the opinionnaire wrote no comments.

The 82 usable opinionnaires collected from graduate students were combined with the four volunteer pilots and the 72 participants' opinionnaires for a total of 158. These 158 opinionnaires provided the information that was entered into the Statistical Package for Social Sciences (SPSS), version 11, the statistical instrument that measured reliability. Discussion of the data collected and Tables 12, 13, 14, and 15 are displayed in Chapter IV.

The 46 items on the opinionnaire were evaluated for reliability through a factoral analysis with the varimax method. This method takes a large number of variables and groups them into a smaller number of clusters called factors (Shavelson, 1996). Rows form that correspond to the original variables and columns form that correspond to the factors. The grouping to certain variables is called loading (Kim & Mueller, 07-014, 1978). The factors were then rotated orthogonally (90° angle) with the varimax method. An orthogonal rotation assures that the resulting factors are independent (Shavelson, 1996). When additional factors are identified that are not within the individual items of the instrument these additional factors can have influenced the opinionnaire. They can then be used as new variables (Kim & Mueller, 07-014, 1978).

The opinionnaire consisted of three categories: openmindedness, responsibility, and wholeheartedness (Zeichner & Liston, 1996). Items one through 19 (openmindedness) were loaded and rotated with the varimax method. Items 20 through 30 (responsibility) were loaded but were unable to rotate with the varimax method. Items 31 through 46 (wholeheartedness) were loaded and rotated with the varimax method. Tables 4, 5, and 6 display the results and will be discussed in Chapter IV.

Interventions

Video recorded lessons, an advance organizer, and review with a school principal were the three interventions of the study. These interventions facilitated self-evaluation as teachers reflected upon their teaching for instruction (Levin, 1979).

Teachers developed 30 minute lessons to video record. The instruction and all interactions with the students were video recorded. Bailey (1981) included video recordings to assist with defining self assessment. Video recorded lessons were selected because teachers must be aware of what they do both verbally and nonverbally in the classroom.

The advance organizer was a series of five questions regarding teaching intended to provoke reflection by participants. These questions directed the participants' thoughts in advance of reflection and were presented to them before they video recorded their lessons. Students' new learning can provoke teacher reflection. Teacher reflection can contribute to improved learning by students (Ausubel, 1968).

Principal review is a discussion between the teacher and the principal about the teachers' video recorded lessons. Principals play a critical role in assisting teachers with understanding their teaching. Principals discussing teachers' video recorded lessons can intentionally promote reflection and collegial interaction (York-Barr, Sommers, Ghere, & Montie, 2001).

Video Recorded Lessons

All participants in the study signed written permission forms giving consent to be video recorded. Students and their parents or guardians also signed consent forms.

Participants selected the subject matter, the curricular objective to teach, and the time of day for their lessons to be video recorded. Each video recorded lesson was 30 minutes in length.

The purpose of the video recording was to record the lessons and afford the participants the opportunity to observe their teaching and reflect upon it. Questions can be raised through reflection. The answers to the questions can be sought through professional development, conversations with colleagues, and research journals. Video recording lessons can assist participants in becoming more comfortable with the practice of video recording as a method of self-assessment (Kompf & Bond, 1995, & Sherin, 2000).

Advance Organizer

Five comparative questions were developed for the advance organizer which focused upon the strengths and weaknesses of the lesson presented (Ausubel, 1968). The first question was, When you think about lessons you teach, what do you believe are your strengths? (Artesani, 1996). The question reminds teachers to evaluate as to whether or not they see strengths in their teaching.

The second question was, When you think about lessons you teach, what do you believe are your weaknesses? (Artesani, 1996). The question focuses teachers to evaluate as to whether or not they see the weaknesses in their teaching.

How would you present a lesson so it will be effective? is the third question (Bailey, 1981). The question moves the teacher to evaluate whether or not their presentations of lessons are engaging to students causing them to commit to learning.

The fourth question is What indicates to you that you have taught an effective lesson? (Darling-Hammond,1997). The question beckons teachers to examine whether or not they recognize the indicators of effectiveness in their teaching.

What would you have done differently to re-teach this lesson tomorrow? is question five (Smyth, 1989) and (Argyris & Schon, 1974). The question allows teachers to reflect upon specific presentation changes needed to better their teaching in order to benefit students' learning.

The first two questions of the advance organizer can assist teachers to define their strengths and weaknesses. The last three questions of the advance organizer can provoke teachers to reflect about new means of presenting lessons and whether or not they are effective. Participants were not asked to respond to the questions in writing. Participants in previous studies have indicated they preferred discussion rather than written tasks (Pugach, 1990).

Principal Review and Discussion

Principals are trained to evaluate teachers as they teach a lesson (Oklahoma State Law, Article VI, and Section 118. 70-6-101.10). Schmoker (1996) stated one way to develop better teaching is through teacher evaluations. The principal is one of the important influences regarding the practice of teachers' thinking about their teaching. Teachers stated they preferred working with a supervisor or principal when viewing their video recorded teaching (Pugach, 1990). This practice could benefit teachers as more teachers are called to express themselves in professional settings about their teaching (Lambert, Collay, Dietz, Kent, & Richert, 1996).

Principals' focus upon how to assist teachers during observations about what is effective in the classroom and which behaviors could improve their teaching. This observation gives the principal a basis for providing feedback to the teacher. The feedback can include how a teacher may use reflection (Ausubel, 1968). Improving performance requires teachers to reflect about their teaching. Reflection can guide teachers toward a better understanding of evaluation standards and prompt them to learn more about their craft and better ways to collaborate with their colleagues (Schmoker, 1996).

Pilot Study

The pilot study was conducted with four volunteer teachers. Three had taught 18 or more years and one had taught for two years. The purpose of the pilot study was to pinpoint issues that might arise during the research phase of the study. The four volunteer teachers became the four pilot participants who completed the opinionnaire before and after video recording a lesson.

The pilot study provided information regarding the development of the opinionnaire, data collection procedures, and technical procedures. Each pilot participant was subjected to the interventions as shown in Table 1. Within the pilot study, each participant was subjected to the interventions designed for the four intervention groups, as shown in Table 1.

Pilot Participant One viewed the video recording alone and commented that the experience had been valuable to her and she would hope all teachers would video record themselves teaching. Pilot Participant Two had been instructed to read and think about

the five advance organizer questions, then view the video recording alone. Pilot Participant Two noted that several of the opinionnaire items were difficult to understand.

Pilot Participant Three reviewed the video recording with the principal and offered no comments.   Pilot Participant Four read and commented upon the advance organizer through written responses to its questions. Written responses were not required for the pilot study.   Four also viewed and discussed the video recording with the principal.

Four also offered some of her reflective thinking. She wrote that she believed her strengths were in organization, clarity, and a willingness to rephrase information. She stated that her weaknesses were moving too quickly through the lesson and requiring too much paperwork from the students.

Responding to question five upon the advance organizer, What would you do differently tomorrow to reteach this lesson?, Pilot Participant Four said that she would have explained the lesson more thoroughly and given more time to the students to reflect upon their work.   Four was satisfied overall with the work the students had completed in the lesson.

Pilot Participants One and Two said that their students noticed the camera at first, but soon moved their focus to the lesson at hand.   All four of the pilot participants gave favorable comments about the format of video recording and expressed surprise that the camera had not been as intrusive in the classroom as they had expected.

Each pilot participant expressed appreciation that no camera-operator remained in the room during the video recording. They stated that they enjoyed the opportunity to select the lesson and the time for video recording.

Overall, the pilot study indicated that the procedures for the study were acceptable for the participants. It appeared no major adjustments were needed in order to conduct the study. Minor adjustments were made as suggested from the pilot study.

