THE INFLUENCE OF THE COLLABORATIVE VIDEOTAPE ASSESSMENT PROCESS ON PRESERVICE TECHNOLOGY EDUCATION TEACHERS’ CONFIDENCE, LESSON PLAN PREPARATION AND TEACHING EXPERIENCES

A Dissertation

Presented in Partial Fulfillment of the Requirements for

the Degree of Doctor of Philosophy in the

Graduate School of The Ohio State University

BY

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* * * * *

The Ohio State University
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ABSTRACT

The overarching concern that surrounded this research was the uncertainties technology education preservice teachers face in their initial teaching experiences. The study looked at the use of collaborative video assessment as a possible way to alleviate the aforementioned uncertainties as well as to increase the perceived self-efficacy and confidence of technology education preservice teachers in their initial field experiences. The theoretical backdrop of Bandura’s (1977) perceived self-efficacy model was used to provide a language to interpret the data and make conclusions.

The use of collaborative video assessment appeared to assist the participants of the study and the following assertions were formulated:

Assertion One: All of the participants exhibited varying degrees of uncertainty concerning their initial teaching experience before the research began.

Assertion Two: The uncertainties continued throughout the research period; however, the uncertainties of the participants using collaborative video assessment appeared to be reduced through the experience of the collaborative video assessment process, in addition to the teaching and the training they received throughout the research period.

Assertion Three: The process of collaborative video assessment appeared to have a notable influence regarding the perceived self-efficacy in planning of lessons for the collaborative video assessment participants’ uncertainties.
Assertion Four: The process of collaborative video assessment appeared to have a significant influence regarding the perceived self-efficacy in the delivery of lessons for the collaborative video assessment participants.

Assertion Five: The collaborative video assessment participants appeared to be more confident concerning their future endeavors in teaching.

Assertion Six: The process of collaboration with regard to video assessment appeared to be potentially beneficial to the MSaT program as interpreted from the views of the stakeholders. There were, however, some concerns such as time and working in groups.

The study concluded with the recommendation that the use of a collaborative video assessment process could possibly benefit several types of teacher education programs; however, further research would have to be conducted.

The final recommendation was the proposal of the Collaborative Video Assessment Process (CVAP) that was created from the findings and the literature.
DEDICATION

This dissertation is dedicated to my mother,

Ms. Meredith A. White,

and the late

Dr. Michael Leroy Scott
ACKNOWLEDGMENTS

I would like to extend my heartfelt gratitude to several individuals who supported me during my academic career at The Ohio State University.

First, I would like to thank Dr. Paul E. Post, my advisor and mentor. Dr. Post exhibits the qualities of an excellent professional and mentor on a consistent and daily basis, and it is my goal as an academic professional to emulate those qualities.

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# TABLE OF CONTENTS

<table>
<thead>
<tr>
<th>Section</th>
<th>Page</th>
</tr>
</thead>
<tbody>
<tr>
<td>ABSTRACT</td>
<td>ii</td>
</tr>
<tr>
<td>DEDICATION</td>
<td>iv</td>
</tr>
<tr>
<td>ACKNOWLEDGMENTS</td>
<td>v</td>
</tr>
<tr>
<td>VITA</td>
<td>vii</td>
</tr>
<tr>
<td>LIST OF TABLES</td>
<td>xiii</td>
</tr>
<tr>
<td>LIST OF FIGURES</td>
<td>xv</td>
</tr>
<tr>
<td>CHAPTER 1 INTRODUCTION</td>
<td>1</td>
</tr>
<tr>
<td>Motivation for the Study</td>
<td>4</td>
</tr>
<tr>
<td>Problem Statement</td>
<td>11</td>
</tr>
<tr>
<td>Purpose of the Study</td>
<td>12</td>
</tr>
<tr>
<td>Research Questions</td>
<td>18</td>
</tr>
<tr>
<td>Significance of the Study</td>
<td>19</td>
</tr>
<tr>
<td>Perceived Self-Efficacy as a Theoretical Backdrop</td>
<td>20</td>
</tr>
<tr>
<td>Chapter Summary</td>
<td>26</td>
</tr>
<tr>
<td>CHAPTER 2. REVIEW OF THE LITERATURE</td>
<td>27</td>
</tr>
<tr>
<td>Introduction</td>
<td>27</td>
</tr>
<tr>
<td>The Role of the Technology Education Teacher</td>
<td>28</td>
</tr>
<tr>
<td>Video in Education</td>
<td>34</td>
</tr>
</tbody>
</table>

viii
CHAPTER 3. METHODOLOGY AND DATA ANALYSIS ...................................................... 91

Introduction ............................................................................................................. 91

Assumptions ............................................................................................................. 91

  Assumptions Regarding the Researcher ............................................................... 91

  Assumptions Regarding the Participants ............................................................ 92

Limitations and Tradeoffs ....................................................................................... 94

  Limitations ........................................................................................................ 94

  Tradeoffs ........................................................................................................... 97

My Role as the Researcher ...................................................................................... 97

Overview of MSaT and the Participants ................................................................. 101

Procedures for Data Collection ........................................................................... 103

Data Collection ...................................................................................................... 111

  Section Introduction ....................................................................................... 111

  Phase 1. Participant Initial Reflective Data ....................................................... 112

  Phase 2. Team Gray: Videotaping In the Classroom ...................................... 113

  Phase 3. Team Gray: Editing Sessions ............................................................. 118

  Phase 4. Team Grey: Peer Review Sessions .................................................... 122

  Phase 5. Team Gray: Peer Review Session Post Interviews ....................... 123

Teacher Education .................................................................................................... 45

Constructivism in Education ................................................................................... 55

Efficacy in Education ............................................................................................ 64

Qualitative Research .............................................................................................. 76

Chapter Summary .................................................................................................. 89
Phase 6. Participant Final Reflective Data .................................................. 125
Phase 7. MSaT Student Survey ................................................................. 126
Phase 8. Faculty Survey ................................................................. 129
Participant Follow-Up Questions ......................................................... 135
Section Summary .................................................................................. 136
Data Analysis .......................................................................................... 137
Section Introduction ................................................................................. 137
Conceptual Ordering of Data .................................................................. 139
Keyword Coding Process Design ......................................................... 140
Code Categories and Keywords ............................................................. 142
Outcome Expectancies .......................................................................... 148
Chapter Summary .................................................................................. 148

CHAPTER 4. FINDINGS .............................................................................. 150
Introduction .............................................................................................. 150
Revisiting the Purpose of the Research .................................................. 150
Analysis of the Data Sources .................................................................. 151
Initial Participant Questionnaires ............................................................ 153
Editing Sessions ....................................................................................... 161
Peer Review Sessions ............................................................................. 166
Peer Review Post Interviews .................................................................. 186
Final Participant Questionnaires .............................................................. 193
MSaT Student and Faculty Surveys ......................................................... 199
MSaT Student Survey ........................................................................... 199
Faculty Survey ................................................................. 208

Putting it All Together ....................................................... 213

Assertions .................................................................. 214

Chapter Summary ............................................................. 216

CHAPTER 5. IMPLICATIONS AND RECOMMENDATIONS ................. 219

Introduction ........................................................................ 219

Implication: Time ............................................................... 221

Recommendations Regarding Time ........................................ 221

Implication: Assessment and Reflections .................................. 229

Recommendations Regarding Assessment and Reflections .......... 230

Implication: Value .............................................................. 234

Recommendations Regarding Value ........................................ 235

Further Research .................................................................. 236

The Collaborative Video Assessment Process (CVAP) .................. 238

Chapter Summary .................................................................. 248

REFERENCES ........................................................................ 249

APPENDICES ........................................................................ 263

Appendix A. Concept Framework P-12 Initial Preparation Programs:

Institutional Standards/Candidate Proficiencies of the Unit ............ 264

Appendix B. International Technology Education Standards ............ 275

Appendix C. Research Participation Consent Form ........................ 277

Appendix D. High School Student Consent Form .......................... 279

Appendix E. Initial and Final Reflection Questionnaires ................. 281
Appendix F. Team Gray Peer Review Post Interview Questions .................. 284

Appendix G. MSaT Student Survey .................................................................. 286

Appendix H. MSaT Faculty Survey .................................................................. 289

Appendix I. Syllabus for Field Experience: Expectations

    and Activities Handbook ............................................................................. 293

Appendix J. Research Timeline ....................................................................... 301

Appendix K. Instructional Review Board Approval Form ................................. 303
## LIST OF TABLES

<table>
<thead>
<tr>
<th>Table</th>
<th>Pages</th>
</tr>
</thead>
<tbody>
<tr>
<td>3.1 Participant Profiles</td>
<td>106</td>
</tr>
<tr>
<td>3.2 Signed Consent Forms Data</td>
<td>114</td>
</tr>
<tr>
<td>3.3 Order of Analysis</td>
<td>140</td>
</tr>
<tr>
<td>3.4 Data Analysis Coding Scheme</td>
<td>143</td>
</tr>
<tr>
<td>4.1 Interpreted Confidence Levels (Initial) – Question 1</td>
<td>156</td>
</tr>
<tr>
<td>4.2 Interpreted Confidence Levels (Initial) – Question 2</td>
<td>157</td>
</tr>
<tr>
<td>4.3 Interpreted Confidence Levels (Initial) – Question 3</td>
<td>158</td>
</tr>
<tr>
<td>4.4 Interpreted Confidence Levels (Initial) – Question 4</td>
<td>160</td>
</tr>
<tr>
<td>4.5 Efficacy Information Keyword Frequency Matrix (All Peer Review Sessions)</td>
<td>168</td>
</tr>
<tr>
<td>4.6 Keyword Frequency Matrix (Performance Accomplishments)</td>
<td>169</td>
</tr>
<tr>
<td>4.7 Keyword Frequency Matrix (Vicarious Experience)</td>
<td>172</td>
</tr>
<tr>
<td>4.8 Keyword Frequency Matrix (Verbal Persuasion)</td>
<td>175</td>
</tr>
<tr>
<td>4.9 Keyword Frequency Matrix (Emotional Arousal)</td>
<td>179</td>
</tr>
<tr>
<td>4.10 Participant likes and dislikes</td>
<td>192</td>
</tr>
<tr>
<td>4.11 Interpreted Confidence Levels (Final) – Question 1</td>
<td>194</td>
</tr>
<tr>
<td>4.12 Interpreted Confidence Levels (Final) – Question 2</td>
<td>194</td>
</tr>
<tr>
<td>4.13 Interpreted Confidence Levels (Final) – Question 3</td>
<td>195</td>
</tr>
<tr>
<td>Section</td>
<td>Title</td>
</tr>
<tr>
<td>----------</td>
<td>----------------------------------------------------------------------</td>
</tr>
<tr>
<td>4.14</td>
<td>Interpreted Confidence Levels (Final) – Question 4</td>
</tr>
<tr>
<td>4.15</td>
<td>MSaT Student Survey Responses</td>
</tr>
<tr>
<td>4.16</td>
<td>Research Participant Survey Responses</td>
</tr>
<tr>
<td>4.17</td>
<td>Faculty Survey Responses</td>
</tr>
</tbody>
</table>
### LIST OF FIGURES

<table>
<thead>
<tr>
<th>Figure</th>
<th>Pages</th>
</tr>
</thead>
<tbody>
<tr>
<td>1.1</td>
<td>Bandura’s (1977) perceived self-efficacy model</td>
</tr>
<tr>
<td>3.1</td>
<td>MSW teaching schedule</td>
</tr>
<tr>
<td>3.2</td>
<td>The “bag”</td>
</tr>
<tr>
<td>3.3</td>
<td>MSaT student survey questions</td>
</tr>
<tr>
<td>3.4</td>
<td>Differing questions between the student and faculty surveys</td>
</tr>
<tr>
<td>5.1</td>
<td>The technological system model</td>
</tr>
<tr>
<td>5.2</td>
<td>The CVAP technological system</td>
</tr>
<tr>
<td>5.3</td>
<td>Bandura’s (1977) reciprocal determinism model</td>
</tr>
</tbody>
</table>
CHAPTER 1

INTRODUCTION

Before I came to The Ohio State University (OSU) with my goal of a doctoral degree, I had been an adjunct faculty member at Columbus State Community College. I clearly remember my first teaching experience. I was in terror when I entered the classroom. I had extensive knowledge of the content I wanted to teach; however, I had no real experience in the art of teaching. Prior to this initial teaching assignment, I served as a “teacher’s aid,” and observed and helped students with assignments given to them by the instructor of the course.

The literature suggests that many novice and preservice teachers encounter insecurities and are often uncertain (Fives, 2005; Wheatly, 2005; Floden and Clark, 1988; Raudenbush, et al., 1992) about their abilities during their initial teaching experiences and that this can happen for a myriad of reasons, including a lack of confidence and perceived self-efficacy (Tschannen-Moran, Woolfolk Hoy, and Hoy, 1998; Zimmerman, 1989; Bandura, 1977).

There are a number of definitions for confidence. In addition, there are various types of confidence. The general description of confidence is a belief or trust in one’s abilities (Huitt, 2001; Tschannen-Moran, Woolfolk Hoy, and Hoy, 1998; Bandura, 1977). Other types of confidence include: self-confidence, social confidence, and academic confidence. Self-confidence is rooted in the notion of personal confidence in one’s “self”
as it relates to individual abilities and capabilities (Onafowora, 2004). Social confidence refers to confidence in social situations (Best, 2002). Academic confidence relates to confidence in teaching and learning within an educational setting. The types of confidence (i.e., self or social confidence) can be related to either the teacher or the student (Sander and Sanders, 2003).

Albert Bandura is credited with being a driving force of contemporary research regarding what confidence is in relation to education and educational psychology (Pajares, 2002; Tschannen-Moran, et al., 1998). Bandura (1977) asserts: “Confidence is a nondescript term that refers to strength of belief but does not necessarily specify what the certainty is about” (p. 382). Further, he states: “Confidence is a catchword rather than a construct embedded in a theoretical system” (p. 382). Confidence is the main focus of this research. However, Bandura’s assertion is that confidence is too much of a general term to be able to measure as a specific trait or construct.

Because of the impreciseness of the term confidence as a measure, several researchers advocate the use of self-efficacy as a measure or indicator of confidence (Alderman, 2004; Pajares, 2002; Pajares and Shunk, 2002; Tschannen-Moran, et al., 1998; Bandura, 1977). “It should be noted that the construct of self-efficacy differs from the colloquial term ‘confidence’” (Bandura, 1977, p. 382). Self-efficacy is described as a person’s judgment of their abilities to organize and execute specific actions or tasks (Bandura, 1977).

The term self-efficacy is a derivative of Bandura’s (1977) social learning theory (Pajares, 2002; Pajares and Shunk, 2002; Tschannen-Moran, et al., 1998). This theory is grounded in the concept of “reciprocal determinism.” Reciprocal determinism is based on
the manner in which the constructs of behavior (the way humans respond to certain set conditions) along with cognitive thought processes and personal beliefs, in addition to one’s environment, can interact and have effects on each other (Tschannen-Moran, et al., 1998).

An example that makes a distinction between self-confidence and self-efficacy would be: Self-confidence: I know I am going to be great at student teaching. Self-efficacy: Because I worked hard on my classes, observed others teaching, worked with my advisors, and got feedback from peers regarding my microteaching and lesson plans, I feel I could be an effective teacher.

“Self-efficacy has to do with self-perceptions of competence rather than actual level of competence. This is an important distinction because people regularly overestimate or underestimate their actual abilities, and these estimations may have consequences for the courses of action they choose to pursue or the effort they exert in those pursuits” (Tschannen-Moran, et al., 1998, p. 7).

This notion is also true of confidence, as in being “overconfident.”

There are several conceptual notions regarding self-efficacy. They include: self-reflection and perceived self-efficacy. Self-reflection is the process of a person appraising their own particular experiences and thought progressions (Pajares, 2002; Pajares and Shunk, 2002). Perceived self-efficacy refers to a person’s judgment of their capabilities (Pajares, 2002; Tschannen-Moran, et al., 1998; Bandura, 1977). An extensive description of perceived self-efficacy will be presented later in this chapter.
Motivation For the Study

The uncertainties, in addition to the lack of confidence and perceived self-efficacy many technology education preservice teachers may experience in their initial teaching experiences, are the overarching concerns that surround this research. In struggling with how to articulate this concern into the context of significant research that could possibly be useful in my field of technology education, I drew upon several of my experiences in the world of academia.

During my graduate studies at OSU, I had the opportunity to teach as a Graduate Teaching Associate (GTA). In all the courses, including the two communications technology classes I taught, I was given free rein to teach the classes using the methods I chose. In addition to becoming a GTA, I managed to acquire a position with The Ohio State University football team in their coaches’ video department. I had previously delved somewhat into multimedia and was proficient at producing and editing various types of video presentations. Additionally, I often videotaped my students during microteaching (mock teaching) sessions and presentations and gave them feedback on their first teaching experiences in an effort to develop confidence in their delivery and planning for future microteaching sessions. I also taught my students how to produce and edit videos in the classes I conducted. This knowledge helped me attain the position with the football team.

My four-year experience with the football team was formative and influenced many aspects and decisions while investigating and designing this research. During my employment with the football team, I became very acquainted with the sophisticated role video plays in the processes of a high-level college football program. My primary
responsibility consisted of digitizing video of practices and games into a computer and then breaking the digital video down into individual digital videos of each and every play.

I often thought of exploring the collaborative use of the videotape assessment procedures the football team employs to reduce uncertainties, increase confidence and perceived self-efficacy of players, and somehow using this knowledge to assist the technology education preservice teachers in my department.

Throughout my graduate studies I took several courses that involved the initial preparation of preservice teachers. Assessment and collaboration were always a central topic during those classes and included video assessment usually in the form of video portfolios or watching an unknown person teach. Assessment is an important component of teacher education (Nastasi, 1999; Scannell, 2000; Ingersoll and Kinman, 2002). The literature indicates assessment is “the relationship between effective teaching and student learning” (Cawyer and Calswell, 2002, p.1). The review of literature will investigate the different types of assessment that include self, peer, and collaborative assessment. The review of literature will expand further on studies that use video to assess students, teachers and educational programs.

As I examined how video was being used in the Mathematics, Science and Technology Education (MSaT) M.Ed. program of which technology education preservice teachers were a part, I did not see the potential for collaborative type of video assessment being realized. As part of the program, I knew that all of the preservice teachers in MSaT were required to videotape themselves only once a quarter during their field experiences (student teaching). This videotaping was required during their initial quarter of teaching.
Moreover, they were only required to write a self-reflection paper on the videotape experience. They were not required to watch or discuss the video with anyone else including their supervising teachers.

Additionally, in a review of the conceptual framework of The Ohio State University’s College of Education, it is stated: “The vision of The Ohio State University educator preparation unit is to produce the best educators in the nation and throughout the world who have the passion, efficacy and expertise for educating all P-12 school age and demographic groups.” Furthermore, within the philosophy of the framework, it is stated that a disposition for preservice teachers is to: “have a sense of efficacy by attributing students’ success in meeting learning goals to factors within the classroom and school, and value, encourage and provide opportunities for all students to meet reasonable standards and expectations” (The Ohio State University, 2005).

While exploring the use of the collaborative videotape assessment procedures the football team employed, I noticed very specific aspects such as peer assessment through video that could possibly benefit the technology education preservice teachers in terms of confidence and self-efficacy. For example, the coaches and players watch the video immediately after practice and the day after a game to assess their performance in “team meetings.” Additionally, after the team meetings, the players and coaches disperse into individual position meetings (e.g. running backs, offensive and defensive lines) and further assess and discuss performance via video in a smaller collaborative setting.

Finally, individual players had access to the videos and often watched them individually or with other players on their own time for further performance reflection.
One the benefits to watching the video is to critique the player’s performances in terms of strengths and weaknesses with the ultimate goal of improving future performances through perceived self-efficacy and an anticipation of increased confidence. For example, a player may be positioned wrong which could be considered a weakness and result in a bad play. The coaches and players have an instant tool to give them feedback in the form of video assessment. Conversely, if a player is positioned correctly, and the result is a successful play, coaches and players have an instant tool to reinforce what could be considered a strength through increasing perceived self-efficacy that could possibly lead to increased confidence.

As Ohio State Football Head Coach Jim Tressel pointed out after a bitter loss, “As you watch the film [video], there's a lot of the same emotion, but you get to see it from even more detailed fashion. You get to see it from the end zone and sideline and get to replay it and ask yourself, ‘Why and how could we have taught it better?’ and ‘What could we have done from a planning standpoint better?’” (Bucknuts.com Staff, 2005, p.1). Sentiments such as these are common among players and coaches on any given day during a football season.

The team meetings are an example of collaborative learning. Before the team breaks up into individual squads as previously described, the entire team watches a portion of practice known as the “team periods.” Team periods are usually all of the players of the offense versus a simulated opponent’s team’s defense. The same is true with the team’s defense. However, individual learning is a main component, even though
they are watching practice video as a collaborative group. The collaborative learning
component that any football team practices is an important component and is believed to
be a key to the success of the team.

Another example is the use of peer assessment in addition to self and group
evaluation. Peer assessment and group evaluation, with regard to video, involve the use
of people other than the person being videotaped, critiquing that person’s performance
vicariously through the watching of the videotape and offering verbal feedback. In the
case of football players, their peers are other players. Additionally, assessment and
evaluation can be provided by an authoritative or expert figure or figures. For example,
coaches and the media can assess football players.

A final example is the use of self-assessment. Many football players watch their
performance in the video on their own. In fact, they often request individual videos of
themselves from the coaches’ video department to identify the strengths and weaknesses
regarding their performance(s).