Table 1. *Interventions followed by the Four Individual Pilot Participants*

Participants	Pre-Survey	Advance Organizer	Recorded	View with Principal	Post-Survey
1	X		X		X
2	X	X	X		X
3	X		X	X	X
4	X	X	X	X	X

Composition of Participant Groups

All certified teachers in one rural school district in northeastern Oklahoma were sent invitations of recruitment through email. Every teacher was given an opportunity to volunteer for the study during a six week period. The six weeks extended from mid-November until the end of December. Teachers were instructed to respond by email which marked the date and time. Participants included special education teachers, gifted and talented teachers, alternative education teachers, ELL (English Language Learners) teachers, national board certified teachers, and teachers of the content subjects of reading, English, math, science, social studies, music, art, and foreign languages.

Of a district population of 289 teachers, 72 volunteers responded by email within the given timeline for the study.   In chronological order, volunteers number one through 18 were assigned to Group One. Nineteen through 36 were assigned to Group Two, 37 through 54 were assigned to Group Three.   Fifty five through 72 were assigned to Group Four. Purposive selection was chosen for the study in accordance with the superintendent of the school district (Gay & Airasian, 2000). The superintendent preferred that teachers volunteer for the study rather than be randomly selected.

Two of the original volunteers dropped out of the study before it began due to medical circumstances. They were replaced by volunteer's numbers 73 and 74. The final group of 72 teachers completed the research project.

Teachers experience ranged from one through 33 years. Participants were both males and females with varying credentials with class sizes ranging from three through 25 students who were between the ages of four through 19 and who represented all levels of socioeconomic status. Some participants instructed English Language Learners (ELL) and special education students in classrooms with fewer students than the regular education teachers instructed in their classroom. No modifications were made to the research based on class size. There was no control over class size, age of students, teacher experience, and socioeconomic status.

The directions and timeline for video recording lessons and completing the opinionnaire were explained to the volunteers. They were informed that some volunteers would meet with their school principals to discuss the video recording.

Details of the study were presented in written and oral forms. The consent form (See Appendix C) as required by the University's Institutional Review Board was explained. The participants signed the consent forms.

All participants completed an opinionnaire in January 2006 and scheduled times to video record a lesson. Participants video recorded themselves teaching their lessons at their selected times. A camera-operator assisted each teacher by setting up a single DVD camcorder in the classroom and later retrieved the equipment after the video recording.

The camera's lens focused upon teachers with their students. The camera-operator did not remain in the classroom. The camcorder was in operation for thirty minutes. The participants in Groups One and Two also completed the opinionnnaire after they video recorded their lessons. The teachers in Groups Three and Four also completed the opinionnaire after they video recorded their lessons and reviewed the video recording with their school principals.

Group One, participants one through 18, were not subjected to either, the advance organizer or the discussion of the video recorded lesson with the school principal. All reviewed their video recording alone. Each participant responded to the opinionnaire before and after their video recorded lessons. Group One participants included 12 certified elementary teachers and six certified secondary teachers. They represented four special education teachers, one ELL teacher, one national board certified teacher, no alternatively certified teachers, with the remaining 12 being regular education teachers who taught either reading, English, math, science, social studies, music, art, or foreign languages (hereafter, called content-area teachers). The teaching years of experience of Group One ranged from three years through 33 years in the classroom.

Group Two, participants 19 through 36, were subjected to the advance organizer before video recording their lesson. They each reviewed their video recording alone. Each participant responded to the opinionnaire before reading the advance organizer and before they video recorded their lessons. Group Two participants included 11 certified elementary teachers and seven certified secondary teachers. They included one special education teacher, one ELL teacher, four national board certified teachers, one alternatively certified teacher, with the remaining 11 being content-area teachers. Years of teaching experience for Group Two ranged from one through 15 years.

Group Three, participants 37 through 54, discussed their video recorded lesson with the school principal after video recording. Each participant responded to the opinionnaire before they video recorded their lessons. They video recorded their lessons and reviewed them with the school principal. Group Three included 11 certified elementary teachers and seven certified secondary teachers. They represented four special education teachers, no ELL teachers, no national board certified teachers, no alternatively certified teachers, with the remaining 14 being content-area teachers. Experience measured in years of teaching experience for Group Three was three through 25 years of teaching.

Group Four, participants 55 through 72, were subjected to the advance organizer before video recording their lesson and the review with the school principal after video recording. Each participant responded to the opinionniare before they video recorded their lessons and before they read the advance organizer. They read the advance organizer and then video recorded their lessons. The lessons were reviewed with the school principal. Group Four included nine certified elementary teachers and nine certified secondary teachers. They represented one special education teacher, no ELL teachers,

three national board certified teachers, no alternatively certified teachers, with the

remaining 14 being content-area teachers. Group Four teachers ranged in years of

teaching experience from one through 25 years.

    A total of 43 elementary teachers and 29 secondary teachers composed the four

groups. The total group included ten special education teachers, two ELL teachers, eight

national board certified teachers, one alternative teacher, and 51 content area teachers.

Teaching experience of the 72 elementary and secondary teachers ranged from one

through 33 years.

Table 2. *Demographics of the Four Groups*

	Group 1	Group 2	Group 3	Group 4
	1-18	19-36	37-54	55-72
Elementary	12	11	11	9
Secondary	6	7	7	9
Content Areas	12	11	14	14
Special Education	4	1	4	1
ELL	1	1	0	0
Alternative	0	1	0	0
National Board	1	4	0	3

Notes:

Content Area – Teachers who teach in one of the following areas, reading, English, math,

science, social studies, music, art or foreign language.

ELL – Teachers of the English Language Learners. These students have another language

as their primary language and are learning English.

Alternative – Teachers who are alternatively certified to teach.

National Board – Teachers who have earned their National Board Certification.

The teachers within the four groups have a range of years of experience from one year to

33 years.

The teachers are composed of both male and female teachers.

Table 3. *Interventions followed by the Four Groups of Teachers*

Group	Pre-Survey	Advance Organizer	Recorded	View with Principal	Post Survey
1	X		X		X
2	X	X	X		X
3	X		X	X	X
4	X	X	X	X	X

Summary

The chapter contained the statistical methods for the study and the rationale for each. To determine validity and reliability of the study the following methods were included, the Likert-scale for the opinionnaire, the Statistical Package for the Social Sciences (SPSS), version 11, the statistical method that provided data regarding the one way ANOVA and MANOVA results. For internal consistency, Cronbach's alpha statistical information was also obtained from the SPSS. A factor analysis with the varimax method was conducted upon the 46 items of the opinionnaire and was discussed in the chapter.

The three interventions: video recorded lessons, an advance organizer, and review with the principal were examined. A rational was provided for each intervention.

The purpose of the pilot study was examined. The pilot study participants' comments were included and were taken into consideration before the study was conducted. Table I provided the interventions followed by the four individual pilot participants.

The composition of participant groups and how they were selected was outlined. Further details were provided on the participant groups such as their background and teaching experiences. Table 2 provided the interventions followed by the four groups of teachers.

The statement of the problem was reviewed in Chapter I. The literature review was conducted in Chapter II. Chapter III detailed the methodology of the study. The data results from the methods are examined in Chapter IV. Conclusions regarding the results are presented in Chapter V.

CHAPTER IV

Presentation and Analysis of Data

The purpose of the study was to investigate the connection between teachers' reflections and teachers' practice through self evaluation via video recorded lessons.

The study examined teachers' perceptions of their reflective thinking. The work of Sprinthall and Thies-Sprinthall (1983) provided the theoretical basis for the research. Their model of five conditions for adult development include roletaking, reflection, balance, continuity, and support (Sprinthall & Thies-Sprinthall, 1983). Reflection, the second condition, was previously reviewed in Chapter II as well as Dewey's (1991) research and theories about reflective thinking.

Participants were asked by email to respond to an opinionnaire by identifying their perceptions about three reflective thinking processes: openmindedness, responsibility, and wholeheartedness. The baseline data were compared to responses to the same opinionnaire taken after the intervention in order to determine whether their perceptions had changed after the interventions.

Participants were divided into four groups. Participants in the first group video recorded their lessons. They each reviewed their video recordings alone. Participants in the second group read an advance organizer before they video recorded their lessons. They reviewed their video recordings alone. Participants in the third group video recorded their lessons and then reviewed their video recordings with the school principal.

Participants in the fourth group both read an advance organizer before they video recorded their lessons and reviewed their video recordings with the school principal.

Within Chapter Four is the presentation and analysis of the data. First, a comparison of the mean, standard deviation, and range for each group of the study is presented. Next, an analysis of variance (ANOVA) determined the differences between the opinionnaire responses. These analyses used an alpha level of 0.05. The ANOVA tables follow. Third, a MANOVA determined the differences in multivariate groups consisting of the combination of the opinionnaire responses to examine whether or not they were affected by the interventions. The MANOVA table follows. A Cronbach's alpha assisted in determining the internal consistency of the opinionnaire. Next, a factoral analysis with the varimax method was conducted regarding the data collected from the opinionnaire. The results are presented in Tables 3 through 15. The chapter is concluded with a summary.

Comparison of Mean Scores, Standard Deviations, and Range Scores for the Four Groups

In Table 4 below, the mean scores of the pre- and post-opinionnaire results are shown for all four groups. The table indicates the standard deviations of the opinionnaire results. It also presents the range scores for each of the four groups.

The mean scores are the average of all responses from each group of statements. For Statements 1 through 19, openmindedness was addressed. Statements 20 through 30 inquire about responsibility. Statements 31 through 46 regard wholeheartedness. There is a mean score for the pre- and post-opinionnaire responses for each group.

The standard deviation is averaged by the responses for each group of statements for Statements 1through 19, Statements 20 through 30, and Statements 31through 46.

Table 4. *Comparisons of Mean Scores, Standard Deviations, and Range Scores for the Four Groups*

Group 1

Statements	Mean			Standard Deviation			Range		
	Pre	Post	(Dif.)	Pre	Post	(Dif.)	Pre	Post	(Dif.)
1-19	4.33	5.17	.84	.69	1.13	.51	2	4	2
20-30	4.44	5.11	.67	.73	1.09	.37	2	4	2
31-46	4.39	5.00	.61	.43	1.11	.69	1	4	3

Group 2

Statements	Mean			Standard Deviation			Range		
	Pre	Post	(Dif.)	Pre	Post	(Dif.)	Pre	Post	(Dif.)
1-19	4.44	5.28	.84	.61	1.09	.49	2	3	1
20-30	4.33	5.44	1.11	.62	1.04	.43	2	4	2
31-46	4.50	5.72	1.22	.46	.99	.53	1	3	2

Table 4. cont.

Comparisons of Mean Scores, Standard Deviations, and Range Scores for the Four Groups

Group 3

Statements	Mean			Standard Deviation			Range		
	Pre	Post	(Dif.)	Pre	Post	(Dif.)	Pre	Post	(Dif.)
1-19	4.11	5.33	1.22	.69	1.18	.50	2	4	2
20-30	4.71	5.24	.53	.83	1.28	.45	2	4	2
31-46	4.50	5.72	1.22	.46	1.28	.82	1	5	4

Group 4

Statements	Mean			Standard Deviation			Range		
	Pre	Post	(Dif.)	Pre	Post	(Dif.)	Pre	Post	(Dif.)
1-19	4.33	5.41	1.08	.46	1.18	.72	1	4	3
20-30	4.72	5.29	.57	.69	1.07	.39	2	4	2
31-46	4.61	5.78	1.17	.43	.80	.37	1	3	2

One Way ANOVA

Seven hypotheses were constructed to guide this study. The study investigated teachers' perceptions about their reflections in teaching. Seventy-two teachers were purposively selected, divided into four groups, and subjected to different interventions.

Participants in each group completed an opinionnaire before and after they video recorded their lessons.   Teachers in Group Two and Group Four were asked to read and give thought to an advance organizer. Teachers in Group Three and Group Four reviewed the video recorded lessons with their principals. Hypothesis One stated: There will be no differences between perceptions of the four groups upon the pre- and post- opinionnaire. The purpose of this hypothesis was to compare 72 teachers' perceptions before and after they viewed themselves teaching a video recorded lesson. An ANOVA was conducted regarding the pre- and post-opinionnaire results. Group One was compared to Groups Two, Three, and Four; Group Two was compared to Groups Three and Four; Group Three was compared to Group Four.   There were no statistical significant differences among the four groups on the pre- or post-opinionnaires.

F values for the pre and post-opinionnaires were 0.58 and 0.97, respectively. The significances were 0.63 and 0.41, respectively.   There were no significant differences between groups. Hypothesis one was accepted, indicating the interventions resulted in no statistical changes in the post-opinionnaire scores.

Tables 5 and 6 represent the between and within group statistical results of the pre- and post-opinionnaire results.

Table 5. *Pre-Opinionnaire Results*

	Sum of Squares	df	Mean Square	F	Significance
Between Groups	.53	3	.18	.58	.63
Within Groups	20.54	68	.30		
Total	21.07	71			

Table 6. *Post-Opinionnaire Results*

	Sum of Squares	df	Mean Square	F	Significance
Between Groups	.91	3	.30	.97	.41
Within Groups	21.26	68	.31		
Total	22.18	71			

Hypothesis Two stated: There will be no differences between perceptions upon the post-opinionnaire of teachers who viewed their video recorded lessons alone (Group One) and those teachers who received the five advance organizer questions before video recording a lesson and viewing the lesson alone (Group Two). The purpose of hypothesis two was to determine if reading an advance organizer would result in improved scores upon the post-opinionnaire. Table 7 represents the statistical results, between and within Groups One and Two. No significant statistical differences were found between Group

One and Group Two.   Hypothesis two was accepted, indicating the interventions resulted

in no statistical changes in the post-opinionnaire scores.

Table 7.   *One Way ANOVA for Groups One and Two*

	Sum of Squares	df	Mean Square	F	Significance
Between Groups	0.12	1	0.12	.034	0.54
Within Groups	10.95	34	0.32		
Total	11.08	35			

Hypothesis Three stated: There will be no differences between the perceptions upon

the post-opinionnaire of teachers who viewed the video recorded lessons alone (Group

One) and teachers who viewed the video recorded lesson with their principals (Group

Three). The purpose of hypothesis three was to compare the post perceptions of Group

One with the post perceptions of Group Three to examine if the interventions indicated

significant changes between the two groups.   No significant statistical differences were

found

between Group One and Group Three. Table 8 displays the results, between and within

Groups One and Three. Hypothesis three was accepted, indicating the interventions

resulted in no statistical changes in the post-opinionnaire scores.

Table 8. *One Way ANOVA for Groups One and Three*

	Sum of Squares	df	Mean Square	F	Significance
Between Groups	0.31	1	0.32	1.06	0.31
Within Groups	10.29	34	0.30		
Total	10.61	35			

Hypothesis Four stated: There will be no differences between perceptions upon the post-opinionnaire of teachers who viewed the video recorded lesson alone (Group One) and those teachers who read five advance organizer questions and viewed the video recorded lesson with their principals (Group Four).