The examples regarding collaborative video assessment and the constructs
described within them (e.g. collaborative learning, peer and self-assessment via video)
are all techniques that the football team uses to reduce the inevitable uncertainties players
will face on “game day,” in addition to increasing their confidence and self-efficacy.
It must be noted that video assessment is not the only means the football team uses to
reduce the uncertainties and increase confidence. For example, individual players are
inundated with a number of resources to develop their skills including practice, non-video
team and player position meetings, weight training, and a rather large playbook. The
collaborative, peer and self-assessment processes are only one component of a much larger entity than team and individual meetings where video is assessed.

“These meetings constitute but one link in a larger process chain encompassing information gathering, analysis, strategizing, training, evaluation, and ultimately game-day execution on the turf. Much of this process is called ‘game-analysis,’ the gathering and distillation of detailed information” (McCormick, 1997, p. 6).

Preservice teachers must integrate multiple knowledge bases and forms of feedback including classes, seminars and individual reflection. For example, when planning a lesson, many preservice teachers are encouraged to gather information from as many resources as possible. These sources can be from books, teacher handouts and websites. The same can be true regarding the delivery of the lesson plan.

Although there are similarities between preservice teachers and football players in terms of information gathering, there are obvious differences as well. For example, a football player has teammates to rely on during all the processes described. Preservice teachers are alone while student teaching. As far as video is concerned, a football player is part of a collaborative effort and is less inclined to use self-assessment as opposed to peer and collaborative feedback.

As stated, technology education preservice teachers in MSaT are only required to videotape themselves once during their initial quarter of training and rely a great deal more on self-reflection. The confidence levels of both are an important component; however, a football player’s confidence can lead to team confidence, thus confidence can be much more collaborative in nature. As stated, preservice teachers can be insecure and

All of the aspects described are what piqued my interest in how to apply video assessment in a preservice educational setting and specifically to assist technology education preservice teachers in their initial preparation for becoming successful educators. The uncertainties as well as the lack of confidence I experienced when I taught my initial classes were not pleasant. As I taught more classes, my confidence in teaching grew. However, it took several years of practice before I was completely confident in my teaching self-efficacy regarding lesson planning. I learned to prepare effective lesson plans through trial and error in addition to information gathering.

The literature indicates that the uncertainties related to the seemingly simple act of teaching a group or class of students can raise a novice instructor’s level of anxiety to a level that reduces their effectiveness. By contrast, if a teacher perceives that a lesson is successful, and the students actually understood what was being taught to them and furthermore, appreciated the effort; the teacher’s feeling of satisfaction can be unparalleled.

As stated, the overarching concern of this research surrounds the uncertainties that technology education preservice teachers face in their initial quarter of field experiences. The collaborative video processes the football team employs in conjunction with my personal experiences as an educator and a member of MSaT raised many questions. For example, could the collaborative video process the football team uses be transferred to the uncertainties technology education preservice teachers face in their initial quarter of
training? If so, how could this be accomplished? How could it be investigated in terms of perceived self-efficacy? How could video play a role in investigating perceived self-efficacy? How could the notion of perceived self-efficacy play a role in collaborative video assessment and a possible increase in technology education preservice teachers confidence?

In a continuing review of literature based on the term confidence, I found that the word “confidence“ is a colloquial term (Bandura, 1977, p. 382). While investigating ways to develop structure for data analysis in terms of confidence, I came across Bandura’s (1977) perceived self-efficacy model as a way to increase or decrease confidence (Alderman, 2004; Pajares, 2002; Pajares and Shunk, 2002; Tschannen-Moran, et al., 1998; Bandura, 1977). These discoveries were essential in the framing of the research design and questions.

Problem Statement

Research exclusive to technology education in regard to videotaping a classroom setting to assist in the uncertainties of the teaching and learning process in a collaborative effort of technology education preservice teachers is not available. Furthermore, the review of literature will reveal that technology education preservice teachers could be exposed to several different curriculum styles, (i.e., the integrated approach, the modular approach etc.) in their initial teaching experiences.

Moreover, technology education preservice teachers may not be certain which approach they will be faced with in their initial training until they first enter the classroom. This could possibly lead to low levels of perceived self-efficacy in terms of the planning and delivery of lessons throughout their initial training.
The problem addresses efficacy and confidence issues in an effort to reduce the uncertainties technology education preservice teachers face in their initial teaching experiences.

**Purpose of the Study**

The intention of this research was to develop a process that would assist technology education preservice teachers in their initial quarter of student teaching in terms of the uncertainties they may face, through the use of collaborative video assessment.

The literature indicated that all teachers face uncertainties every day, particularly novice teachers (Floden and Clark, 1988). Additionally, there are a number of different uncertainties with different intensities. These include uncertainties concerning student understanding and misconceptions of a lesson, what content to include in lessons, and the ability to teach.

Teachers can learn as well as teach. Just as they are unsure of what their students know and can learn, teachers are uncertain about their own capacities. Students entering teacher education cannot be sure of their ability to manage a class or explain a concept. Nor can they know how much they will be able to improve during teacher preparation or the first years of teaching (Floden and Clark, 1988, p. 513).

Floden and Clark (1988) also state: “Uncertainty is compounded when teachers have responsibility for teaching many things to many students” (p. 510). Although this assertion focuses on teachers in general, it is especially true for preservice technology education teachers. Technology education is primarily a “hands-on” discipline
(Wicklein, 1997), and encompasses several different content areas; i.e., energy and power, communications, construction, electricity, and manufacturing. A preservice technology education teacher could be preparing a lesson on framing a wall for a house one day, and designing a magazine cover with graphic design software the next, to different students in different classes. The diversity of content that preservice technology education teachers face in their initial experiences could also influence how they deliver lessons as well.

The second purpose of this research was to ascertain if the self-confidence levels of the participants within a collaborative group, as interpreted through Bandura’s (1977) perceived self-efficacy model, changed as a result of the processes associated with collaborative video assessment. The technology education preservice teachers’ self-confidence levels were explored in the areas of the planning of lessons and the delivery of lessons to their assigned classes in their initial quarter of field experiences.

The importance of investigating collaborative video assessment in the initial quarter of training is the notion that all preservice teachers are submissive in their initial experiences and more apt to be open to new ideas and concepts (Tschannen-Moran, et al., 1998). Additionally, the notion of uncertainties will be reviewed in Chapter 2 with an emphasis on the uncertainties all preservice teachers face, particularly in their initial experiences.

The importance of investigating delivery and the planning of lessons was based on the MSaT Field Experience Competencies (Appendix A). The document lists five areas of concentration and three to six corresponding rubrics for each. Preservice teachers are evaluated and assessed based on these rubrics. The five areas of concentration are:
Content and Instruction; Planning and Preparation; Classroom Social Context and Environment; Assessment and Evaluation; and Reflection and Professionalism.

The first two areas (Content and Instruction; Planning and Preparation) and the corresponding rubrics directly tie to the concept of the planning of lessons and delivery. Furthermore, they can be assessed in a collaborative effort via videotape. For example, one of the rubrics concerning Content and Instruction states: “C&I 1. Explains concepts and principles of content in a manner that is comprehensible to students.” An example of Planning and Preparation is: “P&P 2. Varies instructional resources and materials through the use of district curriculum, state and national standards, reliable websites and other types of resources.”

The other three content areas have components of either lesson plan preparation or the delivery of lessons. In addition, they have at least one rubric consistent with these constructs. For example, the Classroom Social Context and Environment concentration area has a rubric that states: “CSC&E 1. Builds and maintains appropriate rapport with students.” Additionally, a Reflection and Professionalism rubric states: “R&P 1. Reflects on personal classroom practice as evidenced in thoughtful journal writings, discussions with other professionals, changes in ways of thinking, and lesson modifications.”

It must be noted that there are components of the Field Experiences Competencies that are not connected with lesson planning or delivery. For example, one of the rubrics in the Assessment and Evaluation concentrations states: “A&E 4. Maintains accurate records, attendance and grades.” Rubrics such as these would be impractical for collaborative video assessment. It must also be noted that several of the competencies do not apply to preservice teachers in their initial experiences. For instance, preservice
teachers do not meet with parents in their initial quarter. Of the twenty-two rubrics within the Field Experiences Competencies document, thirteen are viable for the constructs of preparation of lesson plans and delivery that this research strives to investigate.

The third purpose of this study was to conduct relevant research that may be useful to not only preservice technology education teachers but also any preservice education teacher program as well. Historically, video has been used as an assessment tool in the teaching and learning process of preservice teachers in education. The primary assessment is done by preservice teachers through self-assessment, or a combination of university supervising teachers and preservice teachers (Fredriksen, et al., 1998; Eastern Washington State University, 1971; DeBacy, 1969; DeGenaro, 1969; Tochon, in press). There is no indication that research has been conducted to determine if video is being used to assist in the process of assessment of preservice technology education teachers’ self-efficacy or self-confidence.

The lack of research within the technology education field promotes the type of process this research strives to investigate. A comprehensive search starting with the Journal of Technology Education’s (JTE) online search engine, which contains a database with several technology education related online journals, only displayed ten articles with the use of the keyword “video.” Just two of the articles even remotely had to do with video in an educational setting. Both were systematic instructional compositions that advised educators to videotape their lessons either for instructional delivery to students for a database or for online distance learning. Although these articles were in the JTE search database and were technical in nature, they were not specifically about video assessment and technology education preservice teachers.
Extensive searches within the International Technology Education Association (ITEA) website, The Journal of Industrial Teacher Education (JITE), and The Journal of Technology Studies (JTS), yielded similar results. Furthermore, in-depth searches conducted using Google Scholar, Academic Search Primer, Dissertation Abstracts, the Education Resources Information Center (ERIC), and the Ohio State University Library database produced outcomes parallel to those found in the JTS, ITEA, JITE and JTE searches.

Although the searches involving technology education preservice teachers suggest no research has been conducted, the review of literature will discuss that video has been used as an assessment tool for preservice teachers of varying disciplines (Person, Chambers, & Hall, 2003; Finn, 2002; Sherin & van Es, 2002; Anderson & Radencich, 2001; Fredriksen, et al., 1998). The premise is that a preservice teacher videotapes a lesson plan he or she conducts in a classroom setting and the tape of the lesson is then evaluated. These evaluations can be critiqued by the student (self-assessment), the mentor and supervising teachers (authoritative assessment), or other preservice teachers (peer assessment). Only the self-assessment initiative holds true with technology education preservice teachers within the MSaT program.

Articles such as Sherin and van Es’s (2002) “Using Video to Support Teachers’ Ability to Interpret Classroom Interactions” and Kinnear, McWilliams, and Caul’s (2002) article “The Use of Interactive Video in Teaching Teachers: An Evaluation of a Link With a Primary School,” report the same type of research regarding video performance assessment with various outcomes; however, I have yet to find a study that is exclusively geared towards technology education preservice teachers.
Technology education preservice teachers differ from other preservice teachers in many ways that will be detailed later in this chapter. The importance of this construct is that this research may have the potential be furthered in other preservice education disciplines; however, testing must be done in order to achieve that goal. This study will serve as the genesis of that research. Additionally, I wanted to contribute to my field of study, specifically technology education.

Moreover, many of these studies did not have a specific reference to self-efficacy; however, they did have unstated components regarding perceived self-efficacy. For example, Sherin and van Es’s (2002) state:

> Viewing video, however, provides teachers with a very different kind of experience, one in which the goal is reflection rather than action. By allowing teachers to remove themselves from the demands of the classroom, viewing video may prompt teachers to develop new ways to examine what happens in their classrooms (p. 2).

This statement incorporates efficacy information in addition to a collaborative learning aspect although these concepts are not mentioned by name.

Furthermore, there are a small number of studies regarding video that use preservice teachers of various disciplines, working together as collaborative “teams,” to try to find pedagogical strategies that would benefit their teaching experiences (Tochon, in press; Goldman, 2004). The Sherin and van Es’s (2002) article incorporates both aspects; however, these studies do not include technology education preservice teachers. The collaborative learning aspect is also becoming deeply rooted in the educational field (Kasl and Yorks, 2002; Dillenbourg, 1999; Dougiamas, 1998; Gokhale, 1991) due to the
increasing application of social constructivism in the classroom (Dougiamas, 1998). Collaborative learning is the notion of a group of individuals that work together to attain a goal or solve a problem (Dillenbourg, 1999; Dougiamas, 1998; Gokhale, 1991).

In summary, the educational literature is replete with studies that involve video as an assessment tool and collaborative learning as a means to develop self-efficacy and increase confidence. The same literature does not introduce these constructs in terms of technology education preservice teachers developing the self-efficacy needed to overcome the uncertainties in their initial teaching experiences. The purpose of this research is to study how a collaborative video assessment process might assist preservice technology education teachers to develop the self-efficacy needed to reduce the uncertainties of their initial teaching experiences.

Research Questions

The overarching question of this research is how will the processes regarding collaborative video assessment assist in overcoming the uncertainties that technology education preservice teachers face in their initial student teaching experiences. To answer this question the following research sub-questions were formulated:

1. What is the influence of collaborative video assessment on preservice technology education teachers in terms of perceived self-efficacy and confidence as they plan lessons in their initial quarter of student teaching?

2. What is the influence of collaborative video assessment on preservice technology education teachers in terms of perceived self-efficacy and confidence as they deliver their initial lessons?
3. How will the stakeholders of the Mathematics, Science, and Technology Education (MSaT) program at The Ohio State University view collaborative video assessment?

The research questions will help address the overarching question in the areas of lesson planning and delivery; additionally, research question three will provide a basis for future expansion.

To gather information for these questions, three of six participants used in this study videotaped themselves three times during their initial quarter field placements. They edited their videos and produced short vignettes showing their perceived strengths and weaknesses concerning their delivery of the lessons. They participated in peer review sessions that showed their videos and peer review session post interviews.

The other three participants went through the traditional methods of field placements as prescribed by the MSaT program that included the requirement of videotaping themselves once and writing a short reflection about the experience. All of the participants answered pre and post questionnaires about their experiences in the MSaT program and answered follow-up questions. Finally, surveys were conducted that involved stakeholders to gather information regarding future expansion of this research.

Significance of the Study

This research could be helpful to preservice technology education teachers for several reasons. First, preservice technology education teachers (through video assessment) will have the opportunity to see other preservice technology education teachers conduct lessons within aforementioned content areas. Second, preservice technology education teachers will see different classrooms and laboratory facilities. Third, they will have the opportunity to discuss the teaching experiences within the
different capacities and facilities. Finally, the results of this research could be transferred to other disciplines such as the mathematics education and science education portions of the MSaT program at The Ohio State University.

Perceived Self-Efficacy as a Theoretical Backdrop

The theoretical backdrop that ultimately guided this research was based on four constructs: performance accomplishments, vicarious experiences, verbal persuasion and emotional arousal (Bandura, 1977). These constructs are generally referred to as “efficacy information” (Pajares, 2002; Tschannen-Moran, et al., 1998; Bandura, 1977), and provided a language for investigation.

Performance Accomplishments

Performance accomplishments are based on “personal mastery experiences” (Bandura, 1977). Personal mastery experiences are described as self-interpretations of a performance or action that lead to self-efficacy beliefs (Pajares, 2002; Tschannen-Moran, et al., 1998; Bandura, 1977). Additionally, success in personal mastery experiences can raise self-efficacy leading to high levels of confidence while failure can lower self-efficacy and result in low levels of confidence. (Pajares, 2002; Holden, Barker, Meenaghan, and Rosenberg, 1999; Tschannen-Moran, et al., 1998; Bandura, 1977).

An example could be an interpretation of a student teaching session by a preservice teacher. If the preservice teacher feels he or she performed well in a teaching session, their self-efficacy could be high resulting in a strong sense of confidence. Conversely, if the preservice teacher feels they performed poorly, the result could be low levels of self-efficacy resulting in inconsequential degrees of confidence. Bandura (1977)
indicates that personal mastery experiences are the most significant source of perceived self-efficacy and are important indicators of academic achievement.

*Vicarious Experiences*

Vicarious experiences are described as external experiences that are drawn upon from the actions of others. The “others” could be mentors, authoritative figures or peers (Pajares, 2002; Tschannen-Moran, et al., 1998; Bandura, 1977). Bandura (1977) states: “Many expectations are derived from vicarious experience. Seeing others perform threatening activities without adverse consequences can generate expectations in observers that they, too, will improve if they intensify and persist in their efforts” (p. 384).

In essence, a preservice teacher can base his or her teaching approach on watching someone else teach. This is known as modeling (Pajares, 2002). Preservice teachers can base their teaching approaches on several different models, mainly their mentor teachers; however, they also are exposed to the teaching methods of their teacher educators and other external sources such as videotapes of teachers or online sources of teachers teaching. “The more closely the observer identifies with the model, the stronger will be the impact on efficacy. When a model with whom the observer identifies performs well, the efficacy of the observer is enhanced” (Tschannen-Moran, et al., 1998).

It must be noted that if the observer witnesses the perceived failure of a model, self-efficacy could be diminished (Tschannen-Moran, et al., 1998). However, because preservice teachers are easily influenced or malleable in their efficacy beliefs, particularly in their early teaching and learning experiences, observations of perceived model failures
may not be as profound in terms of lower self-confidence or perceived self-efficacy (Pajares, 2002; Tschannen-Moran, et al., 1998; Bandura, 1977).

Additionally, vicarious experiences can also be internal. For example, when people watch themselves on videotape, they can gain knowledge through self-reflection (Tschannen-Moran, et al., 1998). When a preservice teacher self-reflects, the notion of collaboration or collaborative learning is generally not present because they are internalizing. However, if the preservice teacher is externally observing a live performance of teaching, the collaborative aspect may be present.

Finally, if a preservice teacher is watching a video, the collaborative aspect may or may not be present. For example, if a preservice teacher is asked to watch videos of teaching on an Internet site that is dedicated to several different teachers’ performances it can be implied that there is no collaboration. In contrast, if the preservice teacher is watching a video of a teacher they know and can converse with, the collaborative feature may not only be present, but also the potential of learning such as modeling.

*Verbal Persuasion*

Self-efficacy can be developed through social messages by authoritative figures as well as peers. Social messages can be praise, encouragement, recommendations, or relating similar experiences (Pajares, 2002). Furthermore, Pajares indicates that verbal persuasion is even more significant regarding self-efficacy when those that are respected give it or their judgment is of value. Additionally, “Verbal persuasion can be general or specific; it can provide information about the nature of teaching, give encouragement and strategies for overcoming situational obstacles, and provide specific feedback about a teacher’s performance” (Tschannen-Moran, et al., 1998, p. 19).
The effectiveness of verbal persuasion is dependent on the context in which it is given as well as the perspective. In most cases, it is in a collaborative effort of some kind. If feedback is given in a negative, critical, or harsh manner, self-efficacy can be weakened (Pajares, 2002; Tschannen-Moran, et al., 1998; Bandura, 1977, 1989). It is also easier to lower self-efficacy through unconstructive evaluations or judgments than it is to increase self-efficacy through positive forms (Pajares, 2002; Bandura, 1977). Tschannen-Moran, et al., 1998 indicate that verbal persuasion is successful when the persuaders foster attainable goals. “Specific performance feedback from supervisors, other teachers, even students, can be a potent source of information about how a teacher’s skills and strategies match the demands of a particular teaching task” (Tschannen-Moran, et al., 1998, p. 20).

Emotional Arousal

The emotional or physiological state (Pajares, 2002; Holden, Barker, Meenaghan, and Rosenberg 1999; Tschannen-Moran, et al., 1998; Bandura, 1977, 1989) a person is in while performing a task such as teaching can play an important role in Bandura’s perceived self-efficacy model (Pajares, 2002; Tschannen-Moran, et al., 1998). “Stressful and taxing situations generally elicit emotional arousal that, depending on the circumstances, might have informative value concerning personal competency. Therefore, emotional arousal is another constituent source of information that can affect perceived self-efficacy in coping with threatening situations” (Bandura, 1977, p. 383).

Examples such as “butterflies in the stomach” and “sweaty hands” are typical in stressful situations, specifically public speaking or novice teaching experiences (Pajares, 2002; Tschannen-Moran, et al., 1998; Bandura, 1977). Additionally, moderate levels of
emotional arousal can increase perceived self-efficacy due to concentrated energy given to a task or action. Furthermore, the success or failure of perceived self-efficacy in terms of emotional arousal depends on the individual’s prior experiences, the circumstances surrounding the emotional arousal and the intensity of the emotional arousal (Tschannen-Moran, et al., 1998; Bandura, 1977).

The Outcomes of Bandura’s (1977) Perceived Self-Efficacy Model

Observing efficacy information is an input to Bandura’s (1977) perceived self-efficacy model. However, to understand if there is a measurable difference in terms of perceived self-efficacy, Bandura (1977) indicates that three outcomes may occur. Those outcomes are performance, approach versus avoidance, and persistence (Pajares, 2002; Bandura, 1999; Bandura, 1977).

Simply stated, a person with high self-efficacy will likely approach difficult tasks rather than avoid them. Additionally, they will persist in the challenge to overcome difficult tasks and perform them successfully (Pajares, 2002; Bandura, 1977). For example, if a preservice teacher perceives that they were unprepared in the planning of a lesson that resulted in a bad performance or delivery of the lesson, efficacy information (performance accomplishments, vicarious experiences, verbal persuasion and emotional arousal) may increase self-efficacy and they will approach the problem by persisting to be better prepared and ultimately performing better in the future. The opposite is possible if the preservice teacher has low self-efficacy.