The purpose of hypothesis four was to compare the post perceptions of Group One with the post perceptions of Group Four to examine if the interventions indicated significant changes between the two groups. Table 9 represents the statistical results, between and within Groups One and Four. No significant statistical differences were found between Group One and Group Four. Hypothesis four was accepted, indicating the interventions resulted in no statistical changes in the post-opinionnaire scores.

Table 9. *One Way ANOVA for Groups One and Four*

	Sum of Squares	df	Mean Square	F	Significance
Between Groups	0.06	1	0.06	0.18	0.68
Within Groups	12.44	34	0.37		
Total	12.50	35			

Hypothesis Five stated: There will be no differences between perceptions upon the post-opinionnaire of teachers who read the advance organizer and viewed their video recorded lesson alone (Group Two) and teachers who viewed the video recorded lesson with their principals (Group Three). The purpose of hypothesis five was to compare the post perceptions of Group Two with the post perceptions of Group Three to examine if the interventions indicated significant changes between the two groups. Table 10 represents the statistical results, between and within Groups Two and Three. No significant statistical differences were found between Group Two and Group Three. Hypothesis five was accepted, indicating the interventions resulted in no statistical changes in the post-opinionnaire scores.

Table 10. *One Way ANOVA for Groups Two and Three*

	Sum of Squares	df	Mean Square	F	Significance
Between Groups	0.85	1	0.85	3.26	0.08
Within Groups	8.83	34	0.26		
Total	9.67	35			

Hypothesis Six stated: There will be no differences between perceptions upon the post-opinionnaire of teachers who read five advance organizers questions and viewed the video recorded lesson alone (Group Two) and teachers who read the advance organizer and viewed the video recorded lesson with their principals (Group Four). The purpose of hypothesis six was to compare the post perceptions of Group Two with the post perceptions of Group Four to examine if the interventions indicated significant changes between the two groups. Table 11 represents the statistical results, between and within Groups Two and Four. No significant statistical differences were found between Group Two and Group Four. Hypothesis six was accepted, indicating the interventions resulted in no statistical changes in the post-opinionnaire scores.

	Sum of Squares	df	Mean Square	F	Significance
Between Groups	0.37	1	0.37	1.15	0.29
Within Groups	10.97	34	0.32		
Total	11.34	35			

Table 11. *One Way ANOVA for Groups Two and Four*

Hypothesis Seven stated: There will be no differences between perceptions upon the post-opinionnaire responses of teachers who viewed the video recorded lesson with their principals (Group Three) and those teachers who read an advance organizer and viewed the video recorded lesson with their principals (Group Four). The purpose of hypothesis seven was to compare the post perceptions of Group Three with the post perceptions of Group Four to examine if the interventions indicated significant changes between the two groups.

Table 12 represents the statistical results, between and within, Groups Three and Four. No significant statistical differences were found between perceptions on the post-opinionnaire of teachers in Groups Three and Group Four. Hypothesis seven was accepted, indicating the interventions resulted in no statistical changes in the post-opinionnaire scores.

Table 12. *One Way ANOVA for Groups Three and Four*

	Sum of Squares	df	Mean Square	F	Significance
Between Groups	0.10	1	0.10	0.32	0.58
Within Groups	10.31	34	0.30		
Total	10.41	35			

Multiple Analyses Of Variance

A MANOVA was run on the pre and post opinionnaire to compare between groups and within groups. Findings indicated no significant differences among any of the four groups. The F value for the Pre (1) and Post (2) was 0.82 and the significance was 0.37. The GROUP F value was 0.75 and the significance was 0.52. Because alpha = 0.05 shows significance, there were no significant differences between groups. The F value for the Pre (1) and Post (2)* GROUP was 0.81 and the significance was 0.49. Because alpha = 0.05, there were no significant differences between groups. Thus, all seven null hypotheses were accepted, indicating the interventions resulted in no statistical changes in the post-opinionnaire scores. Table 13 below displays the results.

Table 13. *Multiple Analysis of Variance (MANOVA) Results*

Tests of Between-Subjects Effects

	Type III Sum of Squares	df	Mean Square	F	Significance
Corrected Model	1.69	7	0.24	0.79	0.60
Intercept	3488.49	1	3488.49	11348.35	0.00
Pre (1) Post (2)	0.25	1	0.25	0.82	0.37
GROUP	0.70	3	0.23	0.75	0.52
Pre (1) Post (2)* GROUP	0.74	3	0.25	0.81	0.49
Error	41.81	136			
Total	3531.98	144			
Corrected Total	43.50	143			

Cronbach's Alpha

For internal consistency, the Cronbach's alpha examined the 46 items. Internal consistency determines how closely related a set of items are as a group. When using Likert-type scales, it is important to calculate and report Cronbach's alpha coefficient for internal consistency reliability because it needs to be known if the reliability of the items is low or unknown. The alpha was found to be 0.96. A 0.7 is considered significant for internal consistency (George & Mallery, 2003).

Factoral Analysis of the Instrument

To check the reliability of the opinionnaire, a factoral analysis with a varimax rotation was conducted in SPSS, version 11. Varimax rotation is a method of orthogonal rotation. It maximizes the variance of a column of the pattern matrix. This simplifies the factor structure (Raubenheimer, 2004). This permits the investigation of two or more variables individually and those interacting with each other. The term factoral indicates the design had several factors. Each factor had two or more levels. Factoral analysis takes a large number of variables and groups them into a smaller number of clusters called factors. The grouping connected to certain variables is called loading onto a factor. Items will either load or they will not. When additional factors are identified, which are not within the individual items of the instrument, they then become variables (Gay & Airasian, 2000).

After they were loaded and rotated, the statements of the opinionnaire, were ranked from the highest to the lowest rank order. The rank order is represented with a decimal number. The statements and the corresponding decimal numbers together are ranked from the highest decimal number to the lowest decimal number. Responses represented by 0.4 and greater than 0.4 were significant for this study (Raubenheimer, 2004). After rotating, if the items show a 0.4 or greater it could define other possible factors (Kim & Mueller, 07-013, 1978a).

The factoral analysis was conducted using all the responses from the 82 college students, four pilot teachers, and the 72 teachers in the study. The responses were divided by the three categories of statements of the instrument: Statements 1 through 19,

openmindedness; Statements 20 through 30, responsibility; and Statements 31 through 46, wholeheartedness. Each will be discussed in turn.

Openmindedness

Openmindedness responses for items one through 19 are listed below from the highest to the lowest loading rank:

Statement 13: I ask myself if I am considering that what I am doing in the classroom is working.

Statement 1: I listen to more sides than one with individuals in my classroom.

Statement 10: I assume an attitude that carefully considers the consequences to which my actions lead in the classroom.

Statement 5: I consider alternative possibilities in behavior management for individual students.

Statement 19: I consider the effects of my teaching on my student's self esteem.

Statement 2: I consider alternative teaching strategy possibilities.

Statement 3: I consider alternative teaching strategies for individual students.

Statement 9: I assume an attitude that carefully considers the consequences to which my actions lead in the classroom.

Statement 14: I ask myself if I am considering that what I am doing with individuals is working.

Statement 4: I consider alternative possibilities in behavior management.

Statement 12: I ask myself why I am doing what I am doing with individual students beyond the immediate utility.

Statement 11: I ask myself why I am doing what I am doing in the classroom beyond the immediate utility.

Statement 8: I recognize the possibility of error in my beliefs about my reflective practices in regard to individual students.

Statement 7: I recognize the possibility of error in my beliefs about my reflective practices in regard to my classroom.

Statement: 6: I recognize the possibility of error in my beliefs about teaching that are important to me.

Statement: 18: I ask myself if I am considering for which individual students a teaching strategy is working.

Statement 15: I ask myself if I am considering the "why it is working" of what I am doing in the classroom.

Statement 17: I ask myself if I am considering for whom a teaching strategy is working in the classroom.