Final Thoughts Regarding the Theoretical Backdrop

Bandura (1977) has emphasized that perceived self-efficacy is confidence in “one's capabilities to organize and execute the courses of action required to produce
given attainments” (p. 3). Additionally, Holden, Barker, Meenaghan and Rosenberg (1999) indicate that several studies suggest, “Ratings of self-efficacy have repeatedly been shown to be predictive of a range of future behaviors” (p. 463).

The research regarding the notion of perceived self-efficacy as an indicator of confidence (Alderman, 2004; Pajares, 2002; Pajares and Shunk, 2002; Tschannen-Moran, et al., 1998; Bandura, 1977) was the basis of the theoretical backdrop that provided a language that guided this study. Bandura’s (1977) social learning theory provided a means to interpret the impact of videotape assessment on technology education preservice teachers’ self-confidence, and specifically, its construct of perceived self-efficacy as a measure of preservice teachers’ confidence.

Furthermore, studies regarding perceived self-efficacy and collaboration (known as collective efficacy) are few; however, they are worthy and significant (Tschannen-Moran, et al., 1998). The studies reviewed in this section indicate that this model provides a framework for improving technology education preservice teachers’ self-confidence through the use of collaborative video assessment. However, any outcomes are dependent on what particular tasks are to be performed and can be modified for those tasks (Bandura, 1986). In the case of this research, the outcomes (performance, approach versus avoidance, and persistence) were determined by perceived self-efficacy. My interpretation of Bandura’s (1977) perceived self-efficacy model is shown in Figure 1.1.
Chapter Summary

This chapter discussed the uncertainties I faced as a novice teacher. From this perspective I chose to investigate ways of relieving the uncertainties many technology education preservice teachers face in their initial teaching experiences. In the course of this investigation I drew from my experience in academia and The Ohio State University Football Team in terms of using collaborative video to assess performance. I then ascertained through a literature review that Bandura’s (1977) perceived self-efficacy model provided a language that could be used to discover a possible method to develop a collaborative video assessment process.

The review of literature will include all of the components and concepts discussed in this chapter. They include: a description of a technology education teacher, how video is used in education, aspects of teacher education, and collaborative ideologies in teacher education through a review of constructivism and teacher education. Furthermore, the review of literature will encapsulate how uncertainties and efficacy play a part in education. Finally, qualitative research methodologies will be discussed.
CHAPTER 2

REVIEW OF THE LITERATURE

Introduction

Several qualitative researchers who conduct their research in the interpretive paradigm suggest that a review of literature should not be conducted until after the research data is collected (Dick, 2004; Schwandt, 2001; Glesne, 1999). The theory behind this process centers on the notion that if a researcher completes a review of literature or has a theoretical framework in mind, the integrity of the research may be in jeopardy because the researcher may have pre-conceived notions about the subject matter and the processes that may follow.

This concept was considered; however, I had written several academic papers surrounding topics such as video in education and teacher education. I drew upon those literature reviews and added new information as well. The result is a literature review with six sections; those being The Role of the Technology Education Teacher, Video in Education, Teacher Education, Constructivism in Education, Efficacy in Education, and Qualitative Research. The sections are broad in their scope; however, several aspects are relevant to this research and will be cited throughout subsequent chapters. For example,
each of the sections includes discussions concerning collaboration, efficacy or uncertainties and how they play a part in the specific section topic. Many of the sections include all three of the aforementioned topics.

Furthermore, many aspects of the literature review were primary to the development of the design of this research and the outcomes. They included aspects such as collaboration, efficacy and uncertainties that help answer the research questions. Finally, many aspects explored in the review of literature are consistent with the experiences of the participants in their initial teaching experiences.

The Role of the Technology Education Teacher

The participants in this research were seeking a degree and certification that would allow them to teach as technology education teachers. In this respect, it is important to know what a technology education teacher is and what role they play within an educational setting. Furthermore, it is important to explain the role of the technology education teacher as a mentor teacher to preservice technology education teachers.

Technology education is described as: “A study of technology, which provides an opportunity for students to learn about the processes and knowledge related to technology that are needed to solve problems and extend human capabilities” (Technology for All Americans Project, 1996, p. 13).

Curriculum Approaches in Technology Education

As technology education has evolved, so have the approaches to the curricula. As stated in the historical literature, hard work by dedicated professionals has shaped the curriculum of contemporary technology education. Two outcomes of such work are the
Both of these documents relate to outline content. Both were formal meetings composed of educators from across the country that discussed the classifications of then, industrial arts. In the case of the *Jackson’s Mill Industrial Arts Curriculum Symposium*, the participants were asked by the *American Industrial Arts Association* to pull together in an effort to find some kind of common ground on which all industrial arts educators could agree concerning the future of the field. Hales and Snyder (1982) assert:

The literature in our field of study over the past few years has been replete with concerns and warnings about the direction and future of industrial arts. Committees within the American Industrial Arts Association structure have issued reports with the same conclusions. It is, therefore, time to translate the debate into action. It is time to assess the relationship of industrial arts to comprehensive education. It is time to rededicate ourselves to a common professional cause (p. ii).

The outcome of the symposium was a classification of what industrial arts should be; namely, it was suggested that the categories be communications, construction, manufacturing, transportation, and management (Hales & Snyder, 1982).

Like the *Jackson’s Mill Industrial Arts Curriculum Theory*, the participants of *A Conceptual Framework for Technology Education*, were interested in taxonomy and a change from industrial arts to technology education (Savage & Sterry, 1990). The result
was another classification of curriculum, i.e., it developed four solid constructs for technology education: communication, transportation, production, and bio-related technology (Savage & Sterry, 1990).

After *A Conceptual Framework for Technology Education* was published, a plethora of opinions were published on how technology education should be taught. These opinions were, in general, of a philosophical and theoretical nature. For example, Scott D. Johnson of the University of Illinois called for “emphasis on intellectual processes.” “Intellectual processes are those mental operations that enable one to acquire new knowledge, apply that knowledge in both familiar and unique situations, and control the mental processing that is required for knowledge acquisition and use.” (Johnson, 1992, p. 28).

Similar articles pertaining to curriculum theory have been surfacing since *A Conceptual Framework for Technology Education* was published, thus clouding an already volatile issue. “Students Attitudes Toward Technology in Selected Technology Education Programs” (Boser, Palmer, & Daugherty, 1998) was published in the *Journal of Technology Education*, and focused on four major categories of teaching methods. They are:

1. Industrial Arts Approach: A body of related subject matter, or related courses, organized for the development of understanding about all aspects of industry and technology, including learning experiences involving activities such as experimenting, designing, constructing, evaluating, and using tools, machines, materials, and processes (American Council on Industrial Arts Teacher Education, 1979).
2. Integrated Approach: Instruction that incorporates other disciplines such as English, mathematics, science, and social studies to show how technology is an integral part of other disciplines and vice versa. It also emphasizes the need for humans to apply knowledge from other disciplines to solve technological problems.

3. Modular Approach: Individualized, self-paced, action-based units of instruction that allow students to use current technologies to learn independently. The modular approach provides students with problems and activities that encourage them to use critical, higher-level thinking skills to solve problems and make value decisions.

4. Problem Solving Approach: An instructional approach that emphasizes critical thinking and is centered on students using a problem solving process to find creative solutions to problems that are technological by nature (Boser, Palmer, & Daugherty, 1998, p. 7).

The authors contend that these are the four approaches typically used in technology education classes (Boser et al., 1998). These approaches often use collaborative learning strategies, such as group work by students, when applied. Furthermore, the construct of collaboration is typically stressed in technology education teacher education programs.

*Technology Education Supervising and Mentor Teachers*

Each participant in this study had a supervising and mentor teacher. The role of the supervisor teacher is to assess, advise, and follow the progress of technology education preservice teachers throughout their experience within the MSaT program.
They conduct weekly supervisor meetings with other technology education preservice teachers. These meetings are intended to foster collaboration between the technology education preservice teachers through topical discussions and verbal reflections. In addition, the supervisor gives directives. For example, one directive may be criteria for future lesson plans in terms of a specific topic such as incorporating technology in the classroom.

The role of the mentor teacher is to advise and guide the technology education preservice teacher in the actual classroom. They give constructive criticism, direction for lessons and lesson plans and feedback to not only the technology education preservice teacher, but the supervisor teacher as well.

Both teachers should adhere to national and state standards and thus the notion of National Council for Accreditation of Teacher Education (NCATE) standards as well as technology education standards as prescribed by the International Technology Education Association (ITEA). Both are an important component of the participants’ experience. Required disciplines such as math and science have standards by law. Technology education is not required to have standards, but the ITEA has authored them in an attempt to give further credibility to an important component of education. Furthermore, the State of Ohio’s Department of Education requires that the College of Education at The Ohio State University follow NCATE teacher education standards.

Each technology education mentor teacher is given a current copy of a form known as Concept Framework P-12 Initial Preparation Programs - Institutional Standards/Candidate Proficiencies of the Unit. This document is a framework for a
dialogue between the supervising teacher and the mentor teacher. This form can be found in Appendix A. Additionally, the ITEA standards can be found in Appendix B.

**Efficacy, Collaboration, and Video in Technology Education**

As stated in Chapter 1, there is no evidence of research that has been conducted regarding technology education preservice teachers in a collaborative video assessment situation; however, there have been studies that involve collaboration and the videotaping of technology education students in fifth and sixth grade classrooms. One such study involved qualitative research regarding the “Lego/Logo Learning Environment” (Järvinen, 1998). This study was based on the constructivist theory and specifically, social interaction. Pupils were videotaped working with lego/logo control systems. The goal was to help the students become familiar with control systems. This is a mainstay in the robotics content area of technology education.

This study is relevant because it promotes collaboration between students. This type of collaboration was videotaped and analyzed in a qualitative manner and similar studies will be discussed later in this chapter. It also promotes collaboration between mathematics, science and technology. Although this study does not cite perceived self-efficacy by name, elements of this theory are present. The researcher engaged in verbal persuasion with the students; “During the study the researcher also acted as a tutor” (p.51) and as well as emotional arousal; “The level of the challenge and the exhaustion that the students felt after lunch caused them to become frustrated more quickly and some almost gave up on the task” (p. 55). The conclusion of this study claims that collaboration can promote learning individually as well as socially.
Section Conclusion

The participants of this study are preservice technology education teachers. Many aspects within this section serve as a background to what the participants were exposed to during their undergraduate training in the Technology Education Department at The Ohio State University. Although some of the roles described in this section have not been practically applied to the participants (e.g. the modular approach), the participants have been exposed to the theories and ideologies that surround them.

Furthermore, much of the literature involving collaboration, video and efficacy are centered within the realm of P-12 classrooms and not technology education preservice teacher education. The study reviewed regarding lego/logo (Järvinen, 1998) is representative of these studies; however they have many aspects (as previously described) that are relevant to this research.

Video in Education

Section Introduction

Using electronic media, specifically video, to train and evaluate teachers and students has a rich history. Literally hundreds of quantitative and qualitative studies have been conducted such as Nastasi’s (1999) article, Enhanced Ethnographic Methods: Audiovisual Techniques, Focused Group Interviews and Elicitation Techniques. This study and others similar to it will be reviewed in this section.

These studies look at several topics in the use of video in education that include professional development (processes educators engage in to increase their skills), assessment (documenting knowledge and skills), student and teaching portfolios
(personal documentation of knowledge and skills), and the preparation of preservice teachers for the issues they will face such as classroom management and the planning of a lesson.

This section will explore how video has been used in education, in addition to the advantages and disadvantages of using video in an educational setting. Furthermore, these studies are important to this research because they not only go into detail about how video can be used in education, but they also contain many aspects of the efficacy information constructs contained within Bandura’s (1977) perceived self-efficacy model.

**Historical Use of Electronic Media**

Historically, electronic media had been used in education since the 1940s. According to Popham (1960), experiments had been conducted using tape recordings in lieu of live lectures, in several classroom settings. The premise was for the recordings to be used by those teaching professionals who were not fully qualified to teach certain subjects, such as reading or foreign languages. Education would logically evolve to other forms of electronic media by means of films, television, and eventually video.

DeGenaro (1969) describes the use of television as a means of instruction along with the pros and cons of this type of instruction. In the 1950s, television was used as an instructional tool in specific content areas. Studies were conducted to gauge the effectiveness of this type of instruction versus traditional classroom instruction. DeGenaro points out that there were no significant differences in these studies, but that there were internal validity problems, such as the “Hawthorn effect” and “novelty effects.” Both effects would be logical as this type of new experimental undertaking
would naturally be something students would gravitate to and make an amplified effort. In the final analysis, it was determined that television would continue to be used, but the question was how (DeGenaro, 1969, p. 43).

*Early Studies Regarding Video as an Educational Tool*

In the late 1960s and early 1970s, several studies were conducted to determine the effectiveness of video as a tool for educational purposes. DeGenaro (1969) studied the effectiveness of video in an observational setting of preservice teachers for his doctoral dissertation. The study, conducted at The Ohio State University, was interesting because at that time, according to DeGenaro, no studies had been conducted whatsoever concerning video and observation at the University. DeGenaro conducted the study due to the teacher education program’s suggestion that “video tapes be taken of all student teachers” and that “each student teacher be taped at least once during his [sic] internship” (DeGenaro, 1969, p. 4).

DeGenaro (1969) contended that video could help in the observation of preservice teachers in place of physical visits of supervising faculty. He states:

The need for greater staff utilization, economy of time and reduction of physical visitations by those involved in supervision opened a new area of research resulting in this study. The question was one of using the Video Tape Recorder as a tool or instrument for evaluation rather than only as a means of instruction (p. 4).

DeGenaro was not saying that it should be a replacement for physical visits or face-to-face supervision, but as a means to help in the process of evaluating a teacher candidate. This study concluded that using video to evaluate preservice teachers by
supervising faculty made a significant difference as an evaluation tool insofar as efficiency in terms of the time being spent in face-to-face observations and it was recommended that further studies be conducted (DeGenaro, 1969).

Another study conducted by the Center for Vocational and Technical Education in 1971 was also at The Ohio State University. The purpose of this study was different from DeGenaro’s (1969) insofar as Doty and Cortell (1971) were trying to ascertain if video had an effect on the efficiency of preservice teachers in a college teacher education methods course. Video was used as a feedback tool to assist the students who were practicing microteaching (mock teaching usually to other students) in the classroom and then actually teaching the lessons in a classroom of high school students (Doty & Cortell, 1971).

This quantitative experiment involved two groups. One group was videotaped and given feedback and the other group received conventional instruction. The study found no statistical significance in the effectiveness of the actual lesson, but the students who were videotaped felt they were more prepared to deliver lessons while the students who were not videotaped indicated that they would have liked to have had the opportunity to use video as a feedback method. The recommendations of this study promote the use of video in methods courses for teacher candidates in addition to compiling a library of videotapes of student teachers conducting microteaching exercises that teacher candidates could access.

*Video as a means of assisting in the delivery and planning of lessons*

Doty & Cortell’s, (1971) recommendation of a video library has become a reality, as several universities now have databases with access to videos of preservice teachers.
conducting lessons. One such program is a joint effort of Arizona State University, the Arizona K-12 Center and Northern Arizona University. The database is named the “Best Practices” digital video database. “The database focuses on teachers delivering technology-based instruction. These schools have compiled videos that include a pre-instruction interview with the teacher, a video of the teacher delivering the technology-based lesson and a post-instruction reflective interview with the teacher . . . ” (Tally, 2002, p. 5).

Another study was conducted at Eastern Washington State College and was taking place in 1971 as well. The premise was much more extensive than that of Doty and Cortell (1971), as it had several more components. It looked at the use of video for preservice teachers and in-service programs for experienced teachers. The study provided several video programs.

The ongoing program consists of a variety of video-taping programs designed to enhance learning experiences for students while engaged in preparation programs leading to teacher certification; for graduate students seeking degrees beyond the B.A. Degree; and for in-service programs for those teachers presently teaching (Eastern Washington State College, 1971, p. 1).

Video feedback similar to that described in the aforementioned DeBacey, (1969) research, in most of the cases, was predominately a needs assessment tool used to help all of the participants learn through video feedback and thus, improve in their given genre.

In yet another early study, Brigham (1974) used the video feedback as an instrument to evaluate child development preservice teachers. His study differed in that he had his subjects taped for different durations of time. The range was ten-minute
sessions to thirty-minute sessions. For example, he presented a ten-minute videotape of
the subjects to the associate trainees at the beginning of the study and progressed to a
fifteen-minute tape and concluded with a thirty-minute videotape. The goal was to use the
timed recordings progressively throughout the study to build upon and strengthen the
teachers’ understanding of the concept or lesson.

Educators who considered video as a new medium or tool to be used to help
educate preservice teachers conducted the studies described above. As Brigham (1974)
points out: “. . . the camera misses virtually no actions; the microphone catches a great
proportion of the verbal communications. The playback mechanism affords the viewer an
opportunity to replay certain viewings and make diagnoses of instruction/learning” (p. 1).

Finally, Rodebaugh and Chambless, 2002 state:

Video feedback seems a promising influence on self-efficacy, because it touches
upon several of the key factors that increase self-efficacy. Although individuals
receiving feedback have already experienced a performance accomplishment (i.e.,
they completed a feared task), their distorted impressions of their presentation
may prevent them from properly perceiving their accomplishment. Video
feedback would provide an opportunity to observe the quality of their
accomplishment more objectively (p. 631).

Pros and Cons of Video in Education

To this point, this section has provided many aspects of how the use of video in
education can be used to assist educators of all levels. Preservice teachers can use video
to learn how to conduct themselves in a classroom setting, as well as use video to give feedback to other preservice teachers. Seasoned educators can use video to instruct, assess, and share with colleagues.

Video feedback is an excellent example of the positive aspects of doing educational work with video. When this method is carried out and it works as described, the use of video can be noteworthy. Even if the model does not work, the video can still be used for further training or instruction purposes. Video case studies are another positive video endeavor. Although the research regarding video cases is usually qualitative, the results can be beneficial and relevant to faculty and students who subscribe to quantitative methodologies.

The effectiveness of this technology requires that researchers and interventionists develop relevant technological expertise and continue to stay abreast of technological advances. At the same time, it is critical that ethnographers give serious consideration to the integration of this technology in ways that enhance research, theory development, and intervention” (Nastasi, 1999, p. 48).

As a qualitative researcher, Nastasi’s (1999) points are well taken. However, Holliday (2000) points out that video has yet to be totally accepted in research because text has always been the accepted measure of research. “Text, by contrast, is frequently accepted unquestioningly, and this illustrates how certain kinds of realism are central to ethnography while others are ‘written out’” (p. 1).

In the case of delivery of a lesson, specifically for preservice teachers, it has been shown that video can be an invaluable tool to help students observe classroom activities in a naturalistic setting (DeBace, 1969). A problem that can occur and is most common
is bias. Bias can take several forms; from the teacher, from the students, and from the researcher or observer. As Stigler, et al. (1999) point out, teachers who know they are going to be videotaped may intentionally provide a “special” lesson for the video. In addition, teachers may modify their conduct in an effort to give the best presentation possible. In the same vein, students are apt to “tone down” their normal behavior because of the camera. On the other hand, the students may act out more aggressively.

Finally, the researcher or observer may knowingly or unknowingly alter the tape if it is edited in an attempt to give the best possible product. In addition, standards issues insofar as the continuity is concerned can be a factor. If a researcher is conducting several video vignettes for instructional purposes, camera positions must be unvarying (Stigler et al., 1999).

Another concern is the time and capital it takes to produce a video for educational purposes. In some cases this is not of great concern; for example, a preservice teacher filming a simple vignette of a teacher can usually obtain a camera from the university or school they attend, in addition to tripods and lighting equipment if necessary. They can easily transfer the tape from the camera to a videocassette. In addition, the teacher educator more than likely would provide some form of instruction for such an undertaking.

This would be video in education in its simplest form. There is little time involved, depending on the proficiency of the student’s knowledge of the technology, and the cost could be as low as the price of a few tapes (Kardas, 1993). The only other time constraint would be the possible consent of parents of any student being videotaped. It takes time to distribute and collect consent forms for responsible research.
Emerging Research

Goldman (2004) emphasizes that value comes from collaboration and that collaboration using video is becoming more and more commonplace. Goldman’s assertions are directed at several types of learning; however, her work is related to video assessment regarding constructivism and collaboration. Goldman (2004) states: “The notion of a perspectivity meme entering the culture and spreading means that people can use the camera to reflect upon their own and other’s roles in the classroom. In framing what they shoot, they make their mental selections transparent. And, others see what they see (videotape)” (p.166).

The term “perspectivity meme” is in reference to Goldman’s assertion that within a “learning environment,” changes will progressively “shape the roles” of the individuals who participate in the sharing of beliefs and knowledge. “Digital video technology is the medium that enables the perspectivity meme to spread throughout this learning culture” (Goldman, 2004, p.147).

Additionally Tochon (in press) has conducted studies similar to this research. One of his studies cites the use of “methodological video cases.” This is a systematic approach similar to the design of this research. It employs participants videotaping an activity in a classroom, editing the video, and then presenting the video in a “pedagogical evening” with peers. The methodological video case requires that the participant edit the video to show a “specific teaching method.” The pedagogical evenings are also videotaped and edited based on “problem cases.” It is pointed out that the outcomes of the dialogue from this process are not generalizable (Tochon, in press, p. 3).
Although it is uncertain how many students participate in the “pedagogical evenings,” and the results, according to Tochon, are not generalizable, it is clear that the process can be transferred to smaller “video study groups.” Tochon asserts: “Different types of video study groups exist, each with specific working principles. The idea of the video study group is based on a flexible educational model founded on reflective exchange in response to videotaping of activities conducted by the participants” (p 3).

Tochon also conducted an online video assessment seminar. Seventeen participants in the language arts discipline submitted video clips of their “teaching practices” and discussed the uses of video study groups. He further describes that: “intuition and friendship played as much a role as analytic rigor and technology” (p.16).

As noted, there are many similarities between Tochon’s research and this study. For example Tochon refers to the risk of “classroom fiction” (p.6). This refers to the organization of video clips in such a manner that an actual lesson or methodology may not be represented in the manner in which it was intended. Several aspects of these similarities will be presented throughout this text.

Both Goldman (2004) and Tochon (in press) utilize collaboration in their work. Tochon states:

Video reflexivity is a component of conceptualization and social action and permits a collaborative dialogue. Videotaping oneself raises awareness of the action and allows the actors to understand their practice and sometimes to improve their next moves. The video camera’s shots are taken to build a sense of identity and connectedness that holds a strong appeal for the viewer (p. 12).
Goldman’s views on collaboration are more general in terms of education; however, the use of technology involving video and the Internet are apparent.

Efficacy Involving Video

Several of the studies involve efficacy information in Bandura’s (1977) perceived self-efficacy model. For example, the studies conducted by Tochon (in press) and Goldman (2004) use performance accomplishments, vicarious learning, and verbal persuasion. Like most of the literature reviewed, efficacy information is present; however, the information is not specifically named. Watching video is vicarious by nature and gives any student an opportunity to learn from their own education experiences as well as others’ (Monthienvichienchai, and Sasse, 2003). Many of Bandura’s (1977) constructs of perceived self-efficacy permeates throughout this section although it is not stated.

Section Conclusion

This section has discussed several aspects of video in education from the rich history of electronic media, to the time and cost issues involved in producing educational video. It is clear that for anyone wishing to use video for educational purposes; be it training for preservice teachers, instruction, video case studies, or professional development, such an undertaking is not a simple task. There are, for instance, time and money constraints, logistical and approval (people or students in the videotape) concerns, and assessment (how to) considerations.

Research has been conducted using most facets of video in education and will continue as the technology continues to grow and improve. It is also perceptible that
further rigorous research must be conducted to make video in education more acceptable and credible. The work of Tochon and Goldman are key examples of research that could be advanced.

This section indicates that all of the efficacy information in Bandura’s (1977) perceived self-efficacy model are present in most of the studies that were reviewed. In addition, collaborative learning was also present.

Teacher Education

Section Introduction

For the past 100 years, educators and others have written about, scrutinized, argued over, and implemented their own reasoning and discernment of how to achieve the goal of educating teachers (Borrowman, 1965; Dewey, 1904; Papert, 1991). An overload of programs, reforms, redesigns, benchmarks, and standards have inundated the educational system at both national and local levels.

This section will focus on the broad concepts generated in educational research studies and publications that relate to the educational culture that the participants were a part of during this research in terms of their training. Several of the concepts and conclusions within this literature were observed and documented within the data analysis, specifically the participants’ pre and post questionnaires. Two major areas will be discussed in this section. They are: Assessment, and Field Experiences.

Assessment

In order to teach, the teacher must be prepared to find out if the pupil has learned. This is an age-old practice. The term “assessment” is the noun used today as “a method of evaluating student performance and attainment” (Merriam-Webster, 2003). There are
many forms of assessment used in modern education; they include assessments such as: performance-based assessment, digital portfolios, assessment of field-based experiences of preservice teachers, assessments of clinical experiences, and NCATE standards regarding assessments.

An argument can be made that NCATE would be the highest authority, but not all teacher education programs in this country adhere to NCATE assessment standards. The literature reviewed for this educational area will discuss these types of assessments as they pertain to teacher education, in addition to the questions raised by this all-encompassing part of education.

Cawyer and Calswell (2002) state that historically there are many reasons for what has been termed the “failure to educate our children.” The authors mention several high profile publications such as A Nation at Risk and such prestigious organizations as The Holmes Group and The National Commission on Teaching and America’s Future as sources not only stating this failure, but also calling for “outcomes” rather than “inputs” to measure student achievement.

Cawyer and Calswell (2002) indicate assessment is: “…one issue that is recognized as significant for all education stakeholders: the relationship between effective teaching and student learning” (p. 1). The rationale is that assessment can be a vehicle for measuring the above-mentioned relationship. They allude to performance-based tests as a means of assessment based on NCATE standards, specifically Praxis II, as a way to measure content and pedagogy skills. In addition, assessment of preservice teachers’ lesson plans and prepared materials is supported. Finally, Cawyer and Calswell
call for teacher education programs to better prepare preservice teachers through assessment, particularly with faculty willing to assist in the preparation of student portfolios.

Other types of assessment include a study by Ingersoll and Kinman (2002) that required students to conduct a performance self-assessment based on their “self-perceived levels of competency.” The instrument that was produced was based on the Interstate New Teacher Assessment and Support Consortium (INTASC) assessment standards. The supposition of the study was rooted in the notion that preservice teachers who participated in performance self-assessments go into their programs with the belief that they will be more prepared in their initial teaching experiences than other “average” first year teachers.

The study by Ingersoll and Kinman (2002) was a survey of four constructs: Teaching Skills, Classroom Management, Child Development, and Technology Skills. The study was given to preservice teachers in their fourth year of study at an unnamed college. The previous three years were used to integrate the INTASC assessment standard into their curriculum. The data shows that the preservice teachers, who were more likely to succeed, had higher scores insofar as their beliefs based on the four constructs. In addition, Ingersoll and Kinman suggest that this study could be transformed into an instrument that could be used in teacher education programs with the difference being the assessment standards would be based on NCATE standards rather that INTASC.

Weisenbach (2002) states simply “How do we know?” This question is almost unanswerable, but the simplicity of the question itself has rung true for decades. Several articles and many studies have been reviewed for this topic and all pose the same
question (Lytle, 2000; Meijer, Zanting, & Verloop, 2002). The suggestions raised by the studies, such as those reviewed in this section and excluding the papers from the NCATE website, are interesting in that they were written several years after the papers for NCATE. They seem to have no professional ties to NCATE, but the ideals of the NCATE’s assessment standard transcend through them.

The literature pertains mainly to teacher educators, but it appears that preservice teachers could also rely on self-assessment as a tool to advance in their profession or field.

*Field-Based and Clinical Experiences in Teacher Education*

An important part of teacher education is the field-based experiences of preservice teachers, in addition to the clinical experiences those preservice teachers go through. The distinction between clinical and field experiences lies in the actual amount of teaching that occurs and the learning experiences that accompanies the teaching. The literature reflects that there are many different types of experiences, both field-based and clinical, that a candidate may be exposed to or should experience. Essentially, field-based experiences involve preservice teachers either observing or teaching in a limited capacity in conjunction with a representative or unit supervisor from their teacher education program and a representative or mentor teacher from the school in which they are observing (Wilson, Floden, and Ferrini-Mundy, 2001).

Clinical experiences deal with learning that the preservice teachers experience while they are actually student teaching and in total charge of the classroom with a limited amount of supervision from mentor teachers or education program supervisors.
The remainder of this section will review the literature that surrounds this topic and will attempt to shed light on this important component of teacher education that may help all students learn.

According to Wilson et al. (2001):

What constitutes ‘field experience’ varies - both within and across institutions. Its intent is sometimes to show what the job of teaching is like, sometimes to develop skills in instruction and classroom management, sometimes to give practical reality to concepts encountered in university coursework. Some field experiences occur early on and are limited in their range and varied in direction, purpose, or structure. Other field experiences are connected to specific university courses (p. 17).

They describe that clinical experiences “. . . vary widely, but many focus on a relatively narrow range of teaching skills and are disconnected from other components of teacher preparation” (p. 17). These images are very distinct; however, the remainder of the literature is somewhat murky in its interpretation of the two terms, and often overlaps the above separate descriptions.

In addition to their descriptions, Wilson et al. (2001) note, “there is considerable agreement” that problems exist both in clinical and field experiences. They state, “Many studies we found document what typically happens in university coursework, and are inconsistent” (p. 17). However, the authors do refer to studies that hold the promise of educative value. The studies look at variables such as interviewing students, multicultural
experiences, action research, simulated laboratory (university) experiences, better
structure of activities, and attitudinal opposites in preservice teachers and cooperating
teachers.

Meijer, Zanting, and Verloop (2002), in their article, *How Can Student Teachers
Elicit Experienced Teachers’ Practical Knowledge*? explain, “Student teachers often
experience difficulties in relating theories taught in teacher education institutes to what
actually happens in their teaching practice” (p. 406). This seems to be an underlying
problem in not only this article, but most of the literature reviewed for this section as
well. Meijer et al. (2002) cite that the difficulties can be attributed to the differences in
relation to what the preservice teacher is learning in their teacher education program and
what they are being exposed to in an actual classroom setting. The mentor teacher (those
that help preservice teachers in the classroom) and the preservice teacher are often not
clear on what or how the preservice teacher should be learning.

Because there seems to be an appearance of miscommunication between the
parties involved, the authors, through their own review of research, refer to several
instruments to help bridge the communication gap between the participants regarding
clinical practice or field experiences. An instrument that the authors advocate and did
studies on was “stimulated recall interviews.”

Stimulated recall interviews involve videotaping the experienced or mentor
teacher and then both the preservice teacher and the mentor teacher discuss the lesson and
the aspects of the context in which it was taught. This approach is proving to be a
successful tool due to the intimate communication between the participants. For instance,
the mentor teacher can stop the tape at any given point and explain in detail what he or she was thinking. The preservice teacher, in turn can ask questions and get immediate feedback to any inquiries.

Another example as a method of enhancing preservice teachers’ experiences regards Collaborative Inquiry (CI). Kasl and Yorks (2002) give an informative and concise description of what the style of CI is trying to accomplish. “Collaborative inquiry is a systematic process [from learning from personal experience] consisting of repeated episodes of reflection and action through which a group of peers strives to answer questions of importance to them” (p. 6).

An example of CI is an ongoing project named *A Multiple-Group Inquiry into Whiteness*. This massive project employs thirteen groups comprised of fifty participants from America and several European countries. The groups investigate the impact of “white hegemony” on their and others’ lives. Each group decides how to report their findings to the main project group. These reports include written reflections, videotapes, and web conferences.

Anderson and Radencich (2001) are also cognizant of the problems that exist in the transfer between teacher education and school field experiences. They note that preservice teachers are not evaluated on the concepts they learned in the classes they took at the university; rather they are solely evaluated on their ability to teach. This, according to the authors, is due to the hectic schedules of the university representative (supervisor) and the indifference of the cooperating (mentor) teacher in the classroom.

Anderson and Radencich (2001) advocate “the peer coaching model” to assist in the quality of the preservice teachers’ experience. Peer coaching involves pairing two
preservice teachers for their field experience. The assertion is that two are better than one in that the two preservice teachers can teach half of the time and observe the other half. By working in this fashion, the preservice teachers can share their experiences in not only teaching, but planning and fruitful feedback as well. In addition to the coaching aspect, the authors discuss feedback rather than evaluation from not only the peer, but also the supervising university representative and the mentor teacher as an advantage.

Similar to Anderson and Radencich (2001), Ethell and McMeniman (2000) agree the problems may be due to the lack of use of university coursework in field experiences. They cite Dewey as proclaiming “student teachers should be involved in reflective inquiry to develop an understanding of what takes place when learning actually occurs” (Dewey, 1904, 1974c). Furthermore and more importantly they cite:

Dewey called for closer attention to the process of learning to teach, the essential relations between theory and practice, and the ways in which student teachers could develop the knowing of effective classroom teaching (1904/1974c). Learning to teach effectively requires that student teachers access the minds, not only the observable behaviors, of effective teachers. (p. 87).

Ethell and McMeniman (2000) support the method of situated cognition. “Situated cognition is a means to make explicit the typically tacit knowledge of expert teachers’ knowledge-in-action at the center of the learning-to-teach process” (p. 90). This process lets preservice teachers use what they have learned in the classroom with the new knowledge they will be learning collaboratively with expert teachers. The authors conducted a qualitative study and used purposive sampling that resulted in the recruitment of teachers who ultimately participated in workshops that focused on the use
of video and “critical inquiry and reflection” (p. 90). The methodology involved the participants watching an experienced teacher’s practices on video. Furthermore, the participants evaluated the reflections of the experienced teacher.

The researchers audiotaped participant discussions and interviews within the workshops. They used content analysis and coded the data to categorize and find patterns within the data.

The authors concluded that the workshops resulted in a positive experience for preservice teachers, as they were not only learning the day-to-day operations of an expert teacher, but also being able to use theories they learned in university classes.

In another study, Moore (2003) found that the pedagogical theories preservice teachers learned in the universities were secondary to time management, content lesson plans, and classroom management. This qualitative study used 77 preservice teachers as participants enrolled in Moore’s language arts course. Additionally, 62 mentor teachers participated.

The preservice teachers were placed in the mentor teachers’ classrooms and data was collected during one semester through field notes, observation, interviews with the preservice teachers and mentor teachers, surveys from the mentor teachers (both before and after the semester), surveys from the preservice teachers (at the end of the semester) and reflective journals from the preservice teachers. This was repeated three times for a total of three semesters. Data analysis included coded responses, peer reviews and comparative coded analysis of the mentor and preservice teacher survey responses.

An alarming statement made by one of the mentor teachers was “Forget the theory stuff you learned in your methods courses—that’s not the real world—that’s not
real teaching” (p. 31). This statement is troubling because the mentor teacher totally discounts the teacher education process. Although this article deals with field experiences (observations), one can only imagine what the preservice teacher was thinking after such a statement was made.

Moore’s (2003) conclusions were that, although preservice teachers sometimes used their own lesson plans and theories, they tended to want to please their mentor teachers and essentially followed their lead. Moore’s reference to the “Gestalt theory” is interesting as the Gestalt theory refers to the processes that make up a whole. Moore’s interpretation could be that theory and practice of the student, and the beliefs of the mentor, make the field experience a fruitful one.

Section Conclusion

As the literature suggests, there are many problems with clinical and field-based experiences. These problems include tensions between the teacher education program, the mentor and supervising teachers, and the preservice teacher. However, the literature also proposes there are almost as many suggested solutions to these problems, including the method of situated cognition (Ethell and McMeniman, 2000). It appears that is up to individual teacher education programs to decide which solutions and suggestions are best for their needs and more importantly their students’ and communities’ needs.

There is a definite indication that collaboration and collaborative learning is being called for within the literature (e.g., Moore, 2003; Gatlin and Jacob, 2002). Additionally, collaboration, video assessment and efficacy information are promoted within several studies (Ingersoll and Kinman, 2002; Meijer, Zanting, and Verloop, 2002).
Constructivism in Education

Section Introduction

The importance of this section is to describe the primary philosophy that the participants of the study were exposed to in their initial training. The Constructivist Philosophy has many definitions. There are as many definitions, it seems, as there are ways in which to use it as a teaching strategy (Wilson and Lowry, 2000).

This section will not cover all of the theories and opinions concerning constructivism; however, it will center on the historical events leading up to this philosophy. In addition, this section will describe the theories that are relevant to this research, namely social constructivism and constructionism.

Historical Perspective

Throughout the early twentieth century, an educational battle was being waged with two men at the forefront. These men were John Dewey and his notion of the philosophy of pragmatism, and Edward Thorndike and his notion of scientific inquiry or behaviorism based on the work of B. A. Skinner. Although neither man was solely responsible for these theories, they are credited as the most visible and vociferous. Furthermore, Dewey was the more famous of the two, but it was Thorndike’s approaches that were being used in the schools. Borrowman (1965) asserts: “By the middle of the present century, it had become customary to describe John Dewey as the man who had reshaped American elementary and secondary schooling” (p.172). American education was described in the language of social reform, but it was operated according to the language of psychology. And as far as elementary and secondary school men [sic] were concerned, the latter was largely the language of Edward L. Thorndike” (p. 172).
Thorndike promised that anything a student did academically could be measured through scientific means. For example, if a student was considered a slow learner, an I.Q. test could be administered. In addition, the common way of teaching was through “drill and practice.” The “drill and practice” method is one of intense lecture and then intense repetitive practice of tasks such as math equations or spelling (Instructional Strategies Online, 2004). Through the rationalist approach, the physiological makeup of any student could theoretically be measured and thus controlled and defined. Although this was the standard practice in the school systems of the early to mid-twentieth century, by the 1970s and 80s, Dewey’s ideals of pragmatism were being transformed into the constructivist philosophy and slowly making their way into an educational reform.

Regarding the pragmatic school of philosophy, according to Blackburn (1996), “The driving motivation of pragmatism is the idea that the belief in the truth on one hand must have a close connection with success in action on the other” (p. 297). According to Early Childhood Today Online (2000) regarding Dewey and pragmatism: “Dewey’s beliefs about education for young children were based on the following ideas: education and life are interrelated, not separate, children learn best by doing, by acting on the world, and continuity of experience is essential to growth” (p. 1). Dewey’s often referred to “hands-on” approach was and still is well recognized as a valid way of teaching and learning.

Pragmatism and Constructivism

The notion that pragmatism and constructivism are closely related is valid and well documented. As stated earlier, pragmatism is associated largely with the work of John Dewey. Constructivism is associated with the work of Jean Piaget. Again, like
Dewey and pragmatism, Piaget is not the creator of constructivism; however, his work was instrumental in how educators teach constructivism. It should be noted that Dewey’s ideals had some bearing on the work of Piaget.

Because Dewey apparently influenced Piaget, he felt he had “inherited a tradition” from the philosophy of pragmatism that indicated mental operations were related to actions, that “genetic psychology” had advanced significantly and that these two constructs were what Dewey had been advocating in his work. (Hutcheon, 2004).

The premise of Piaget’s theories of constructivism is grounded in the notion of “genetic epistemology.” “[Piaget] called his general theoretical framework ‘genetic epistemology’ because he was primarily interested in how knowledge developed in human organisms” (Kearsley, 2004, p. 1). Although Piaget is generally given the credit concerning the roots of constructivism, his contributions are only part of the theory.

Others such as Jerome Brunner and the notion of “Cognitive Structure Theory” and Lev Vygotsky “Social Development Theory” played major roles in the roots of constructivism. “Cognitive structure (i.e., schema, mental models) provides meaning and organization to experiences and allows the individual to ‘go beyond the information given’” (Kearsley, 2000, p. 1). “The major theme of Vygotsky's theoretical framework is that social interaction plays a fundamental role in the development of cognition” (Kearsley, 2000, p. 1). All of these people, principles, and theories have contributed to what constitutes the constructivist theory as it is known today.
Elements of Constructivism

As stated earlier, constructivism can be described in many different ways as it is applied to different paradigms. However, it is usually, in the broader sense, described as follows.

Constructivist learning theory has two basic premises: (1) learning takes as its starting point the knowledge, attitudes, and interests students bring to the learning situation, and (2) learning results from the interaction between these characteristics and experiences in such a way that learners construct their own understanding from the inside, as it were (Howe & Berve, 2000, p. 30).

Additionally, learners take active knowledge, incorporate it with prior knowledge, and then transform the new knowledge into their own perceptions (Cheek, 1992). The essence of these statements is grounded in the constructivist theory, but there are several branches of the constructivist tree.

The data analysis section of this dissertation will reveal that there are many levels of teaching and learning that took place while collecting the data. The levels can all fall into different elements of constructivism. Although all the elements of constructivism will not be described, the elements that relate to the data will be. They are: social constructivism, constructionism and adult education, and constructivism.

Social constructivism

The concept behind social constructivism is that a group forms a society. In the realm of education, groups can range anywhere from a small group of students to an entire school system. Interaction among the individuals within the society fosters learning. As Ben-Ari and Kedem-Friedrich (2000) assert:
Knowledge is constructed by interactions of individuals within the society and learning is seen as a result of internalization of social interaction. Interaction exposes individuals to a diversity of personal styles, experiences, attitudes and opinions, and consequently forces them to cope with controversy, disagreement, and conflict that arise in such a situation to communicate with one another and to use each other as resources (p. 154).

Additionally, social constructivism can be seen as a team effort. Within the team, relationships develop between the individuals that promote knowledge and learning that might not be attained through individualized methods. Dougiamas (1998) infers when shared learning, such as with a sports team, a company or an everyday household, is compared with an individual’s learning in a social setting, three types of relations can occur. They are:

- Individual learning can be less or more socially-mediated learning.
- Individuals can participate in the learning of a collective, sometimes with what is learned distributed throughout the collective more than in the mind of any one individual.
- Individuals and social aspects of learning in both of these senses, can interact over time to strengthen one another in a ‘reciprocal spiral relationship’ (p. 3).

Social constructivism is not exclusive to a classroom setting. Dialogue among the participants of a group or society is an expected outcome of this ideal. When knowledge is shared and discussed outside the arena of learning, it can possibly reinforce the outcomes as well as the group dynamics (Baxter-Magolda, 1999).
Social constructivism and collaborative learning

Dougiamas (1998) indicates that a component of social constructivism is collaborative learning. Further, Dougiamas (1998) explains that Vygotsky’s Social Development Theory and the social interaction of collaboration between students helps develop them as individuals. Dillenbourg (1999) states that “Intuitively, a situation is termed 'collaborative' if peers are more or less at the same level, can perform the same actions, have a common goal and work together” (p. 7). Further, Dillenbourg (1999) indicates that there are several meanings for the term “learning.” However, he indicates that it is generally accepted that learning outcomes are derived from some type of mutual problem solving process and that the learning is likely to happen individually due to the new knowledge gained and the possibility of improvement in the problem solving performance.