Statement 16: I ask myself if I am considering the "why it is working" of what I am doing with individuals in the classroom.

Table 13 below shows the loading rank of openmindedness for Statements 1 through 19 from the highest to lowest loading rank.

Table 14. *Loading Rank of Openmindedness Factors*

_____

Statement	Factor 1	Statement	Factor 2
13	0.89	16	0.90
1	0.88	18	0.86
10	0.87	15	0.85
5	0.87	17	0.84
19	0.86	6	0.80
2	0.85	7	0.80
3	0.85	8	0.75
9	0.82	11	0.51
14	0.81	12	0.47
4	0.76	4	0.41
12	0.71	2	0.39
11	0.71	14	0.39
8	0.51	3	0.35
7	0.35	9	0.34
6	0.34	10	0.33
18	0.32	5	0.28
15	0.31	1	0.28
17	0.28	19	0.26
16	0.24	13	0.21

For Statements 1 through 19, the analysis of factor items with loadings of 0.4 or greater, indicated a possible additional factors was found. For factor one, Statements 13,

1, 10, 5, 19, 2, 3, 9, 14, and 4 had loadings greater than 0.04. This could indicate a factor

relating to teachers' thoughts about the consequences of being openminded.   For factor,

two, Statements 16, 18, 15, 17, 6, 7, 8, 11, 12, and 4 had loadings greater than 0.4. This

could indicate a factor that had a common theme of strategic effectiveness

(Raubenheimer, 2004). Both possible factors', consequences and strategic effectiveness,

could be components of openmindedness.   Neither of these were specifically measured

by Statements 1 through 19 upon the opinionnaire (Gay & Airasian, 2000).

Responsibility

   Responsibility Statements 20 through 30 did not rotate in the factoral analysis.   All

of the loadings moved only to the first statement. This indicated items 20 through 30 of

the opinionnaire measured responsibility as presented. There were no additional factors

revealed other than responsibility.   All eleven statements were seemingly very similiar

regarding responsibility. While it is unusual to not see a factor extracted, this was not a

negative for the opinionnaire (Kim & Mueller, 07-014, 1978b). Responsibility responses

for items 20 through 30 were ranked from the highest to lowest loading rank. The

statements are below:

Statement 25: I consider the projected effects of my teaching on the future education of

my classroom.

Statement 20: I consider the effects of my teaching on individual student's self esteem.

Statement 29: I take the responsibility of reflection on the expected outcomes of my

teaching in the classroom.

Statement 28: I take the responsibility of reflecting on the unexpected outcomes of my teaching of individual students in my classroom.

Statement 26: I consider the projected effects of my teaching on the future education of individuals in my classroom.

Statement 23: I consider the effects of my teaching on my classroom's intellectual, social, and political knowledge.

Statement 30: I take the responsibility of reflection on the expected outcomes of my teaching of individual students in my classroom.

Statement 21: I consider the effects of my teaching on my classroom's academic performance.

Statement 22: I consider the effects of my teaching on individual student's academic performance in the classroom.

Statement 24: I consider the effects of my teaching on individual student's intellectual, social, and political knowledge.

Statement 27: I take the responsibility of reflecting on the unexpected outcomes of my teaching in my classroom.

Table 14 below shows the component matrix of these items and rank orders items 20 through 30 for responsibility.

Table 15. *Loading Rank of Responsibility Factors**

Statements	Factor 1 (unrotated)
25	0.92
20	0.91
29	0.91
28	0.91
26	0.90
23	0.90
30	0.89
21	0.89
22	0.88
24	0.87
27	0.82

*The solution could not be rotated.

Wholeheartedness

Wholeheartedness responses for items 31 through 46 were ranked from the highest to lowest loading rank. The statements are below:

Statement 31: I examine my assumptions about my classroom as a whole.

Statement 33: I examine my beliefs about my classroom as a whole.

Statement 32: I examine my assumptions about individuals in my classroom.

Statement 35: I examine my actions about my classroom as a whole.

Statement 34: I examine my beliefs about individuals in my classroom.

Statement 45: I believe I reflectively think about teaching in my classroom.

Statement 46: I believe I reflectively think about teaching when teaching individuals in my classroom.

Statement 36: I examine my actions about individuals in my classroom.

Statement 43: I attempt to see situations in my classroom from different perspectives.

Statement 44: I attempt to see situations with individuals in my classroom from different perspectives.

Statement 40: I strive to understand my own teaching with individuals in my classroom.

Statement 39: I approach teaching with the attitude that all students as individuals in my classroom can learn something new.

Statement 42: I strive to understand how my teaching impacts individuals in my classroom.

Statement 41: I strive to understand how my teaching impacts my classroom.

Statement 38: I approach teaching with the attitude that all students as individuals in my classroom can learn something new.

Statement 37: I approach teaching with the attitude that all students in my classroom can learn something new.

Table 15 below shows the loaded ranking of the wholeheartedness Statements 31 through 46 from the highest to lowest loading rank.

Table 16. *Loading Rank of Wholeheartedness Factors*

Statements	Factor 1	Statements	Factor 2
31	0.93	38	0.94
33	0.89	37	0.93
32	0.89	41	0.79
35	0.89	42	0.76
34	0.88	39	0.71
45	0.84	40	0.71
46	0.84	44	0.55
36	0.82	43	0.49
43	0.78	46	0.42
44	0.65	36	0.40
40	0.62	35	0.36
39	0.60	45	0.39
42	0.57	34	0.30
41	0.52	33	0.28
38	0.16	32	0.28
37	0.16	31	0.13

Analysis of statements 31 through 46 indicated two possible additional factors for wholeheartedness. For factor one, Statements 31, 33, 32, 35, 34, 45, 46, 36, 43, 44, 40, 39, 42, and 41 were greater than 0.04. This could indicate an additional factor, similarities of teachers' possible assumptions regarding wholeheartedness. For factor two, Statements 38, 37, 41, 42, 39, 40, 44, 43, 46, 36, and 35 were 0.4 or greater. This

could indicate an additional factor, teachers' attitude about students' learning (Raubenheimer, 2004). Teachers' assumptions and attitudes could be considered components of wholeheartedness. These additional factors of wholeheartedness were not measured in Statements 31 through 46 upon the opinionnaire (Gay & Airasian, 2000).

Statements 1 through 19 upon the opinionnaire indicated that two possible additional factors were measured. Consequences of openmindedness and strategic effectiveness of openmindedness were the two possible factors measured (Gay & Airasian, 2000).

For Statements 20 through 30, responsibility was the only factor found in the varimax rotation. The 11 statements did not rotate with any other factors (Gay & Airasian, 2000).

Statements 31 through 46 indicated two possible additional factors within wholeheartedness. The possible factors were teachers' assumptions and teachers' attitudes about student learning (Gay & Airasian, 2000).

Anecdotal Comments

Teachers wrote many comments to the researcher about their participation in this study. Examples of the comments written were, "A few items on the opinionnaire were wordy and hard to follow." "Taping encourages reflection. Through taping, I saw myself through critical eyes: I am my toughest critic. I observed my strengths and noted areas that I would like to modify." " I feel I lack great organization in preparing my lessons. I also wish I had more hours for my class time to build on concepts taught." "My weakness is my lack of experience. I am openminded but I do not have a lot to draw

on. I do not have a foundation from which to think about new ideas. Therefore, I depend on others too much." "We had too many interruptions, if it were in my power; I would arrange to have fewer interruptions. Within our thirty minute time, our class was interrupted six times for various reasons." " I need to use more visuals." "Taping inhibits my enthusiasm slightly, I move around so much."