Dillenbourg (1999) suggests that the research indicates that there is wide disagreement on what exactly collaborative learning is and who is actually learning. He infers that there are three types of collaborative learning. The first is a shared learning by all that participate in the collaboration. For example, if a collaborative group is charged with solving a shared task or problem and a solution is achieved, it could be concluded that the group learned as a whole.

A second type of collaborative learning can be attained individually within a collaborative group. This type of learning occurs when a collaborative group is asked to give feedback to a problem or task, which may or may not be solved by the group. If a solution is not reached, individual learning could still occur.
The third type of collaborative learning involves components of the first and second type described. An excellent example of this type of collaborative learning is “Lesson Study.” Lesson Study (Lesson Study Research Group, 2005) is a professional development process that involves the planning of a lesson that focuses on a research goal or overarching question of interest to a collaborative group. The group constructs the lesson plan and one member of the group implements the lesson in their classroom. The other members of the collaborative group observe either live or via video.

The group meets and watches video (if provided) and discusses the lesson and its implementation. They also revise the lesson (if necessary) and repeat the process. The individual teacher within the collaborative group is free to use the collaboratively agreed upon lesson or make their own personal adjustments. Thus group collaborative learning or individual learning within a collaborative group is possible.

Gokhale (1991) points out that “Proponents of collaborative learning claim that the active exchange of ideas within small groups not only increases interest among the participants but also promotes critical thinking” (p. 22). Additionally, Gokhale asserts that research indicates that individuals in collaborative “teams” can achieve elevated cognitive processes (reasoning, intuition, and perception) and the ability to retain that information longer than those who do not participate in collaborative efforts.

Gokhale (1991) also indicates that studies show collaborative learning critical thinking can be the result of discussion and that members of collaborative groups have the opportunity to take responsibility for their own personal learning.
Constructionism

The view of constructionism is based on the work of Piaget and Vygotsky, but has been brought to the forefront of education and essentially separated from constructivism by Seymour Papert (1991).

We understand ‘constructionism’ as including, but going beyond, what Piaget would call ‘constructivism’. The word with the “v” expresses the theory that knowledge is built by the learner, not supplied by the teacher. The word with the “n” expresses the further idea that this happens especially felicitously when the learner is engaged in the construction of something external or at least shareable (p. 3).

This notion of the learner “building” something to be later “shared” is a key component of constructionism. As Bruckman and Resnick (1995) state:

The term ‘constructionism,’ first coined by Seymour Papert, involves two types of construction. First, it asserts that learning is an active process, in which people actively construct knowledge from their experiences in the world. (This idea is based on the theories of Jean Piaget.) To this, constructionism adds the idea that people construct new knowledge with particular effectiveness when they are engaged in constructing personally-meaningful products. They might be constructing sand castles, LEGO machines, computer programs, or virtual objects. What's important is that they are actively engaged in creating something that is meaningful to themselves and to others around them (p. 7).

The importance of sharing or making artifacts that others can see or learn from is the basis of the constructionist viewpoint. The essential sharing goes well with the social
constructivist theory and the notion of collaborative learning. The difference with
constructionism is that, unlike social constructivism, the learning can be done
individually, but the important aspect is to impart the knowledge or what was constructed
with others. Additionally, Ruschoff and Ritter (2001) identify that “task based” learning
and experimentation is valid.

In addition, constructionism puts a lot of emphasis on task-based learning. It has
been stated time and again that the best learning results are achieved if learners
work as much as possible with authentic and semi-authentic materials which are
being put in the context of authentic, real-world-based situations or at least
simulations and thus supported by authentic tasks. (p. 226).

Section Conclusion

The participants involved in the research, in their initial training, were instructed
with the constructivist philosophy as the main component of their teaching ideology.
Several aspects of constructivism, specifically social constructivism as well as
collaborative leaning, and constructionism permeated throughout the data collection and
what the participants did within the research constructs as well as what they were doing
as students of MSaT.

The theoretical framework description in Chapter 1 discussed the work of Albert
Bandura. Although Bandura is considered a behaviorist (Moore, 1999) his social learning
timeory (Bandura, 1977) has consistencies with Piaget and Vygotsky theories; for
example, observational learning (Tudge and Winterhoff, 1993). Bandura’s views will be
discussed at length the next section in terms of perceived self-efficacy and confidence.
Efficacy in Education

Section Introduction

As described in Chapter 1, the overarching question that this research seeks to investigate is the uncertainties that technology education preservice teachers face in their initial teaching experiences. The uncertainty many preservice teachers face can lead to lack of confidence and self-efficacy (Ertmer, Conklin, Lewandowski, & Osika, 2003). The first section of this section will discuss the uncertainties in education.

The theoretical framework as described in Chapter 1 is based on Bandura’s (1977) perceived self-efficacy model. Within this description the four constructs (performance accomplishments, vicarious experiences, verbal persuasion, and emotional arousal) were defined as well as the outcomes (performance, approach versus avoidance, and persistence).

The second segment of this section will delve deeper into these terms as well as how their influence rates within the model. The third segment will explore research regarding Bandura’s model that will include educational settings and the use of video as a part of the model. Finally, the forth segment will discuss other forms of perceived self-efficacy in terms of teachers and collaboration.

Uncertainties in Education

Studies regarding the uncertainties preservice teachers face in their initial teaching experiences are few. However, the literature that is available is rich in content and makes a case that the notion of uncertainty is largely ignored by teacher education. For example, Floden and Clark (1988) stated: “Though the uncertainty of teaching is much discussed, surprisingly little has been published about the stance teacher education should take
toward uncertainty. Writings about teacher education stress how much teachers can learn, rather than what to do about the uncertainties that remain” (p. 505).

Although this research was published over twenty years ago, extensive searches regarding the uncertainties of teaching, similar to the video in technology education search, yielded similar results regarding not only technology education preservice teachers, but also preservice teachers of any discipline as well.

Of the literature published, much of it relates to self-efficacy. For example, Fives (2005) states: “these positive feelings produce a generative capability that will allow teachers to develop new teaching strategies, increase their effort, and extend their persistence in the face of difficult or uncertain teaching situations” (p. 1). This assertion is derived from the notion of Raudenbush et al., (1992) that: “…. low feelings of self-efficacy almost certainly work against effective teaching by decreasing teachers’ generative capability to cope with the uncertainties of classrooms” (p. 151). This statement directly ties low self-efficacy to uncertainty in teaching. It is logical to assume that this notion could be more prevalent with preservice teachers.

Many researchers attribute the uncertainties novice teachers face to a lack of knowledge, experience, and understand of the children they teach (Fives, 2005; Raudenbush, et al., 1992; Floden and Clark, 1988). Floden and Clark (1988) contend that other specific concepts such as instructional content (what a teacher hopes students will learn) are a tremendous source of uncertainty. For example, the construction of a lesson plan holds several uncertainties in terms of what to emphasize, how much emphasis, and
how to deliver the emphasis. “Because plausible objections can be made to any
curriculum choice, teachers always face uncertainty about their decisions” (Floden and
Clark, 1988, p. 510).

Uncertainty in teaching is understandable, expected, and at times, preferable.
Floden and Clark (1988) assert that some uncertainty can help make a teacher flexible.
They further indicate that flexibility is a way to cope and prepare for uncertainties. For
example, they claim that some lesson plans become too routine and inflexible. According
to Floden and Clark (1988) on what appears to be lesson delivery in general:

Once the lesson starts, the teacher has little choice but to push through to the end.
Other routines may yield plans that are more "robust." They may, for example,
have the lesson divided into segments, some of which might be dropped if time
ran short. Teachers whose planning routines yield robust plans will have an easier
time being flexible (p. 519)

The literature is consistent in terms of strategies that may be helpful to preservice
teachers. They include the notion of conversation with other preservice teachers (Fives,
have many benefits, among them helping teachers reduce the stress of residual
uncertainties” (p. 520). Furthermore, they indicate that this stress can be reduced in
several ways; the commonality being talking to someone.

Individual teachers may find it difficult to use talking as a strategy to cope with
uncertainty because its success depends not only on their own willingness to talk
but also on other teachers' willingness to join the conversation. The challenge for
teacher education is to provide teachers with skills that will enable them to talk about their work with an initially unsympathetic audience (Floden and Clark, 1988, p. 520).

Talking, discussing, strategizing, and sharing “war stories” are all consistent with the verbal persuasion and vicarious experience constructs of Bandura’s (1977) perceived self-efficacy model. For example, the telling of “war stories” enables listeners to somewhat live (vicariously) the experience of the teller. Strategizing is an important component of verbal persuasion. Thoughtful discussion and critical feedback among peers and colleagues brings out conclusions, strategies, and possible solutions to uncertainties (Floden and Clark, 1988).

Uncertainty is an inevitable part of teaching for preservice teachers. It can diminish confidence and perceived self-efficacy. The literature indicates that discussion with peers may be a way to reduce the stress uncertainty may cause. The following section discusses the elements of perceived self-efficacy that uncertainty may diminish.

The Elements of Bandura’s Perceived Self-Efficacy Model

The four constructs or efficacy information of Bandura’s (1977) perceived self-efficacy model were described in Chapter 1. These constructs are performance accomplishments, vicarious experiences, verbal persuasion, and emotional arousal. What was not discussed is the degree of importance or value of each construct.

Performance Accomplishments

It is generally accepted that performance accomplishments are the most powerful indicator of self-efficacy beliefs (Pajares, 2002; Bandura, 1986). Bandura (1986) states: “...a strong sense of self-efficacy is developed through repeated successes, occasional
failures are unlikely to have much effect on judgments of one's capabilities" (p. 399).

Moreover, he states: "Failures that are overcome by determined effort can instill robust
precepts of self-efficacy through experience that one can eventually master even the most
difficult obstacles" (p. 399).

Because people may repeat and persist in their efforts to master their
performances, occasional failures are attributed to lack of effort, preparation, or
inadequate strategies, not one’s capabilities after enhanced self-efficacy. Furthermore,
increased self-efficacy can lead to achievement in similar activities such as those that
were previously enhanced (Bandura, 1987).

Vicarious Experiences

Vicarious experiences are not as strong as performance accomplishments;
however, they can be very effective particularly when uncertainty is present in a person’s
abilities. Furthermore, if they have little prior experience they may have increased
sensitivity to this construct (Pajares, 2002). Therefore, if a person who is uncertain and
has little experience looks at how others perform, and then forms “efficacy judgments,”
there may be an increase of perceived self-efficacy (Pajares, 2000; Bandura, 1986).

These authors are not advocating that efficacy judgments will lead to an “I will just do
what they do and I will be fine” scenario; however, as Bandura (1986) indicates,
vicarious experiences tend to lead people to think, “If others can do it, so can I” (p.399).

Verbal Persuasion

This source of efficacy information is considered weaker than performance
accomplishments or vicarious experiences because verbal persuasion may not be genuine
or perceived as sincere (Bandura, 1986). He cautions, “… the raising of unrealistic beliefs
of personal competence only invites failures that will discredit the persuaders and will further undermine the recipient's perceived self-efficacy" (p. 400).

However, Pajares (2002) explains that verbal persuasions when genuine and sincere can influence and develop self-efficacy. An example given is the notion of adults recalling a profound statement said to them at some point in their lives that has had a lasting effect on their confidence.

_Emotiona l Arousal_

The last construct of efficacy information is emotional arousal, also known as physiological states. This construct is considered the weakest because it deals with self-efficacy beliefs in regard to self-control and risk taking in specific situations (Bandura, 1989). For example, if a person is nervous about a situation or a task because they have little prior experience, performance accomplishments, vicarious experiences and verbal persuasion may not be enough to increase self-efficacy (Pajares, 2002; Bandura, 1986, 1989).

Woolfolk (2005) indicates that if a child sees another child fall off a swing and injure themselves, the result may be a fear of swings for the observant child. However, the opposite may occur as well. If a preservice teacher observes another teacher (either preservice or expert) in a successful performance, emotions of excitement may ensue.

Furthermore, experience appears to be a key factor in emotional arousal. Moreover experience appears to be the main factor of all the constructs of efficacy information. Bandura (1989) states:

Development of resilient self-efficacy requires some experience in mastering difficulties through perseverant effort. If people experience only easy successes,
they come to expect quick results and their sense of efficacy is easily undermined by failure. Some setbacks and difficulties in human pursuits serve a useful purpose in teaching that success usually requires sustained effort. After people become convinced they have what it takes to succeed, they persevere in the face of adversity and quickly rebound from setbacks. By sticking it out through tough times, they emerge from adversity with a stronger sense of efficacy (p. 1179).

Final thoughts regarding efficacy information

Performance accomplishments, vicarious experiences, and verbal persuasion are consistent with much of the literature previously reviewed. For example, Ingersoll and Kinman’s (2002) conclusion that performance self-assessment is beneficial to the confidence of preservice teachers is an indicator of performance accomplishments. Doty & Cortell’s (1971), recommendation of a video library for preservice teachers and other video libraries that is geared towards the notion of a preservice teacher extracting information by watching others, are clearly vicarious in nature. DeGenaro’s (1969) video feedback model has elements of performance accomplishments, vicarious experiences, and verbal persuasion.

Literature regarding Bandura’s perceived self-efficacy model

Bandura’s principles have been incorporated into research pertaining to the field of education. Sander and Sanders (2003) conducted research that measured academic confidence. In the words of the authors, “Guided by the work of Bandura on self-efficacy, this study seeks to determine the extent to which differences in students’
expectations of higher education could be explained by differing levels of confidence.” (p. 2). They indicate that academic confidence is part of the “parent concept” of self-efficacy (p. 4).

The quantitative study of Sander and Sanders (2003) used an initial academic confidence scale based on Bandura’s (1977) perceived self-efficacy model. Factor analysis produced a survey instrument that yielded six constructs: studying, understanding, verbalizing, clarifying, attendance, and grades. The survey was given to two groups; one beginning psychology students and the other beginning medical students. Two surveys were administered to each group. The surveys were given at two points of the participants’ first academic year. The results found that both groups had varying degrees of academic self-confidence. This was attributed to the constructs of the survey. For example, the medical students had high confidence levels regarding particular constructs while the psychology students had higher levels on different constructs.

This is consistent with Bandura’s (1977) assertion that measuring self-efficacy is specific to particular situations. In other words, self-efficacy cannot be measured in a global or generalizable way. There must be something to measure (Pajares, 2002). For example, the variable that was measured for previously reviewed literature was “academic confidence;” the variable measured for the following research is “the academic emotions of students.”

Pekrun, Goetz, Titz and Perry (2000) looked at the academic emotions of students when they were engaged in self-regulated learning. The study included Bandura’s construct of emotional arousal with the perceived self-efficacy model. They asserted that test anxiety was the most common type of emotion among college students; however, the
frequency of positive emotions; i.e., joy, enthusiasm, pride, etc., and negative emotions; i.e., sadness, anger, disappointment, etc., were virtually equal. They concluded that more research needed to be conducted to look at emotions other than test anxiety.

Wang, Ertmer & Newby (2004) used Bandura’s perceived self-efficacy model in terms of vicarious learning and goal setting via vicarious experiences. The study explored how these constructs influenced preservice teachers’ self-efficacy for integrating technology into their classrooms. The study concluded that improving self-efficacy among preservice teachers by means of observing teacher models through vicarious experiences has a high percentage of success.

Perceived Self-efficacy and Video

Although several of the studies reviewed thus far have been conducted using Bandura’s (1977) perceived self-efficacy model in various contexts as described, only a few explore the model as it pertains to video; specifically, video and education.

Posnanski (2002) conducted research that involved measuring self-efficacy using several variables that included videotape assessment among science teachers. The competencies of the teachers ranged from novice to experienced. The other variables consisted of reflective journals, readings, and group discussions. The study was designed as a professional development endeavor. The outcome indicated that the participants of the study did appear to take away a positive experience and did gain a high level of self-efficacy in terms of science instruction.

In another study, Rodebaugh and Chambless (2002) investigated the effects of video feedback in relation to self-perception and self-efficacy. The participants of the study were undergraduate students who were recruited from introductory psychology
courses. The participants were given a topic for a three-minute speech task to be performed while being videotaped. They were then asked to rate their self-efficacy level through a questionnaire before performing the task. After the speech they were asked to rate their self-efficacy levels regarding the task. They then watched the videotape of their performance and again were asked to rate their self-efficacy levels. This procedure was repeated two more times.

The conclusion was that the students who rated themselves as having low self-efficacy appeared to have increased their self-efficacy through video feedback. This study used the concept of Bandura’s (1977) perceived self-efficacy model and two of its constructs; specifically, performance accomplishments and vicarious experiences. In addition, the researchers concluded that more research needed to be conducted to further the notion of video feedback increasing self-efficacy.

*Perceived self-efficacy with regard to lesson planning & delivery*

Several studies have been conducted that focus on perceived self-efficacy and preservice teachers. There are, however, few studies that focus solely on perceived self-efficacy and the constructs of lesson planning or lesson delivery. Although several studies reviewed in this chapter deal with performance accomplishments, vicarious learning, verbal persuasion and emotional arousal, they are not clearly defined insofar as the literature itself. Many of the studies reviewed indicate what is known as “teacher efficacy.”

Teacher efficacy is rooted in the notion that the teacher can be an effective practitioner of learning through effective teaching strategies (Woolfolk, 2005). Woolfolk indicates that teacher efficacy was came about by a researcher at the Rand Corporation
and specifically was the work of Rotter’s (1966) research; “Generalized Expectancies for Internal Versus External Control of Reinforcement.” However, teacher efficacy can be measured through Bandura’s (1977) theory of perceived self-efficacy (Woolfolk, 2005; Tschannen-Moran, et al., 1998).

Collaborative Learning and Perceived Self-Efficacy

The notion of collaborative learning and perceived self-efficacy is known as collective efficacy (Tschannen-Moran, et al., 1998; Bandura, 1995). Collective efficacy can be described as the degree individuals in a collaborative group believe they can solve problems or complete tasks in an attempt to reach a collective goal or outcome (Papa, Singhal, Sood, Rodgers, & Shefner-Rodgers, 2000).

Papa, et al. (2000) investigated and reported on the notion of vicarious experiences in the form of educational messages within entertainment programs in India to promote social change. These programs included soap operas and newscasts. They cite Bandura’s (1995) assertion that “People who have a sense of collective efficacy will mobilize their efforts and resources to cope with external obstacles to the changes they seek” (p.38).

This study reports several situations where social change occurred as a result of the vicarious experiences the audience observed. They describe how women in Bangladesh viewed a program that showed discrimination against women in regard to bank loans. The women confronted and threatened the moneylender and an apparent change occurred. This study is an extreme case of how collective efficacy can promote social change and is consistent with the critical paradigm of qualitative research. Qualitative research will be discussed in the next section of this chapter.
In another study, Goddard, Hoy and Woolfolk Hoy, (2004) investigated Bandura’s (1995) notion of collective efficacy in schools. They conclude that the four constructs (performance accomplishments, vicarious experiences, verbal persuasion, and emotional arousal) of perceived self-efficacy are constructs of collective efficacy as well.

They offer several approaches to measure collective efficacy. One approach is a qualitative measure of individual self-efficacy in the form of teacher efficacy belief survey. Another method they suggest is to qualitatively measure an individuals perceptions’ of the collaborative group, again with a survey.

A third method the authors advocate is to encourage discussion of the collaborative group in regard to their capabilities as a group in an effort to extract a consensus about their feelings regarding collective efficacy. They caution that this method could have validity issues due to individual members of the group agreeing to the consensus to be socially accepted by the group. However, this type of bias could be eliminated with some form of individual efficacy belief instrument in conjunction with the assessment.

The last measure involves the extent of individual perceptions regarding agreement on a collaborative task or problem. They also advocate an individual efficacy belief instrument in conjunction with this type of measure. Much of this study involves collective efficacy regarding professional development or already established teachers’ efficacy. However, this topic could be applied to novice or preservice teachers.
Section Conclusion

This section explored the notion that uncertainty can lead to low perceived self-efficacy. As stated, perceived self-efficacy can lead to confidence (Alderman, 2004; Pajares, 2002; Pajares and Shunk, 2002; Tschannen-Moran, et al., 1998; Bandura, 1977). The literature reviewed in this section indicates that there are several types of efficacy that are tied to Bandura’s (1977) social learning theory. Although a number of the research reviewed is geared toward professional teachers, it is possible that many aspects could be applied to preservice teachers as well.

One of the most interesting components of the research investigated in this section is the striking resemblance of perceived self-efficacy to the research reviewed in the previous sections. It appears that many of the authors (Tochon, in press; Goldman, 2004; Ingersoll and Kinman, 2002; Meijer, Zanting, and Verloop, 2002; Dillenbourg, 1999) utilized elements of Bandura’s (1977) perceived self-efficacy model and were either unaware of its possible application to their research or chose not to recognize the model at all.

Qualitative Research

Section Introduction

This section will describe the axioms of qualitative research. The interpretive paradigm of qualitative research was used for this research, thus axioms surrounding this ideology will be a main focus. In addition to the axioms of qualitative research, the use of computer based qualitative data analysis software will be explored. Furthermore, the components of the inductive analysis methodology widely used in qualitative research data analysis will be discussed in relation to qualitative data analysis software.
Research Paradigms

Research, either quantitative or qualitative, falls into what is known as a paradigm. Patton (2002) states: “A paradigm is a worldview – a way of thinking about and making sense of the complexities of the real world. As such, paradigms are deeply embedded in the socialization of adherents and practitioners. Paradigms tell us what is important, legitimate, and reasonable” (p. 69).

Many researchers will know and stick to a particular paradigm. Many believe it is not a good idea to change paradigms, as credibility issues as a researcher may permeate throughout the research world. Knowing what paradigm the research falls under will make it easier to conduct the research and know what methodology to utilize (Denzin and Lincoln, 2000).

Even though a researcher has chosen a paradigm, methodology issues pertaining to the paradigm can be intangible. For instance, a qualitative researcher within the interpretive paradigm can use both quantitative and qualitative methodologies. Different methodologies or “mixed methodologies” are perfectly acceptable and often make the study stronger and more rigorous (Tashakkori & Teddlie, 2003).

There are three main paradigms in research: Positivist, Interpretive (also known as Constructivist or Naturalistic) and Critical. The positivist paradigm falls into the quantitative research classification. Interpretive and Critical are both considered qualitative. Quantitative research or research that is conducted in a positivist manner, has specific traits, for example, it is grounded in experimentation, objectivity, measurable facts, and is analyzed and reported in numerically based representations such as charts and graphs (Denzin and Lincoln, 2000; Glesne, 1999). Hoepfl (1997) states: “Logical
positivism, or quantitative research, uses experimental methods and quantitative measures to test hypothetical generalizations” (p. 47). Additionally Denzin and Lincoln (2002) assert:

Positivist research designs place a premium on the early identification and development of a research question, a set of hypotheses, a research site, and a statement concerning sampling strategies as well as a specification of the research strategies and methods of analysis that will be employed (p. 368).

Paradigms that are qualitative are generally within the interpretive or critical paradigms. Qualitative research in the critical paradigm seeks to make a social change through the outcome of the research. It is the aim of the critical researcher to involve the participants of the study in the collection of data and data analysis, in an effort to elicit meanings and truths that will promote social change by the participants and not the researcher (Denzin and Lincoln, 2002). An example that has been reviewed was the study conducted by Papa, et al., (2000) concerning collective efficacy.

Ontology

The term ontology refers to the “intellectual lens” used to view the reality of researchers and the paradigm to which they subscribe. Quantitative methodology generally supported in the positivist theory characterizes ontology as observable, measurable facts (Denzin and Lincoln, 2000; Glesne, 1999). They assume reality is fixed and measurable and the reality is external to people (Glesne, 1999). This is external component is also known as “etic” (an insider’s view) approach to quantitative research.

On the other hand, qualitative researchers, specifically in the interpretive paradigm, construct reality as a world that is socially constructed and constantly
changing, in addition to highly complicated (Glesne, 1999). They believe that research participants construct the social realities that are present in internalized social settings. The internal component is also known as “emic” (an outsider’s view) approach to qualitative research.

Glesne (1999) states: “To understand the nature of constructed realities, qualitative researchers interact and talk with participants about their perceptions. The researchers seek out a variety of perspectives; they do not try to reduce the multiple interpretations to a norm” (p. 5).

Tochon (in-press) refers to the etic/emic approaches in video feedback in educational settings. He infers that video feedback logically falls under the emic approach; however, they should fall under the etic dimension. Tochon (in-press) states: Video cases ‘for others’ could be the products of sound ethnographic research. Yet in my view their best use should be process-oriented. My claim is that the emic, normative value in the way they are used—as if they were finished, stand-alone products—can be counterproductive to the meaning-making process. Could video cases get an ‘etic’, truly situated dimension? I will assume that this can only be if they are genuinely shared mirrors of emergent processes in peer study groups. My experience thus leads me to define the video case’s educational power in the process and ‘eticity’ rather than the product and ‘emicity’ (p. 13).

Tochon’s statements validate the quantitative research perspective of flexibility. The act of assessing video vicariously is socially constructed and reflective in nature; however, Tochon appears to view the process of video feedback as a potential systematic procedure; i.e., one that has structure and can be easily assessed.
The Basic Axioms of the Interpretive Paradigm in Qualitative Research

Qualitative research conducted using an interpretive methodology has many descriptors and characteristics. For example, the source of data is collected in a natural setting, the researcher acts as the data collection instrument, the researcher uses “thick description” to report findings, researchers collect several types of data to make the research rigorous, and qualitative research is emergent and flexible. These data are frequently in the form of participant reflective documents, observations, and interviews (Wegerif and Mercer, 1997). These characteristics will be described within the following terms.

Interviewing

As Patton (2002) points out, “The quality of the information obtained during an interview is largely dependent on the interviewer” (p. 341). Furthermore, Patton asserts that there are three types of qualitative interview techniques. They are:

1. The informal conversation interview - this type of interview utilizes unstructured, flexible questions in order to gather information no matter what direction the topic may turn in during the interview.

2. The general interview guide approach - this type of interview employs the use of lists or questions used in the interview to ensure that anyone being interviewed will have the same basic understanding of what the interviewer is asking. However, the interviewer is free to explore and probe the answers of the interviewee(s), but the focus of the interview should always stay on topic.
3. The standardized open-ended interview - this type of interview uses carefully structured questions that are designed to elicit easily comparative data from the interviewee(s). In addition, the interview is very focused in an effort to save time (pp. 342 - 347).

Patton continues to advise, “These contrasting interview strategies are not mutually exclusive” (p. 347).

Trustworthiness

Trustworthiness in qualitative research is equated to credibility and validity issues within the quantitative research methodology (Glesne, 1999). There are many aspects to establishing trustworthiness. Glesne cites seven criteria; those being, prolonged engagement (time at the research site and building relationships with participants), persistent observation (focusing on the relevant details of the study), reporting biases (researcher self-reflection or reflexivity), and the application of triangulation, member checks, key informants, and peer debriefing (p. 151).

Member checks involve the utilization of the research participant’s thoughts, feelings and perceptions of the data collection and data analysis. Member checks are performed to make sure the research participants are accurately represented (Glesne, 1999).

Key informants are individuals who know the research topic and can provide feedback to the unknown questions a researcher may have. Patton (2002) describes key informants as “. . . people who are particularly knowledgeable about the inquiry setting and articulate about their knowledge – people whose insight can prove particularly useful in helping an observer understand what is happening and why” (p. 321).
Peer debriefing involves the use of people who are disinterested in the research or have no stake in the outcomes that make inferences regarding the research. The inferences can involve any aspect of the research from inception to conclusion (Tashakkori & Teddlie, 2003). Peer debriefing can lead to the qualitative term reliability, known as dependability in qualitative research (Hoepfl, 1997).

Triangulation is the use of different research methodologies within a study or research. Patton (2002) states, “Triangulation strengthens a study by combining methods. This can mean using several kinds of methods or data, including using both qualitative and quantitative approaches” (p. 247). It is generally accepted in qualitative research that the three main types of data collected for triangulation are written reflections of the participants in the form of questionnaires or surveys, transcribing events through some form of persistent observation (e.g., live, audio or video), and transcribed interviews (Marshall and Rossman, 1999).

Transferability

Transferability is the qualitative equivalent of generalizability known in quantitative research. Schwandt (2001) points out that transferability can be brought about from one specific case to another.

...case-to-case transfer, an activity that is the responsibility of the reader of the research, can be accomplished if the inquirer provides sufficient detail about the circumstances of the situation or case that was studied so that the readers can engage in reasonable but modest speculation about whether findings are applicable to other cases with similar circumstances (p. 107).
Confirmability

The literature suggests that qualitative researchers are traditionally objective in their research. Qualitative researchers rely on interpretation in an attempt to discover value in their research (Hoepfl, 1997). Confirmability is the notion of the qualitative researcher remaining neutral or the degree of neutrality. This neutrality should mean that another researcher would get the same or similar results. To provide evidence of neutrality, the researcher can provide an audit trail that consists of raw data, process notes, personal notes, literature review, and data collection procedures (Hoepfl, 1997).

Qualitative Data Analysis

Patton (2002) states, “Qualitative analysis transforms data into findings. No formula exists for that transformation. Guidance yes. But no recipe. Direction can and will be offered, but the final destination remains unique for each inquirer. Known only when-and-if arrived at” (p. 432).

The task of working with many data, trying to organize it by breaking it down into manageable parts, synthesizing it, and then deciding what to report, can be a cumbersome task (Hoepfl, 1997). Hoepfl states:

Sitting down to organize a pile of raw data can be a daunting task. It can involve literally hundreds of pages of interview transcripts, field notes and documents. The mechanics of handling large quantities of qualitative data can range from physically sorting and storing slips of paper to using one of the several computer software programs that have been designed to aid in this task (p. 55).

As the literature suggests (Roberts, 2004; Brent and Slusarz, 2003; Patton, 2002; Marshall and Rossman, 1999; Wegerif and Mercer, 1997; Miles and Huberman, 1994),
there is no checklist or formula for analyzing data in qualitative research. Many researchers suggest that novice researchers explore established studies that are consistent with the topic of their study. Both research orientations play an important role in extending knowledge. “Whichever you select for your study, be sure to read widely in that methodological area so you are knowledgeable about the analysis and data collection procedures necessary to conduct your study” (Roberts, 2004, p. 112).

Inductive Analysis

Similar to the stark contrasts that exist between the positivist and interpretative paradigms, inductive analysis has a contrasting entity, that being deductive analysis. Qualitative researchers who employ inductive analysis are concerned with discovery. Discovery involves patterns and themes within the data. Deductive analysis is dependent on comparing data with an existing framework and often uses dependent and independent variables to measure a preconceived concept or notion (Patton, 2002).

Interpreting data that has been inductively analyzed is an exercise in the classification of the data while attempting to report a concept or process that may have occurred through data collection. Consumers of the research can utilize this evidence to make their own inferences (Patton 2002). Many qualitative researchers make use of “sensitizing concepts” to provide direction and help organize and provide a language for analysis. Patton (2002) states: “In contrast to purely indigenous concepts, sensitizing concepts refer to categories that the analyst brings to the data” (p. 456). Further Patton states: “These sensitizing concepts have their origins in social science theory, the research literature, or evaluation issues identified at the beginning of the study” (p. 456).
The concepts or constructs a researcher uses with this process are intended to help organize the data in addition to providing a language to tell the story of the data.

**Coding**

There are several methods to extract meaning from research participants who have been videotaped in an observation or from video interviews (Roberts, 2004; Brent and Slusarz, 2003; Patton, 2002; Marshall and Rossman, 1999; Wegerif and Mercer, 1997; Miles and Huberman, 1994). This is usually done by what is known as “coding.”

Coding in qualitative research seeks to describe faithfully important details of the phenomenon and to organize the data to identify underlying patterns. Extensive verbatim quotations often provide vivid detail for the reader that make the research understandable, meaningful, and interesting” (Brent and Slusarz, 2003).

Data that is coded generally comes from sources such as reflective questionnaires, transcribed discussions and transcribed interviews. The result should be an emic account that highlights the intentions of the research participant’s actions to give a better understanding of their motives, thoughts, and emotions (Brent and Slusarz, 2003).

Just as there is “no recipe” for data analysis as a whole, there are no concrete rules for coding. However, there are general guidelines and techniques (Roberts, 2004; Brent and Slusarz, 2003; Patton, 2002; Marshall and Rossman, 1999; Wegerif and Mercer, 1997; Miles and Huberman, 1994). Initial qualitative analysis is inductive in particular when developing a scheme for content analysis and coding. Open coding is consistent with this type of analysis. Open coding involves the initial search for patterns and themes within the data that can later be interpreted and categorized (Patton, 2002).
Coding Methods

Open coding involves initial coding in the form of original texts such as transcripts and notes. The patterns or themes that may emerge are a result of the language of the research participants, the review of literature, a sensitizing concept, or new ideas brought about during the data collection (Brent and Slusarz, 2003). One such method is the “key word in context” (KWIC) method through computer based text analysis (Wegerif and Mercer, 1997). (The notion of computer based qualitative data analysis will follow). This method is consistent with open coding. The research surrounding the KWIC method involved children’s utterances such as “‘cos”. This is a derivative of “because,” and expresses the author’s notion that these utterances linked perspectives of their framework.

Using keywords for the open coding stage is an efficient way to break down the data into “manageable chunks” for further analysis (Connolly, 2003; Staller, 2002; Wegerif and Mercer, 1997). Finding keywords for coding is the responsibility of the researcher and is a direct conclusion of the interpretation of the data as is true with all of the coding steps (Connolly, 2003; Staller, 2002; Wegerif and Mercer, 1997).

Connolly (2003) infers that literature seldom describes the process of producing codes through methods such as keywords. Connolly (2003) states: “For students new to social work research, the way in which analysis moves from the raw data to the development of explanatory propositions may seem like something conjured, as if by magic, by people with special un-learnable skills” (p. 104).
The literature suggests that coding is a credible means of analyzing data in qualitative research. Additionally there are several methods of coding. The previous sections described various types of coding, such as open coding and keyword coding; however, qualitative researchers differ on how to code.

Coding in the traditional sense is done manually (Brent and Slusarz, 2003). The researcher literally transcribes events by hand such as interviews and discussions (usually via audiotape and/or note cards) and then reads the transcripts several times. After reading the transcripts, the researcher begins a manual coding process. This is a time consuming process; however, it is theorized that this method immerses the researcher further into the data (Brent and Slusarz, 2003; Staller, 2002).

For decades, the notion of using computer software to seemingly analyze data within the realm of qualitative research has been a controversial topic (Brent and Slusarz, 2003; Staller, 2002). It is the opinion of many qualitative researchers that “rigor” is established when data analysis and coding are performed manually. The controversy is the use of computer software that will seemingly analyze data qualitatively.

*Computer Based Qualitative Data Analysis Software*

The concept of analyzing qualitative data via a computer and special software has been around for two decades (MacMillan and Koenig, 2004; Staller, 2002). MacMillan and Koenig (2004), describe the “Wow Factor” which is the assumption of a number of qualitative researchers that Computer Based Qualitative Data Analysis Software (CBQDAS) actually analyzes data. In a two-year study, MacMillan and Koenig (2004) researched the effectiveness of various CBQDAS, and found that several researchers are amazed and excited that there is software that will apparently analyze data.
The problem, according to MacMillan and Koenig (2004), is that many qualitative researchers don’t know how to utilize CBQDAS with the research methods they choose. For example, many types of CBQDAS state they have functions such as “theory building” capabilities.

MacMillan and Koenig (2004) indicate that the term “theory building” in CBQDAS evokes the perception that the software will actually somehow build theory. The authors contend that is the researcher who must build the theory; the software is just a tool to achieve such goals.

Staller (2002) echoes this claim. “Yet the researcher is responsible both for the mechanical decisions that lead to marking text which created the proximal relationships in the first place and for asking the questions about the existence of the relationships. The analytic work still belongs to the researcher” (p. 475).

Section Conclusion

This study was conducted within the interpretive paradigm of qualitative research. Basic terms were discussed that give the reader an introduction to credibility of qualitative research. These terms relate to the reporting phase of this research. A discussion of inductive analysis was provided in addition to a description of the notion of sensitizing concepts. A description of the effective use of computer based qualitative data analysis software was provided as well as detailed information on how this type of software could be used as a tool to organize and code data. The application of the qualitative research constructs discussed in this section will become evident in the subsequent chapters; specifically, the data collection, analysis, and findings.
Chapter Summary

According to Boote and Beile (2005):

To advance our collective understanding, a researcher or scholar needs to understand what has been done before, the strengths and weaknesses of existing studies, and what they might mean. A researcher cannot perform significant research without first understanding the literature in the field. Not understanding the prior research clearly puts a researcher at a disadvantage (p.3).

The first section described technology education and aspects relevant to consumers of this research in relation to the composition of the participants. The section on video in education provided pertinent information regarding historical studies and current studies including topical information such as video resources for preservice teachers that include lesson planning and delivery methods, along with many other issues that may occur when using video in an educational study. In addition, this section defined terms such as video feedback and “video clubs” and showed that there were several approaches to improving perceived self-efficacy.

The section on teacher education included many perspectives the participants experienced in their student teaching. The section also investigated assessment issues that certainly could be useful to this study. Ingersoll and Kinman (2002) conclude that performance self-assessment is beneficial to the confidence of preservice teachers. This directly ties into research Questions 1 and 2 and the efficacy information of the theoretical backdrop.

The use of video and collaboration are variables that go further than Ingersoll and Kinmans’ (2002) study, but the basic inferences can be applied. In the clinical and field-
based experiences section, Anderson and Radencich (2001) refer to the “peer-coaching model.” Research Question 3 can be explored with this supposition. In addition, the intention of comparing groups could confirm this notion.

The literature had several concepts that aligned with the theoretical backdrop used for this research. They included peer coaching, the peer assessment theory, group problem solving theories and constructivist theories. The efficacy in education section of this review described the theory that fit the most closely and helped tie the research together by providing a language; specifically, Bandura’s (1977) perceived self-efficacy model.

The last section indicated the qualitative research aspects used within this research. The section described the concepts of inductive analysis and coding methods used in qualitative data analysis in addition to the effective use of computer based qualitative data analysis software that was used in the data analysis of this research.
CHAPTER 3

METHODOLOGY AND DATA ANALYSIS

Introduction

This chapter will describe the data collection methods and the data analysis design. The data collection section will include the assumptions, limitations and tradeoffs, in addition to a description of the context in which data was collected.

The data analysis section will inform the consumer of this study of the methodology used to analyze the data. This will include a description of the analysis in relation to the theoretical backdrop and the use of the computer based qualitative data analysis software used to assist in the analysis.

Assumptions

*Assumptions Regarding the Researcher*

As a novice researcher in the field of qualitative research and the interpretive paradigm, I felt it was not productive to predict the outcome of the research based on any specific learning theory or teaching methodology. Trying to predict fell into the positivist paradigm. According to Denzin and Lincoln (2002):

Positivist research designs place a premium on the early identification and development of a research question, a set of hypotheses, a research site, and a statement concerning sampling strategies as well as a specification of the research
strategies and methods of analysis that will be employed. A research proposal may be written, laying out the stages and phases of the study (p. 368).

Therefore, I did not predict anything prior to the data collection. I did, however, have suppositions. These suppositions were a result of the classes I took as a graduate student in the areas of teacher education (both technology education and general) and educational technology. These classes were a motivating factor in conducting the research. Furthermore, I wrote extensively about topics relating to this research for my doctoral candidacy examination.

Those topics included the use of videotaping within the realm of education in addition to several aspects of the teacher education process. My suppositions were also a result of these writings. For example, although I could find no research regarding collaborative video assessment of preservice technology education teachers, I did find research about collaborative video assessment of preservice teachers in general. Therefore, it can be assumed that I, as a researcher, had some preconceived notions regarding videotaping in education and teacher education. The theoretical backdrop was a result of a continual analysis process and was used to provide a language that was consistent with the notion of “sensitizing concepts” as described in the review of literature.

Assumptions Regarding the Participants

With regard to qualitative research, specifically the interpretive paradigm, Denzin and Lincoln (2002) report:

In interpretive research, a priori design commitments may block the introduction of new understandings. Consequently, although qualitative researchers may
design procedures beforehand, designs should always have built-in flexibility to allow for new discoveries of the unexpected empirical materials and growing sophistication (p. 368).

With this in mind, the participants in this study were preservice technology education teachers who were working on their Master’s of Education degree. Two faculty members of the MSaT program were asked to participate in the research for background purposes in terms of clarifying what the preservice technology education teacher participants would be going through during their initial quarter field placements. These faculty members were interviewed and their responses were audiotaped.

According to one of the faculty members, who was the MSaT section head during the time this research was conducted, the teaching methodology imparted to the preservice teachers was constructivism. According to the other faculty member who was a Professor in the technology education program; one initiative of the program is to have preservice teachers conform to the constructivist approach (Owens, 2005; Zuga, 2005).

Finally, both Professors indicated that the main goal of the MSaT program is for the preservice students to be able to pass the Praxis II examination in order to receive teacher licensure in the State of Ohio. The Praxis examination consists of a content test and a pedagogy test. It was assumed all of the factors discussed in regard to MSaT could be an influence on the teaching methods of the participants.

Another assumption was the attitude of the participants. This assumption had many levels. First, the participants would be anxious when teaching lesson plans for the first time. This emotion could be prevalent whether they were being videotaped or not.
The review of literature suggested that anxiety may be heightened when performing and taking perceived risks (Pajares, 2002; Bandura, 1986, 1989).

Second, the participants would be given a flexible curriculum format to follow by the MSaT program. This was usually based on what the mentor teacher’s teaching methodologies were. Additionally, the participants would not be given any concrete structure to follow for their lesson plans. Third, the stress level would be elevated in the collaborative participants due to the extra work that they would encounter with regard to the added videotaping as well as the editing and peer review sessions.

Limitations and Tradeoffs

Limitations

As noted earlier, I knew all of the participants either on a personal level or an academic level. This could be considered a limitation. Stacey (1991) asserts, “the greater the intimacy - the greater the apparent mutuality of the researcher/researched relationship - the greater is the danger” (p. 114). Additionally, Goldstein (2000) cites studies that, “warn against engaging in ‘backyard studies,’ research undertaken within one’s own institution or agency, or with friends or colleagues: being too involved in or committed to the familiar territory can lead to difficulties during the research process” (p. 521). The dangers can be many, including power struggles between researchers and/or researchers and participants. These power struggles can include participants deciding that they do not wish to do aspects that they agreed to do in terms of the data collection.

However, a founding viewpoint of qualitative research is gaining trust and rapport between the researcher and the participants. As Glesne (1999) asserts, “Generally, people will talk more willingly about personal or sensitive issues once they know you. In most
cases, this means being perceived as someone who is willing to invest the time truly to understand them. Sometimes it simply means giving the person time truly to understand that you are an all-right sort of person” (p. 99).