Some of the comments spoken were, "I learned I was not paying attention to some students in my classroom as I teach, I tend to talk to one side." Another teacher said, "I do not give students enough time to respond to my questions, I really am rushing them." "I better study up on what reflective thinking is, I haven't done it in so long." A teacher who taught 33 years said, "I was so scared to do this, but I am glad I did, every teacher should video record themselves once a year."

Summary

The chapter contains the results of the analysis of variance (ANOVA) and MANOVA.   For the four groups, the pre-opinionnaire responses were compared with the post-opinionnaire responses, as well as each group within the four groups was compared with every other group.   The examination was to determine whether or not there were any affects from the interventions. With alpha= 0.05, Tables 3 through 15 indicated there were no significant statistical findings between any groups or within any groups.

Pre-opinionnaire responses were then combined with post-opinionnaire responses to form a multivariant (MANOVA) to examine whether or not there was any effect from the

interventions. With alpha = 0.05, the findings indicated there were no significant statistical results.

Cronbach's alpha determined the internal consistency of the opinionnaire. It was found to be 0.96. A 0.7 is considered significant. Because the internal consistency was 0.96, the opinionnaire could be considered to have internal consistency.

A factoral analysis with the varimax rotation was conducted upon the opinionnaire. Statements 1 through 19 regarding openmindedness were loaded, rotated, and ranked from highest to lowest according to the loading rank. The results for Statements 1 through 19 indicated there may have been additional factors revealed, consequences of openmindedness and strategy effectiveness, which could be considered a part of openmindedness. These two factors were not measured in the opinionnaire.

Statements 20 through 30 regarding responsibility were loaded, rotated, and ranked from highest to lowest according to the loading rank. The statements were unable to rotate. This could indicate that the statements were written very similar with little variance between them. The Statements 10 through 20 were rank ordered.

Statements 31 through 46 regarding wholeheartedness were loaded, rotated, and ranked from highest to lowest according to the loading rank.   The results indicated there may have been additional factors revealed, similarities of teachers' possible assumptions about wholeheartedness and teachers' attitude about student learning. These two factors could be a part of wholeheartedness.   They were not measured in the opinionnaire.

The statement of the problem was reviewed in Chapter I. The literature review was presented in Chapter II. Chapter III detailed the methodology of the study. The data

results from the methods were examined in Chapter IV. Conclusions regarding the

results are presented in Chapter V.

CHAPTER V

Summary

The purpose of the study was to investigate the connection between teachers' reflections and teachers' practice through self evaluation via video recorded lessons.

The study examined teachers' perceptions of their reflective thinking. The work of Sprinthall and Thies-Sprinthall (1983) provided the theoretical basis for the research. Their model of five conditions for adult development include roletaking, reflection, balance, continuity, and support (Sprinthall & Thies-Sprinthall, 1983). Reflection, the second condition, was primarily reviewed in Chapter II as well as Dewey's (1991) research and theories about reflective thinking.

Participants were asked by email to respond to an opinionnaire by identifying their perceptions about three reflective thinking processes: openmindedness, responsibility, and wholeheartedness. These baseline data were compared to responses to the opinionnaire taken after the interventions in order to determine whether their perceptions had changed.

Participants were divided into four groups. Participants in the first group video recorded their lessons and reviewed them. Participants in the second group read an advance organizer before they video recorded their lessons. They reviewed their video recordings. Participants in the third group video recorded their lessons and reviewed their video recordings with feedback from the school principal. Participants in the fourth group read an advance organizer before video recording their lessons and reviewed their video recordings with feedback from the school principal.

The theoretical framework of the study is adult development. The theoretical framework informed the study of a discreet aspect of adult development conditions, reflective thinking. The study measured three concepts of reflective thinking, openmindedness, responsibility, and wholeheartedness from Zeichner and Liston (1996). These concepts were derived from Dewey's (1991) thinking.

The study presented a pre- and a post-opinionnaire regarding openmindedness, responsibility, and wholeheartedness. The process of teachers completing a pre- and post- opinionnaire and video recording one of their teaching lessons is a way of gathering data to study teachers' perceptions of their reflection as a means of self-regulation. Teachers should be allowed to determine their strengths and weaknesses. National standards have promoted the worth of such evaluation (Warden, 2004).

A pilot study was conducted to ensure reliability and the appropriateness of the procedures. The pilot study was to review the opinionnaire and other processes of the study. Seventy two subjects responded formally to a request to participate in the study and were purposively divided into four groups of 18. All subjects were teachers. They represented all subject areas, grade levels, and ranged in years of teaching experience from one to 33 years. All teachers responded to the pre- and post-opinionnaire. The opinionnaire was designed for the study from Dewey's (1991) thinking regarding open-mindedness, responsibility, and wholeheartedness (Zeichner and Liston, 1996). All teachers video recorded a lesson of their choice and then viewed their video recording.

Conclusions

Teachers want to improve their craft. Thinking reflectively about what they teach is an important vehicle for improvement. The participants believed that video recording their lessons provided them permanent images of what had really happened in the lessons. The images confirmed some practices and highlighted others that needed improvement. Working to consciously reflect upon all teaching before, during, and after a lesson has great value for the quality of student learning.

The conclusions from the study are the following:

- There was no statistical significance found between or within the four groups studied. The null hypotheses were accepted for each of the seven hypotheses.

- Quantitative methods are not the only research methods for studying reflective thinking. Qualitative methods would provide first hand accounts from teachers of their reflective thoughts. Journals and video recordings of their reflective thoughts would allow them to elaborate and explain why they think as they do.

- The components of reflective thinking are not as important as engaging in reflective thinking. Reflective thinking should become a habit of teachers.

- Anecdotal information gathered from the study was valuable. The information revealed that teachers gained insight into their teaching by reflecting upon the experience of the study. This occurred in both the completing of the opinionnaire and video recording themselves.

- More details in the initial explanation of the study about reflective thinking would have provided the participating teachers with a universal definition of reflective

thinking. A universal definition would provide a place to begin as participating

teachers followed the process of the study.

- There are consequences regarding openmindedness within teachers. Teachers'
  have perceptions of their professional freedom regarding openmindedness within
  their classrooms and most importantly, regarding their students' ability to learn.

- Teachers develop strategies that affect students' learning. More needs to be
  known about how teachers decide what strategy is best to use for groups of
  students' learning or for individual students' learning.

- Teachers develop similarities in their assumptions regarding how they teach. It is
  a part of their wholeheartedness in the classroom.

- Teachers develop attitudes about student learning. Teachers'attitudes develop
  about their students' learning before they teach their students, while they their
  teaching their students, and after they have taught them.

- Engaging in openmindedness, responsibility, and wholeheartedness creates an
  atmosphere that is conducive for reflective thinking. Education is enhanced when
  discussions, performances, and written responses are thought about reflectively.
  Teachers' lessons incorporating reflective thinking which includes
  openmindedness, responsibility, and wholeheartedness will improve student
  learning.

Recommendations for Research

The study should be conducted over a semester consisting of five or six months or

throughout a year. If the study were conducted over a year, the video recorded teaching

lessons should then be repeated once each quarter (four quarters per year).   Reflective

thinking professional development with a focus about how to express perceptions of

reflective thinking should be intervened before each quarter. Professional development

should assist in determining if the quality of reflective thinking improved.

The study should be replicated to examine other variables within the demographic

information. For example, elementary teachers' reflective thinking as opposed to

secondary teachers' reflective thinking should be studied. Years of experience of

teachers should be examined and compared as to whether or not there is a difference in

reflective thinking if you are a beginning teacher or a veteran teacher.

New studies should analyze the findings of the study based on the varimax rotation

results. They are the following:

1. A study should be conducted regarding the consequences of openmindedness within

teachers. Teachers' have perceptions of their professional freedom regarding

openminded within their classrooms, and most importantly, regarding their students'

ability to learn.