Because I knew the participants, some socially, some personally in terms of advising them on personal problems, and all academically (they all had been in classes I taught), I thought they may be willing to participate in this research. After talking to each participant individually during the recruitment process, my assumptions regarding their willingness to be open with their thoughts and feelings in the data collection process, in addition to the issues raised by Goldstein (2000) and Stacey (1991) appeared not to be a factor.

However, there were instances when a participant would do something that would perturb me. For example, a participant would call me on my cell phone before a peer review session and tell me that he was having car trouble. All the while he was down the street on his way to the session. My field notes indicated that there were only three occurrences of this type of conduct. I attributed this behavior to the positive comfort level the participants felt during the data collection process. In addition, these students were very busy and for the most part tired due to the workload of their MSaT requirements, i.e., coursework, homework, student teaching, etc. For these reasons, it appeared the participant’s behavior could also be attributed to “letting off steam.”

Another reason I considered friendship would not be a major limitation was that I informally approached each of the participants and explained the research I wished to conduct. I explained the “team” concept to them and separated them into the teams based
on my judgment. I asked them to “just be honest” in their activities concerning the research and “not try to help me” by altering the data to what they might perceive to be an advantage for my research goals and me.

They all agreed in principle to this request. It appeared that they did honor this requests for two reasons. First, they would not be graded and they knew me well enough to know that I would not be offended by any actions or opinions they might have offered in the data collection. Second, they knew this research could be relevant for future preservice technology education teachers. It appeared that they realized I did not want them to say what they perceived I wanted to hear. It also appeared that they realized that jeopardizing the research could possibly hinder future technology education preservice teachers and their experiences.

Another limitation was that all of the participants were male. I could not control this fact. Traditionally, technology education has been a male dominated discipline. Women have been historically under-represented in scientific and technical fields and in technology-related careers (Zuga, 1998). This is a limitation because one of the recommendations argued in Chapter 5 concerns future research within other disciplines. There may be a difference between male and female perspectives in terms of self-reflection and answering questionnaires.

The final limitation was time. As previously stated, the participants of this study had a demanding schedule during the period that the research was conducted. This was particularly true with the collaborative group. I had to set limits in regard to the length of
the videos, the editing sessions, and the peer review sessions. Further detailed explanations of this limitation will be forthcoming in the data collection section of this chapter.

Tradeoffs

In an effort to counter the tremendous amount of work the participants had to endure by not only participating in this study, but also carrying their normal course load and teaching schedule as well, certain tradeoffs were negotiated. All of the participants were enrolled in the “Fundamental Ideas of School Technology” course during the time the research was conducted. The instructor of this course agreed that all of the participants in the study could be exempt from writing a research paper he normally required for the course. In addition, the members of the collaborative team were exempt from writing three weekly reflection papers normally required for their MSaT supervising teacher, only on the weeks they were conducting their individual tapings.

Finally, before each editing session, I took the collaborating group to lunch. This was considered a reward for their hard work, but it also gave the group and myself a chance to bond. Additional detail regarding the lunches will be discussed further in this chapter.

My Role as the Researcher

As Marshall and Rossman (1999) point out, “In qualitative studies, the researcher is the instrument” (p. 79). As the instrument, “... presence in the lives of the participants invited to be part of the study is fundamental to the paradigm” (p. 79). The degree of presence varies depending on the researcher and the research.
It is our experience that some sort of participation usually becomes necessary as the researcher helps out with some small chores (or large ones), wants to learn more about a particular activity, or feels compelled to participate to meet the demands of reciprocity. Such interaction is usually highly informative while remaining informal (p. 79).

My participation involved small chores and reciprocity. For example, a small chore I performed was to take video equipment to a participant because he forgot to pick it up from the technology education department. The original plan was for the participants to “pass off” the equipment from one to another after each individual’s videotaping. The “passing off” was to take place during the night classes all the participants were enrolled in during a typical “taping week” during the ten-week period. This did not always work out. Several times throughout the data collection process I had to drive equipment to various parts of the city. If I did not do so, the individual’s lessons might not have been videotaped; therefore, this chore could also be considered an act of reciprocity.

Another key consideration for the researcher is gaining the trust of the participants. Marshall and Rossman (1999) refer to this as being “… difficult for novice researchers to accomplish” (p. 80). I was fortunate insofar as I knew all of the participants. I had interacted with them several times as part of their undergraduate work. All had taken at least two of my classes as undergraduates. I was confident that they knew me well enough to trust me. In addition, I made no attempt to be deceptive.
regarding any aspect of the study. Furthermore, it was not necessary to “negotiate entry” into the lives of the participants. The sections that follow in this chapter explain these points extensively.

Another issue I had to deal with was my reflexivity as a researcher. As Lincoln and Guba (2000) describe, “Reflexivity is the process of reflecting critically on the self as researcher, the ‘human as the instrument’” (p. 183). As I began this research I had to look at every aspect in terms of data collection, analysis, and recommendations to ascertain what knowledge was being constructed as the research progressed. A good qualitative researcher will attempt to self-reflect on all of these aspects in order to report truthfully to the consumers of the text. I had to ask myself how I would accomplish this important goal within the realm of qualitative research, specifically in the data collection phase. I decided to employ the use of “personal notes” throughout the text within the data collection and data analysis chapters. The notion of “personal narrative” falls into this type of reflexivity.

As Denzin (2000) asserts, “The truth of a person’s and a culture’s ways are given in texts like these. Such works, when performed or read, become symbolic representations of what the culture and the person values” (p. 906). The “personal notes” are indicative of my values as “the researcher” and as a person. The “personal notes” will be indented for easy identification. The “personal notes” were a result of my observations and field notes. The questions that guided the personal notes and helped document reflexivity were:
1. As a researcher, what was I doing to report what was actually happening during the study in terms of data collection?

2. What types of effects (positive or negative) were occurring to the participants and me as a researcher that may have an impact on the research?

3. Was I actually building knowledge in terms of my research questions?

4. Was I being fair to the participants in terms of giving them additional work that they did not agree to?

Finally, as Patton (1990) states, “Because the researcher is the instrument in qualitative research, a qualitative report must include information about the researcher” (p. 472); I felt it was necessary and my responsibility to discuss my research experience. I categorized myself as a novice researcher, particularly in the field of qualitative research.

In struggling with topics for my dissertation research, I was swayed to the qualitative research methodology and specifically, the interpretive paradigm, from the graduate classes I took. I took my first qualitative course after I was exposed to all of the quantitative courses I was required to take. The first qualitative course I took uncovered a whole new research world I never knew existed. I particularly liked the aspect that qualitative research seemed to break all the rules of quantitative research. I was required to read literature that criticized both quantitative and qualitative methods.

As Denzin and Lincoln (2000) state, “Positivists further allege that the so-called new experimental qualitative researchers write fiction, not science, and that these researchers have no way of verifying their truth statements” (p. 8). Statements such as these reinforced my eventual decision to conduct a qualitative study.
Finally, I realize that being a novice in this type of research will uncover mistakes made on my part and, as a qualitative research, it is my responsibility to report those mistakes. Lareau (1996) states:

All qualitative researchers inevitably experience errors and confusion in their research…Many decisions must be made, some of which – in retrospect – are regrettable. This is true in all research, but in qualitative methods the mistakes are usually carried out and observed by the researcher first hand (p. 221).

I did make mistakes during this study. I will reflect on them throughout the remainder of this text as previously described using “personal notes.” Admitting and reporting mistakes as they happened throughout the text contributes to research trustworthiness.

Overview of MSaT and the Participants

In order to provide the consumer of this text a realistic overview of the participants and the culture that they were a part of during the research, it is important to provide a background of the educational setting. The pre and post questionnaires that the participants filled out ask questions about their beliefs and feeling toward their training. This overview will provide information about the MSaT Program.

As stated earlier, the participants were M.Ed students in the Mathematics, Science and Technology Program of the School of Teaching and Learning within the College of Education at The Ohio State University. The MSaT Program is designed to prepare the students for initial licensure in one of the three disciplines. The disciplines are in different programs, i.e., Mathematics Education, Science Education, and Technology Education for undergraduates. The undergraduates in these programs are required to take classes
within other disciplines such as math and science insofar as content knowledge classes are concerned. They must all take general education courses (GECs). For example, the technology education majors must take math and science content courses for their GEC requirements.

Once the undergraduates have graduated with their Bachelor’s degree they may apply to go into the MSaT Program to obtain a Master’s of Education (M.Ed.) or a Master’s of Art (M.A.). The requirements that must be met in order to be admitted into either program include a grade point average of at least 3.0; letters of recommendation from at least three faculty members, graduate teaching associates or instructors they had as undergraduates; and successfully passing the graduate record examination (GRE).

The MSaT program for most preservice M.Eds is a five-quarter process. The students take many of the same classes throughout the sequence. They do, according to the Professors I interviewed, have some choices in the classes they take; for example, they have a choice in focusing on qualitative or quantitative research courses. This research is based in part on the initial quarter of preparation before they actually go to a school for their field-based experience. The first quarter of the program is designed to familiarize them with different teaching styles and methodologies. In addition, they are exposed to the historical data of education and how to conduct research.

During the second quarter they spend half a day at a predetermined school to observe and to actually conduct several lessons. The classes they take are usually in the evenings. This process continues through the remaining quarters with more field-based experiences and less class work until they ultimately get their teaching credentials.
Several times throughout the pivotal second quarter, students in the separate disciplines (Mathematics, Science and Technology) met with their cooperating teachers to reflect and discuss their experiences. For example, science education preservice teachers met separately from the mathematics education preservice teachers and technology education preservice teachers.

There were sixty-eight students enrolled in the MSaT program for M.Eds at the time this research commenced. The breakdown was as follows: thirty-three science education majors, twenty-seven mathematics majors, and eight technology education majors.

**Procedures for Data Collection**

*Choosing the Participants for the Research*

All of the participants were chosen through purposive sampling. This method is primarily used in qualitative research when there is a small sample size, but more importantly when all of the participants in the sample have the same characteristics (Gay & Airasian, 2000). The participants who were used in this study met the purposive sampling criteria. A description of how purposive sampling was applied in this study will be discussed further in this chapter; specifically how the participants were chosen.

The data collection methods employed in this study were observation, videotaping of the participants, interviews, surveys, and participant efficacy belief reflections, either in written form or videotaped.

I chose six of the eight preservice technology education teachers who were enrolled in the MSaT program. Two were excluded for the following reasons. Both were currently teaching in the technology education field. One received emergency licensure
while he was teaching; in addition he was not going through the program in the traditional way. In an informal interview with him, he explained that due to his hectic schedule, he was working with the faculty to extend the process over two years instead of the traditional five quarters.

The last potential student had graduated from the OSU with a technology education degree in the 1970s. He had returned to the University after years in the private sector working in industry. When I was recruiting participants for the study, I was unaware of who he was and his background.

Finally, after the research commenced, I learned that an additional student would be joining the technology education cohort. This student is an African American female who I also taught in my undergraduate classes. She had declined to take the initial MSaT course offerings. This automatically prohibited her from participating in this research. Even though gender or ethnicity were not part of this research, her contributions, most certainly, would have been beneficial.

The remaining six preservice technology education teachers were used for the study. Three were assigned to a collaborative unit or team, and three went through the program in the traditional way for comparison.

The three preservice technology education teachers from the sample that were chosen by the researcher to form a “collaborative team” were chosen through purposive sampling. Purposive or “purposeful” sampling allows a qualitative researcher to use his or her judgment to determine who will participate in their research.

Patton (2002) discusses that participants chosen through purposive sampling “illuminate” the questions being studied. In the case of these participants and the research
questions, it was imperative that they were technology education preservice teachers in their initial quarter of student teaching. The research questions look at uncertainties, efficacy and confidence regarding the qualities these participants possess; namely the fact that they were going into a situation that they had only theorized about in classes in terms of pedagogy.

As stated in the Limitations and Tradeoffs section of this chapter, I knew each one of the students personally, as they had all taken several undergraduate classes as my students. In addition all of the participants were male. Table 3.1 shows a brief profile of each of the participants. The collaborative team will henceforth be known as the “Team Gray”; the comparison participants will be known as the “Team Scarlet.” The profiles are based on my observations as a graduate teaching associate while the participants attended my classes as undergraduates. I have not used their names to protect their anonymity. Furthermore, I gave descriptions, based on my observations, in the form of the “strengths” and “weaknesses” I felt the participants would bring to the research in terms of behaviors and experiences in an effort to make the teams as balanced as possible.
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<th>Code Name</th>
<th>Strengths</th>
<th>Weaknesses</th>
<th>Comments</th>
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<tbody>
<tr>
<td><strong>MST</strong></td>
<td>This participant is very proficient in videography. He has good people skills. He is also very enthusiastic about teaching and learning. He is also extremely creative.</td>
<td>This participant tends to dominate group situations.</td>
<td>This participant and I have a personal relationship as we both worked for the football team at one time. I am confident this will not be a factor in the research.</td>
</tr>
<tr>
<td><strong>MSW</strong></td>
<td>This participant is a creative problem-solver. He has good people skills. He is a good mediator and works well in group situations.</td>
<td>This participant, at times, can be complacent in terms of what he feels is important.</td>
<td>Even though I have had significant interaction with this participant in the past, he is the participant I know least about on a personal level.</td>
</tr>
<tr>
<td><strong>RAT</strong></td>
<td>This participant is a creative problem-solver. He has good people skills. He is a good mediator in group situations. He is also very creative.</td>
<td>This participant is very thorough in terms of his academic pursuits and that occasionally leads to tension in group situations.</td>
<td>This participant was the most educated of all of the participants. He had obtained previous degrees from other institutions.</td>
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<tr>
<th>Code Name</th>
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<th>Comments</th>
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<tr>
<td><strong>BJN</strong></td>
<td>This extremely intelligent individual. He is proficient in most computer situations. He also works well in group situations.</td>
<td>This participant is very thorough in terms of his academic pursuits which occasionally leads to tension in group situations. He sometimes over analyzes trivial matters.</td>
<td>This participant was active in many extra curricular activities within the university as an undergraduate.</td>
</tr>
<tr>
<td><strong>DGR</strong></td>
<td>This participant is very proficient in multimedia. He has good people skills. He is an excellent writer and very creative. Additionally, he possesses excellent graphic design skills.</td>
<td>This participant tends not to take schoolwork seriously when he feels it is not relevant to him.</td>
<td>This participant worked on the “Lantern;” the OSU student-run newspaper.</td>
</tr>
<tr>
<td><strong>DOB</strong></td>
<td>This participant is very proficient with computers. He has good people skills. He is an excellent writer and very creative.</td>
<td>This participant can be hard to motivate. He tends not to take schoolwork seriously when he feels it is not relevant to him.</td>
<td>This participant was known as “the class clown” in my classes. This was sometimes problematic.</td>
</tr>
</tbody>
</table>

Table 3.1 *Participant Profiles*
Choosing the Teams

Purposive sampling, as previously mentioned, allows the researcher to choose participants based on the researcher’s judgment. I chose the teams based on the answers to four questions.

1. Which individuals would be able to handle the extra workload if they would be in a collaborative group?

2. Which individuals would take the research seriously enough to make a commitment if they would be in a collaborative group?

3. What were the experience levels regarding the individuals’ videotaping and editing capabilities?

4. What team might the individuals prefer to be on?

As stated, I knew all of the individuals. I had them in several of the classes I taught. Therefore, I had an idea of which individuals I wanted on the teams based on the four factors mentioned above. In addition, I wanted to have a fair representation in both groups based on the four factors as well as the strengths and weaknesses. For example, I didn’t want the collaborative group to have all of the individuals who had the most experience with video related activities. The three individuals with the most experience working with video were MST, Bjin, and DGR. MST by far had the most experience and Bjin and DGR were in my estimation, somewhat even.

Based on all the factors, I chose a tentative collaborative group and a tentative non-collaborative group. For the collaborative group I chose MST, RAT, and DGR. All met at least three of the four factors. All met the most important factors: which individuals would be able to handle the extra workload if they would be in a collaborative
group? And, which individuals would take the research seriously enough to make a commitment if they would be in a collaborative group? I had doubts about DOB and these two factors, but I felt Bjin was a worthy candidate. MSW was also suspect regarding the extra workload, but I felt he would take the study seriously.

*Personal note:* Making the decision was tough for me because I knew all of the participants. I really wanted Bjin on the collaborative team, but I felt his abilities were equal to MST’s abilities as far as video experience was concerned. I also felt he was similar to RAT in his work ethic and willingness to take the study seriously. Because he equaled MST and RAT on these factors, it appeared Bjin would be a great counter balance; thus, I was confident the teams were balanced.

After my dissertation committee and the Office of Responsible Research at The Ohio State University approved my proposal, I informally approached each individual separately for recruitment. I explained the basics of the research I was conducting and asked each one if they wanted to be involved. I explained which team I thought would be best for them and I also explained that there would be some type of tradeoff if they participated. At that point, I was unsure of what exactly the tradeoffs would be, but in speaking to my advisor, he was sure something could be worked out such as not having to write a research paper or the like.

All agreed to participate and I had my groups set. Team Gray consisted of DGR, MST, and RAT. Team Scarlet consisted of Bjin, DOB, and MSW. Based on all of the questions I formulated, the selection process appeared to be fair.
Preparing the Participants for the Research

To prepare the participants for the research, I first had to organize several preliminary documents and that included a participant consent form (Appendix C), a student consent form for videotaping in the schools (Appendix D), and an initial reflection questionnaire (Appendix E). Furthermore, I had to contact the schools where the participants in the collaborative team would be conducting their student teaching to get permission to videotape in their technology education classes.

My first task was to contact the schools to get permission to conduct the research. I was pleased to find out that both groups had a diverse set of schools in terms of wealthy versus disadvantaged or “at risk” student populations. This would only help in terms of the feedback of the collaborative team, although it was not a motivation for the study.

In contacting the schools to get permission, I ran into a stumbling block. The schools that MST and RAT were to teach at were extremely helpful (both the mentor teachers and the principals) and already had sent their own school forms to the parents of the students stating that they may be videotaped during the school year. I explained that I would be giving the participant an additional form for the students’ parents to sign as required by the Office of Responsible Research.

The principal of the school DGR of the collaborative group was to teach in refused to allow research to be conducted in the school. This posed a major problem. One of the participants I chose for the collaborative group would not be able to participate. I was faced with the questions: Who would replace DGR? In addition, would shuffling the groups around change the dynamics of the data or the data analysis?
I had to make a decision in an expeditious manner. I first consulted with my advisor, Dr. Paul Post. He told me that it might be possible for DGR to switch schools, but it would be a cumbersome task. He explained that placing preservice teachers in schools is an arduous process and it would be better if I tried switching participants. He assured me that if I was not successful, he was sure we could work something out. I agreed to try to make the change.

I looked at the strengths and weaknesses of the participants. MST and B Jain were equal in experience; therefore, they would need to stay in their respective groups. I definitely wanted RAT in the collaborative group due to his work ethic and abilities and I felt he would be beneficial to the study. He had demonstrated several times in my classes that he was a serious student and I knew he would be able to handle the extra workload. My choices for the replacement were DOB and MSW.

I decided to speak to both of the potential replacements. Both had strengths that would work well in the collaborative group, but both had weaknesses as well. I explained the situation to them in isolated informal meetings. In speaking to DOB, he stated that he really didn’t want to do any extra work other than what would be expected of him during our initial conversation about the research. MSW was not hesitant, and agreed to change groups. I assured him the change was strictly voluntary and in no way pressured him. I contacted his principal and mentor teacher, and permission was granted for his participation. The final teams were finally in place and the research was ready to commence.

Finally, I prepared a Microsoft® PowerPoint presentation for the participants. The presentation consisted of two parts. Part One was an overview of the research for all of
the participants, and Part Two was a refresher of technical information such as camera angles in the classroom and was shown only to Team Gray. This was presented to them during our first official meeting that occurred on October 8, 2004. The meeting lasted approximately one hour and consisted of a verbal description and Part One the PowerPoint presentation of the research to all of the participants. In addition, all of the participants were given a Research Participant Consent Form that explained their responsibilities and possible tradeoffs. After the participants signed the forms, I excused Team Scarlet and proceeded to show the remainder of the PowerPoint presentation to the members of Team Gray.

Data Collection

Section Introduction

The data collection of this research took place in “phases.” Each “phase” will have a detailed description of what occurred regarding that particular topic in addition to how and why it was done. This type of data collection procedure is consistent with Tochon’s (in print) notion of a systematic approach to conducting research involving video in an emic approach. As stated, the emic approach involves the notion that the research participants will construct the social realities that are present in internalized social settings.

I chose to distance myself as much as I could in the data collection, by letting the participants collect their own data, manipulate it, and make sense of it in their own way in terms of video taping their classes, editing the videos, and participating in peer review sessions; however, I was a participant observer in the peer review sessions. My role as a participant observer will be discussed in the data analysis section of this chapter.
Further, it was my role as a researcher to assist in coordinating a procedure to facilitate data collection by the participants. Additionally, it was my role to collect data such as pre and post efficacy belief questionnaires, conduct interviews, and ask follow-up questions.

Phase 1. Participant Initial Reflective Data

The purpose of the initial reflective data was to have a written document of each of the participants’ efficacy beliefs of what they thought occurred in their initial quarter of training. During this quarter the participants did not take part in any student teaching. They all took methods classes that emphasized educational philosophies, lesson plan preparation, and classroom management. It also included mock teaching exercises.