2. A study should examine how teachers develop strategies that affect students' learning.

More needs to be known about how teachers decide what strategy is best to use for

groups of students' learning or for individual students' learning.

3. A study should investigate how teachers develop similarities in their assumptions

regarding how they teach. It is a part of their wholeheartedness in the classroom.

4. A study should be conducted regarding how teachers develop attitudes about student

learning in terms of before they teach their students, while they their teaching their

students, and after they have taught them.

A mixed method research design should be used to obtain qualitative data by generating written and oral responses for all aspects of the study. Gather teachers' opinions before, during, and after video recording. Selecting teachers to interview and study in-depth issues of reflective thinking collaboratively would document teachers' thoughts as they viewed the video recorded lessons. Take notes and share them when the teacher and the principal review the video recorded lesson together. The notes can serve as a guide for improvement.

The opinionnaire should be re-examined. Statements 20 through 30 about responsibility, as shown in the varimax rotation, were too similar. More distinguishing statements regarding responsibility within the opinionnaire are needed. Factoral analysis chould assist with determining how to revise the statements. Further study should be conducted regarding the opinionnaire. An improved opinionnaire will assist in gathering data about reflective thinking.

A self assessment tool should be developed for both the teachers and supervisors to evaluate the video recorded lessons. A self assessment tool should further the discussion and feedback between teachers and supervisors and develop reflective skills. Documenting teaching and reflection-on-action in real time will aid teachers in seeing what to improve within their practices before the next time they teach or video record a lesson. Such a tool could afford opportunities for exemplary practices.

Recommendations for Practice

Make current technological tools available for teachers to video record. This maximizes the opportunities for reflective thinking, improves classroom instruction, and

promotes collegiality. School district administrators should stay abreast of such tools and provide the funds for obtaining the tools.

School district administrators should take steps to routinely create opportunities for teachers to reflect upon their teaching by cooperating with local universities and colleges to participate in qualitative and quantitative studies. Encouraging such scholarly endeavors will provide valuable information regarding teachers reflecting about their teaching practices. Suggesting teachers reflect without providing opportunities for such practices is no longer adequate.

Longitudinal studies should be conducted following teachers beginning in their early years of teaching. They should be taught various research-based reflective approaches using video recordings of effective teachers, attending seminars, and reading professional journals. Teachers should then be tracked through their teaching careers as to whether or not the approaches have improved their reflective thinking.

Schools should provide an atmosphere for nonjudgmental, open discussions among teachers to foster trust. Routine discussions regarding reflective thinking, not only among teachers but with the administration, should be beneficial for improvement and should develop openmindedness, responsibility, and wholeheartedness.

Professional development activities should be designed to teach teachers how to improve their self-reflection. Learning to understand and how to articulate specific assumptions, attitudes, strengths, and weaknesses should enhance teachers' teaching. Discussing and reviewing video recordings of how other teachers implement effective strategies with students should assist teachers' reflective vocabulary and strategies.

Seek professional discussions with experts in the field in order to gain answers to questions about reflective thinking. Professional blogs and interactive websites allow teachers to discuss their concerns and their successes in real time and in return they gain new insights through instant feedback.

Learning how to access and produce educational video recorded clips of their teaching provides teachers an immediate tool for improving their reflective practice. Organizing such an exchange among colleagues provides teachers the opportunities to improve their collaborative skills as well as their ability to discuss reflective thinking.

Implications

The experience was beneficial, according to teachers' comments who participated in the study. Teachers agreeing to participate in a research project, video recording themselves, jointly discussing the video recording with principals, reflect well about the professionalism of teachers. Such interest and cooperation bode well for increasing the quality of teaching.

Encourage local school administrators and teachers to join forces with local colleges and universities and collaborate on an ongoing basis to study local education issues affecting the community. Collaboration at this level builds a strong alliance for improvement in education. Such collaboration speaks loud and clear to stakeholders within a community.

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APPENDICES

APPENDIX A

OPINIONNAIRE

To explore your frequency of reflective thinking, please respond to the following statements. Circle the number to the right of each statement that most accurately reflects what you do.

STATEMENT   FREQUENCY

	Always	Very Frequently	Frequently	Infrequently	Very Infrequently	Never
1. I listen to more sides than one with individuals in my classroom.	6	5	4	3	2	1
2. I consider alternative teaching strategy possibilities.	6	5	4	3	2	1
3. I consider alternative teaching strategies for individual students.	6	5	4	3	2	1
4. I consider alternative possibilities in behavior management.	6	5	4	3	2	1
5. I consider alternative possibilities in behavior management for individual students.	6	5	4	3	2	1
6. I recognize the possibility of error in my beliefs about teaching that are important to me.	6	5	4	3	2	1
7. I recognize the possibility of error in my beliefs about my reflective practices in regard to my classroom.	6	5	4	3	2	1
8. I recognize the possibility of error in my beliefs about my reflective practices in regard to individual students.	6	5	4	3	2	1

9. I assume an attitude that carefully considers the consequences to which my actions lead in the classroom.	6	5	4	3	2	1
10. I assume an attitude that considers the consequences to which my actions lead with individuals in the classroom.	6	5	4	3	2	1
11. I ask myself why I am doing what I am doing in the classroom beyond the immediate utility.	6	5	4	3	2	1
12. I ask myself why I am doing what I am doing with individual students beyond the immediate utility.	6	5	4	3	2	1
13. I ask myself if I am considering that what I am doing in the classroom is working.	6	5	4	3	2	1
14. I ask myself if I am considering that what I am doing with individuals is working.	6	5	4	3	2	1
15. I ask myself if I am considering the "why it is working" of what I am doing in the classroom.	6	5	4	3	2	1
16. I ask myself if I am considering the "why it is working" of what I am doing with individuals in the classroom.	6	5	4	3	2	1
17. I ask myself if I am considering for whom a teaching strategy is working in the classroom.	6	5	4	3	2	1

18. I ask myself if I am considering for which individual students a teaching strategy is working.	6	5	4	3	2	1
19. I consider the affects of my teaching on my student's self esteem.	6	5	4	3	2	1
20. I consider the affects of my teaching on individual student's self esteem in my classroom.	6	5	4	3	2	1
21. I consider the affects of my teaching on my classroom's academic performance.	6	5	4	3	2	1
22. I consider the affects of my teaching on individual student's academic performance in my classroom.	6	5	4	3	2	1
23. I consider the affects of my teaching on my classroom's intellectual, social and political knowledge.	6	5	4	3	2	1
24. I consider the affects of my teaching on individual student's intellectual, social and political knowledge.	6	5	4	3	2	1
25. I consider the projected effects of my teaching on the future education of my classroom.	6	5	4	3	2	1
26. I consider the projected effects of my teaching on the future education of individuals in my classroom.	6	5	4	3	2	1

27. I take the responsibility of reflecting on the unexpected outcomes of my teaching in my classroom.	6	5	4	3	2	1
28. I take the responsibility of reflecting on the unexpected outcomes of my teaching of individual students in my classroom.	6	5	4	3	2	1
29. I take the responsibility of reflection on the expected outcomes of my teaching in my classroom.	6	5	4	3	2	1
30. I take the responsibility of reflection on the expected outcomes of my teaching of individual students in my classroom.	6	5	4	3	2	1
31. I examine my assumptions about my classroom as a whole.	6	5	4	3	2	1
32. I examine my assumptions about individuals in my classroom.	6	5	4	3	2	1
33. I examine my beliefs about my classroom as a whole.	6	5	4	3	2	1
34. I examine my beliefs about individuals in my classroom.	6	5	4	3	2	1
35. I examine my actions about my classroom as a whole.	6	5	4	3	2	1
36. I examine my actions about individuals in my classroom.	6	5	4	3	2	1
37. I approach teaching with the attitude that all students in my classroom can learn something new.	6	5	4	3	2	1

38. I approach teaching with the attitude that all students as individuals in my classroom can learn something new.	6	5	4	3	2	1
39. I strive to understand my teaching with my classroom.	6	5	4	3	2	1
40. I strive to understand my own teaching with individuals in my classroom.	6	5	4	3	2	1
41. I strive to understand how my teaching impacts my classroom.	6	5	4	3	2	1
42. I strive to understand how my teaching impacts individuals in my classroom.	6	5	4	3	2	1
43. I attempt to see situations in my classroom from different perspectives.	6	5	4	3	2	1
44. I attempt to see situations with individuals in my classroom from different perspectives.	6	5	4	3	2	1
45. I believe I reflectively think about teaching in my classroom.	6	5	4	3	2	1
46. I believe I reflectively think about teaching when teaching individuals in my classroom.	6	5	4	3	2	1

APPENDIX B

Advanced Organizer Questions

Group Two and Group Four, please read and give thought to these questions before you video-tape your lesson.

1.   When you think about lessons you teach, what do you believe are your strengths in your teaching? (1. and 2.)

2.   When you think about lessons you teach, what do you believe are your weaknesses in your teaching? (1. and 2.)

3.   When you have questions about how to effectively present a lesson how do you resolve your dilemma? (3.)

4.   What indicates to you that you have taught an effective lesson to your classroom? (4.)

5.   What would you have done differently to reteach this lesson tomorrow? (5.)

(1.)   Artesani, M. (1996). Videotaping what works. *Teaching PreK-8*, 26, (7). P. 37.

(2.)   Artesani, M. (1996). Videotaping what works. *Teaching PreK-8*, 26, (7). P. 37.

(3.)   Bailey, G. D. (1981). *Teacher self-assessment: A means for improving classroom instruction. Analysis and action series.* Washington, D. C.: National Education Association.

(4.)   Darling-Hammond, L. (1997). *The right to learn.* San Francisco, CA: Jossey-Boss

Inc. Publishers, p. 25.

(5.)   Smyth, J. (1989). Developing and sustaining critical reflection in teacher

education. *Journal of Teacher Education,* 40, 2: 2-9.

(5.)   Argyris, C. and Schon, D. (1974). *Theory in practice: Increasing professional*

effectiveness. London: Jossey-Boss.

APPENDIX C

CONSENT FORM

I, _____, do consent to participate in the research

study, "The Effects of Video Taping, Advance Organizers, and Principal Participation on

Teachers' Perceptions of Reflective Thinking", conducted by Nancy Lynelle Burrows,

Oklahoma State University, Doctoral Candidate, in 2005-2006.

I understand this study has been approved by Oklahoma State University.

_____

Signature

_____

Date

APPENDIX D

Oklahoma State University Institutional Review Board

Date:	Wednesday, September 28, 2005
IRB Application No	ED0517
Proposal Title:	The Effects of Video Taping, Advance Organizers and Principal Participation on Teacher's Perceptions of Reflective Thinking
Reviewed and Processed as:	Expedited

Status Recommended by Reviewer(s): Approved   Protocol Expires: 9/27/2006

Principal
Investigator(s

Nancy Lynelle Burrows   Ken Stern
2711 Trailwood Dr. Apt. A.   311 Willard
Claremore, OK 74017   Stillwater, OK 74078

The IRB application referenced above has been approved. It is the judgment of the reviewers that the rights and welfare of individuals who may be asked to participate in this study will be respected, and that the research will be conducted in a manner consistent with the IRB requirements as outlined in section 45 CFR 46.

☒ The final versions of any printed recruitment, consent and assent documents bearing the IRB approval stamp are attached to this letter. These are the versions that must be used during the study.

As Principal Investigator, it is your responsibility to do the following:

1. Conduct this study exactly as it has been approved. Any modifications to the research protocol must be submitted with the appropriate signatures for IRB approval.
2. Submit a request for continuation if the study extends beyond the approval period of one calendar year. This continuation must receive IRB review and approval before the research can continue.
3. Report any adverse events to the IRB Chair promptly. Adverse events are those which are unanticipated and impact the subjects during the course of this research; and
4. Notify the IRB office in writing when your research project is complete.

Please note that approved protocols are subject to monitoring by the IRB and that the IRB office has the authority to inspect research records associated with this protocol at any time. If you have questions about the IRB procedures or need any assistance from the Board, please contact Beth McTernan in 415 Whitehurst (phone: 405-744-5700, beth.mcternan@okstate.edu).

Sincerely,

Sue C. Jacobs, Chair
Institutional Review Board

VITA

Nancy Lynelle Burrows

Candidate for the Degree of

Doctor of Education

Thesis: REFLECTIVE THINKING BY TEACHERS AN IMPROVEMENT IN TEACHING PRACTICES

Major Field: School Administration

Biographical:

      Education:

      Completed the requirements for the Bachelor's in Special Education at the University of Oklahoma, Norman, Oklahoma, May, 1975

      Completed the requirements for the Master of Education in Special Education at Central State University, Edmond, Oklahoma, July, 1980

      Experience:

      2011-2012, Coordinator of Early Childhood and Elementary Education, Bacone College, Muskogee, Oklahoma
      2009-2010, Lead Director Human Capital, Tulsa Public Schools
      2006-2009, Director of Certified Human Capital, Tulsa Public Schools
      2003-2006 Assistant Superintendent of Curriculum and Personnel, Claremore, Oklahoma
      2001-2003 Director of Elementary and Secondary Curriculum, Claremore, Oklahoma
      1999-2001 Director of Secondary Curriculum, Claremore, Oklahoma

      Professional Memberships:

      National and Oklahoma Association of Early Childhood Teacher Educators

Name: Nancy Lynelle Burrows   Date of Degree: July 2012

Institution: Oklahoma State University   Location: Tulsa, Oklahoma

Title of Study: REFLECTIVE THINKING BY TEACHERS AND IMPROVEMENT IN

TEACHING PRACTICES

Pages in Study: 125 pp.   Candidate for the Degree of Doctor of Education

Major Field: School Administration

Scope and Method of Study:
Factors that might contribute to teachers' reflection on their teaching were studied by purposively selecting 72 of 100 volunteers who were teachers in one PK-12 school district. Four groups of 18 were organized. All were administered the opinionnaire both pre and post. Also, all 72 had one of their instructional sessions video recorded. Group One had no additional intervention. Group Two read five advance organizer questions prior to the video recording. Group Three viewed their video recorded session with their principals. And, Group Four engaged in the same activities as Groups Two and Three combined. The opinionnaire was based on Zeichner and Liston's interpretation of Dewey's concept of reflection. The three factors were openmindedness, responsibility and wholeheartedness. The opinionnaire was developed and field tested resulting in an alpha of .9599.
.

Findings and Conclusions:
Seven null hypotheses were developed to guide the study suggesting that no statistically significant differences would be found within and between groups. One Way ANOVA and MANOVA discovered no significant differences; all of the hypotheses were accepted.

Because the pre-opinionnaire responses were relatively high, the post-opinionnaire responses did not increase much. Possibly, teachers are not sufficiently proficient in self-reflection so they over estimated their abilities. Or, maybe the instrument did not detect variances in teachers' self reflection abilities. Reading only, and not thoroughly discussing the advance organizers, may have resulted in no increase in reflective thinking about their teaching. If taking the pre-opinionnaire and being subjected to the interventions increased teachers' abilities to self-reflect, the post-opinionnaire responses would have been higher than the pre-opinionnaire responses.

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