It was a starting point to obtain their efficacy beliefs regarding confidence and preparation for their upcoming student teaching. Initial questions are common in qualitative research and are used as a foundational instrument on which to build the study. In addition, these data were used to compare the group’s beginning efficacy beliefs with the final reflective data.

The initial reflective paper in essence was a “semi-structured” questionnaire. As Fountain (2004) states, “If the instrument is too structured, it will not allow the interviewees to put forward their own points of view and experiences, while if it is too unstructured, the result may be too many data that are irrelevant to the study” (p. 21).

Each participant received the same questions for the initial reflective paper. There were four open-ended questions. The point of using open-ended questions was to obtain as much information regarding the topics of concern as possible. Patton (2002) states, “The purpose of gathering responses to open-ended questions is to enable the researcher
to understand and capture the points of view of other people without predetermining those points of view through prior selection of questionnaire categories” (p. 21). It was also a way for me to gain insight into the culture of the participants. I felt it was important to know as much as possible about the attitudes of each individual prior to conducting further data collection.

Furthermore, the use of only four questions was implemented for the sake of time. I did not want the participants writing a long arduous paper that could possibly be counter-productive in terms of honesty regarding the participants’ thoughts and feelings. I also instructed the participants not to spend more than two hours writing the paper for the same reasons.

Phase 2. Team Gray: Videotaping In the Classroom

The participants were instructed that they would videotape three lessons that they would deliver to their respective classes. Before any taping began, the participants were instructed that they must have the consent of the students and the parents of the students that were in their classes to videotape them. In order to accomplish this, I needed to know how many students would be in the classes of each participant. Each participant was asked to give the number of students in each of the classes they were going to teach and possibly videotape. It must be noted that each participant would be teaching several classes to different groups of students. Therefore, I needed the total number of students they would possibly videotape.

For example, MSW had four periods within his scheduled student teaching time. His class schedule is shown in Figure 3.1. Note their was one period with no students.
Table 3.2 Signed Consent Forms Data

The participants were instructed that any student who did not bring in a signed consent form or a form that declined permission would have to be out of the view of the camera. All of the participants agreed to this stipulation and I was confident it would be
honored. In addition, when I spoke to the mentor teachers they agreed to make sure no student would be videotaped without a signed consent form. All of the consent forms that were signed were in my possession, and I allowed the tapings to begin.

As stated in the original participant responsibilities, members of Team Gray would individually videotape themselves teaching a lesson to their assigned classes. In addition to videotaping themselves, they would also videotape their students’ reactions to the lesson. This required that the team members have two video cameras running simultaneously during the lesson. They would set up both cameras and check for sound.

This is exactly what occurred. I prepared “the bag” (Figure 3.2), as it was aptly called throughout the research. It consisted of the following:

1 - Cannon® zr25 Digital Video Camera with bag, instructions, and battery recharger

1 - Sony® DCR TRV20 Digital Video Camera with bag, instructions, and battery recharger

1 - RadioShack® Omni Directional Boundary Microphone

2 - Sunpak® 6601UT Tripods

6 - Maxell® 60 Minute Mini Digital Video Tapes (2 per participant)

3 - 6” x 9” Padded Manila Envelopes (1 per participant)

1 - Medium Size Duffel Bag (with the Ohio State University Logo)
All of the equipment was my own or purchased by me except for the Sony digital video camera and one tripod. They were on loan to me from the technology education program. The cameras, tripods, and omni microphone were perfectly suited for this type of videotaping. The cameras are known for their ease of use, and the participants had used them previously as well as the tripods. The omni microphone is used for situations where sound is coming from all directions such as a classroom.

The participants were given instructions in informal meetings to refresh their memories of how to operate the equipment. Each participant indicated that they were confident that they could setup and operate the equipment with minimal concern. Furthermore, each participant was instructed that they would have a marked envelope with two mini digital videotapes enclosed. Each envelope had a participant’s name written clearly on it. The enclosed tapes were labeled either “Teaching View” to be used to tape themselves, or “Student View” to be used to tape the students’ reactions as explained in the PowerPoint presentation.

It was my intention that each participant set-up the cameras and videotape on their own. I did not want to be present for the tapings because it could possibly make the participants nervous as well as the students. As Hoepfl (1997) asserts, “The presence of an observer is likely to introduce a distortion of the natural scene which the researcher
must be aware of, and work to minimize” (p. 53). The cameras were a possible
distraction, and I did not want my presence to be an additional distraction.

Finally, the participants were asked to tape only the parts of the lesson in which
they were either lecturing or demonstrating an aspect of the lesson or activity. This was
done for two reasons. First, the editing sessions had to have a time limit. If the
participants taped an entire teaching session that typically would run about fifty minutes,
the act of importing the video in the computers during the editing session would also be
fifty minutes. This would take too much time in the editing sessions. As stated in the
limitations and tradeoffs section of this chapter, time was a factor in this research.

Second, a typical lesson starts out with a lecture, a demonstration, or an
introduction to an activity and then the students commence with the activity. Although
interaction between a preservice teacher and the students is an important part of the
learning process for the preservice teacher, and was present during all of the participants’
videos in the form of questions and answers, the use of the footage for this research was
for the participants to see themselves conducting the lesson in terms of lecture,
demonstration, or introduction to an activity. Therefore, having the participants videotape
the supervision of the activity was not required for this research although it should be
noted that further learning by the participants could occur.

*Personal note:* Because of the time constraints, the participants were asked to use
only portions of their lessons (delivering the lesson) for the purposes of the time it
would take to edit. I did, however, encourage them to tape their entire lessons so
they could see themselves interact with the students during an activity.
The first member of Team Gray to videotape a lesson was RAT. This occurred October 19, 2004. As stated previously, I had to perform small chores for the participants. In this case, I had to take “the bag” to RAT’s school. The original plan was for RAT to pick up the “the bag” the night before, but someone had taken the camera that I was borrowing from the technology education department. I was able to get the camera the next morning and took the equipment to RAT’s school.

“The bag” was to be given to the next participant who thought they would videotape next. I initially had a set schedule for tapings, but this did not work out for various reasons. For example, it was up to the mentor teachers to decide when the students would conduct their lessons. At the time I organized a taping schedule for the participants, they had not met their mentor teachers nor did they have any idea when they would be conducting any type of student teaching. Therefore we “played it by ear.” Typically, scheduling was done through informal meetings or email.

Eventually, the team and I were able to work out a semi-structured system to get the equipment to each other. Occasionally, I did have to get “the bag” from one participant and take it to another. The logistics of this process was a concern and will be discussed in the data analysis chapter.

Phase 3. Team Gray: Editing Sessions

The purpose of the editing sessions was to have the participants produce vignettes from their raw videotapes. The vignettes would be analyzed in terms of their effectiveness as a self-reflective tool and how they might influence the participants’ future procedures in terms of lesson planning and delivery.
The editing sessions were scheduled to be no longer than three hours in length. As stated previously, the participants were very busy with other aspects and demands of the MSaT program. They all taught in the mornings Monday through Thursday and then attended MSaT classes at 4:30 p.m. On Fridays they attended morning seminars. They all indicated that they did not want to participate in this project on Fridays or the weekends for various reasons. For example, MST had a job and had to work on Fridays after the seminars in addition to weekends. Therefore, I had a window of four hours Monday through Thursday from approximately 12:00 p.m. to 4:30 p.m. in which to work. I felt that anything more than three hours would be too cumbersome for the participants. The editing sessions had the same type of scheduling conflicts as the participants’ video tapings; therefore, we again planned “on the fly.” This too was usually done through e-mail.

I asked the participants to try to arrive at the technology education building as close to noon as they could. I felt three-hour sessions would be an appropriate amount of time to achieve the objective of the editing sessions. I based this decision on the experience the participants had with video editing within the communications classes I conducted and they had attended as undergraduates.

The video tapings by the participants in their classrooms occurred as originally intended except for the logistical problems. The editing sessions, however, did not go nearly as well. Several aspects of the original design in terms of the editing sessions were either augmented or totally eliminated. Patton (2002) described this experience as “emergent design flexibility.” Emergent design flexibility is an “Openness to adapting
inquiry as understanding deepens and/or situations change; the researcher avoids getting locked into rigid designs that eliminate responsiveness and peruses new paths of discovery as they emerge” (p. 43).

In the original design, I was going to videotape the editing sessions. For the first session, I did set up a camera and video taped a portion of the session. I soon realized that taping the editing sessions would not be necessary. There was very little interaction by the participants once they got going. This suggested to me that observation and field notes would suffice. For example, the first session began by a quick review of how to attach the cameras to the computers via Firewire, and how to import the footage into the video editing software. In this case, iMovie was the software of choice. This software was chosen because of its ease of use and additionally, the participants had used it before in the communications classes they took from me as undergraduates. Once the footage was imported, the only design limitations were that they make a title clip that stated their code name and what session it was, i.e., Lesson 1, 2, or 3 in addition to a title clip that stated a strength or weakness.

Finally, before each editing session, I took the participants to lunch. The lunches were at modest restaurants, but not fast food. I spent approximately $40.00 per lunch. This might raise some red flags in the minds of some researchers. Ethics and researcher bias are two terms that emerge with some type of reward system. As Vallance (2001) states:

It is hard to get people to be involved in research, especially if there is no obvious reward for their involvement. And many researchers are suspicious of rewarding
research subjects due to the uncontrolled bias that the reward system might introduce (Mitchell, 1998, p. 17). People are busy and might be less inclined to offer time when there is no incentive (p. 66).

This was not the case with the lunches. I did not inform the participants that they would be receiving free lunches as part of their participation in the study. In fact, I intentionally had the participants come an hour earlier than I had originally intended them to come for the editing sessions so I could take them to lunch. They had no idea that they would be taken to lunch, at least for the first editing session.

I took the participants to lunch for two reasons. First, I wanted to reward them for the hard work they were doing for the research project. They were going to be working for several hours editing video on a computer. I saw no reason not to provide lunch. The second, and major reason for the lunches was that I wanted to get the participants away from the educational community. They were saturated within an educational environment that was at times relentless and overwhelming. The participants were asked at lunch not to talk about anything that had to do with the research project, their student teaching, or the university with the exception of sports or other non-educational issues.

Additionally, I did not take field notes at the lunches. I felt this would be counter-productive to the sprit of the lunches. If I were taking notes the participants might perceive it as a part of the research. The lunches were simply four people talking about current events and other non-educational topics - nothing more. Although the lunches were a part of the participants’ experience during the research, it appeared they were not problematic in anyway in terms of any effect on the outcomes of the data collection.
Phase 4. Team Grey: Peer Review Sessions

The peer review sessions were scheduled the day after the editing sessions. I wanted the participants to be able to recall what they did in the editing sessions as clearly as possible. Because of the time constraints, I could not ask the participants to collect their thoughts and participate in the peer review sessions immediately after the editing sessions. Having the peer review sessions the day after the editing sessions occurred once out of the three tries. The other two peer sessions occurred several days after the editing sessions due to scheduling conflicts.

The peer review sessions consisted of the participants watching and discussing the five to ten minute vignettes that they had produced in the editing sessions. After each editing session I would transfer the participants files from the computers they used in the technology education lab to an external hard drive that I owned. I would take the external hard drive to my home where I would make a continuous movie of the participants’ edited vignettes. I previewed the continuous movie to look for any type of mistakes or glaring design flaws. I also wanted to make sure the movie played smoothly.

*Personal note:* I struggled with what I would do if I saw a mistake or design flaw. If I made changes to the movies the participants produced, would that constitute some sort of ethical dilemma such as deception? Fortunately there were none and I was not forced to make a decision in this regard. In retrospect, if there were a mistake or flaw, I would have left the vignette alone. It was the participants’ work and they should stand by it.

Furthermore, I did not consciously arrange their vignettes in any order for the continuous movie. I unconsciously went in alphabetical order of the participants file
folders on my external hard drive, except for session 2 where MSW went before MST. In
this case MSW’s file folder was misspelled. RAT was always last. In retrospect, I
probably should have each participant’s video go first for any given session. This never
occurred to me at the time. However there was no mention of the order by the
participants; therefore, I do not perceive the order as any type of factor in the peer review
sessions data.

Phase 5. Team Gray: Peer Review Session Post Interviews

The interviews were a collaborative effort by of Team Gray for the purposes of
my data collection. It was apparent during the first interview session that the participants
could express themselves just as well, if not better, in a group interview as separately.
Several times throughout the interviews, one participant would not be able to remember
an aspect of a topic and another participant would help spark their memory. In addition,
several times during the interviews, a participant would say something that another
participant hadn’t thought of and this would spark a conversation between participants.

Additionally, I wanted the participants to feel comfortable; therefore, I would
often tell them that if they did not feel comfortable answering a question they did not
have to answer. This only happened once. MSW simply did not want to “weigh in” on a
question. I assured him that it was fine and I moved on. I also found that MST and RAT
were more vocal in their answers. This is in no way a criticism of MSW. He contributed
greatly to the interviews; he was just not as vocal as the other two participants.

Regarding data collection procedures, the group interviews were appropriate in
terms of post interviews after the peer review sessions. The interviews yielded rich
informative data that will be put into context in the data analysis section of this chapter.
These sessions were held immediately after the peer review sessions. The participants and I took a small break (usually fifteen minutes) between the sessions. During this time I would also arrange the camera for the interviews. I entered the interviews with specific questions, but I allowed for variation. If a participant went a different direction than the topic of the question I did not try to stop him.

I, as a novice interviewer, had a decision to make as to what kind of interviews I wanted to conduct. I had two goals I wanted to meet, the most important being the notion of time. The participants had already spent approximately an hour taking part in a peer review session; therefore I knew they would be tired. However, I wanted the participants responses during the interview to be fresh and accurate. Therefore, I employed a combination of the general interview guide approach and the standardized open-ended interview. Patton (2002) contends:

This combined strategy offers the interviewer flexibility in probing and in determining when it is appropriate to explore certain subjects in greater depth, or even to pose questions about new areas of inquiry that were not originally anticipated in the interview instrument development (p. 347).

This allowed me to stick to my initial interview questions for the sake of time; however, I could probe further into the responses if it appeared to be appropriate.

The other goal was developing a good instrument for the interview. In developing the instrument, I chose to sequence the questions according to what had happened in terms of participation involving videotaping, editing, and peer reviews. This is consistent
with a standardized open-ended interview (Patton, 2002). Additionally, I wanted to ask questions that would be easy to answer and encourage the participants to be descriptive and meaningful in their responses.

To accomplish these goals I structured each interview instrument in the same manner. For example, I asked open-ended questions about the editing process, working in groups, if the peer review sessions were beneficial, and so forth. By sticking to this instrument design, I was able to get consistent data that built upon itself for each interview.

Furthermore, I was able to complete the first two interviews in a timely manner. The first interview lasted eighteen minutes, while the second interview was twelve minutes. The final interview lasted significantly longer. This was due to asking the questions in the same manner as the first two interviews, but I probed more. In addition, the participants went off in different directions, which I allowed. The last interview session lasted almost one hour. Typical questions for all of the interviews concerned how hard was it to videotape the lessons, the editing sessions, and the benefits (if any) of the process. The post interview questions can be seen in Appendix F.

Phase 6. Participant Final Reflective Data

The purpose of the initial reflective data was to have a written document of each of the participant’s efficacy beliefs of what they thought occurred in their initial quarter of training. It was a starting point to obtain their thoughts and feelings regarding confidence and preparation for their upcoming student teaching. The final reflective data was an ending point in which the participants could express their efficacy beliefs regarding confidence and preparation of the student teaching that did occur.
Similar to the initial reflective data process, the final reflective paper was a “semi-structured” questionnaire. Furthermore, as with the initial reflective data, the use of only four questions was implemented for the sake of time as outlined in phase 2 above.

Phase 7. MSaT Student Survey

As stated previously, triangulation is the use of different research methodologies and data sources within a study. Patton (2002) states, “Triangulation strengthens a study by combining methods. This can mean using several kinds of methods or data, including using both qualitative and quantitative approaches” (p. 247). Furthermore, Patton describes several types of triangulation. For this research, methodological triangulation was used. Methodological triangulation uses several research methods to investigate a problem or program (Patton, 2002).

In the case of the MSaT student survey, methodological triangulation in the form of a qualitative instrument was employed. Additionally, the MSaT survey directly ties into Research Question 3. As several other data sources and methodologies were used for analysis that included qualitative interpretation and coding of data such as the data from the peer review sessions and interviews, the data extracted from this survey and the faculty survey were analyzed through quantitative calculated means.

The survey was conducted during an MSaT class that all MSaT students were required to attend. The instructors of the course administered the survey. Furthermore, the instructors inspected the survey before it was administered. I asked the two instructors to look over the survey and provide feedback. I was unable to conduct a “pilot study” of a
small portion of the sample, which is consistent in quantitative research, due to time factors. The instructors of the course did inspect the instrument and provided positive feedback that resulted in no change in the instrument design.

I was in the building during the survey, but not in the classroom in which it was administered. I did not want my presence to possibly influence the answers even though the students were not required to give their names. The survey document consisted of a brief overview of the research followed by a question of what program of study the survey taker was involved in; i.e., mathematics, science or technology; and followed by six questions pertaining to the video presentation. Finally, the document asked for any comments regarding the video presentation.

The video presentation was to be shown after the students read the overview of the research. I asked the instructors to let the students read the overview and then show the DVD; however, the instructors had one student read the overview out loud to the entire class in an effort to save time.

The DVD was shown and then the students answered the questions. The DVD presentation consisted of an abridged version (about 35 minutes in length) of all of the peer review sessions and post interviews. Each member of Team Gray was represented in the video in terms of “strengths and weaknesses.” Additionally, each member was represented in the post interview segment.

The survey instrument was both qualitative and quantitative. It was designed to elicit quantitative data by asking structured questions with a simple rating scale. In addition, it was designed to elicit qualitative data by allowing the taker to write comments. The rating scale used is consistent with the principles of the Strong-Campbell
Interest Inventory and was used as a model for the MSaT Student Survey. Gay and Airasian (2000) explain, “The Strong-Campbell Interest Inventory examines areas of interest in occupations, school subjects, activities, leisure activities, and day-to-day interactions with various types of people” (p. 158).

Furthermore, the instrument was designed to be short and concise. I did not want to take up the survey takers’ time as they would be in class and have other issues to deal with. Generally, most surveys are designed to extract as much information as possible without being cumbersome and a burden of the survey takers time. Additionally, I did not want the questions and response choices to be too garrulous and confusing. Scheaffer, Mendenhall, and Ott (1996) advocate not using “wordy” choices or lists.

If a person being interviewed is presented with a long list of possible choices or if each possible choice is wordy or difficult to interpret, then the person is likely to respond with the most recent choice (the last one on the list). If a respondent must choose items from a long written list, then the items appearing toward the top of the list have a selection advantage (pp. 63-64).

The questions that were asked were similar to the research participants’ final reflective data. The questions asked about issues such as confidence, preparation, value, and possible participation regarding the use of video assessment in a collaborative group. Figure 3.3 shows the questions provided to the respondents.
After viewing the video do you feel being in a collaborative video group:

1) is something that you would have wanted to participate in your initial teaching?  
   Yes   No   Not Sure

2) would have been beneficial to your initial teaching?  
   Yes   No   Not Sure

3) would better prepare you for your initial teaching?  
   Yes   No   Not Sure

4) would help build upon your future teaching?  
   Yes   No   Not Sure

5) would bolster your confidence in regard to your initial teaching?  
   Yes   No   Not Sure

6) would help you in the preparation of future lesson plans?  
   Yes   No   Not Sure

**Figure 3.3.** MSaT student survey questions.

The outcome of the MSaT student survey will be discussed in the data analysis chapter. The entire survey can be seen in Appendix G.

*Personal note:* An unpleasant incident happened during the survey. This was very embarrassing to me personally. In my haste to transfer the videotape I originally was going to use for the survey into DVD format, I misspelled a word on the DVD menu. This was visible to all of the students taking the survey. The word was “Collaborative” and was used in the title of my dissertation research. I spelled it “Collobarative” Only one student commented on this mistake; however, one was one too many. This was of no solace to me as it was an inexcusable mistake.

**Phase 8. Faculty Survey**

The Faculty Survey instrument was similar in design to the MSaT Student Survey. All of the attributes in terms of time, which was even more urgent as faculty members are extraordinarily active at a research institution such as The Ohio State
University, were employed as with the student survey. The structure was also similar insofar as there were only seven questions. Finally, the data would be used for triangulation purposes in terms of the data analysis.

Unlike the student survey, the faculty survey was administered on an individual basis. I was very fortunate that I was able to have the student survey administered during an MSaT class that all of the students within the MSaT program were required to attend. This was not the case with the faculty survey. It would be impossible to get the entire faculty who were familiar with the MSaT program together in a room to watch a video and then fill out a questionnaire.

Knowing the differences in the logistics of the two groups, I was forced to make a decision regarding the administration of this instrument. I decided to employ purposive sampling for this phase. As stated earlier in this section, purposive sampling is used in qualitative research if the sample size is small or the individuals within the sample have similar characteristics. In this case, the chosen faculty had the same characteristics in terms of knowing what the participants of the research were going through regarding the use of video in their second quarter of training.

In addition, purposive sampling allows the researcher to use his or her own judgment to determine who should be included in the sample. For this research I chose to use six faculty members who would be able to give diverse insights if they chose to give comments as a part of the survey. I based this decision on the diversity of the background in terms of their disciplines and experience, although five of the six were in MSAT.
As noted, one of the survey takers was not an MSaT faculty member. This person was a professor of teacher education and was very familiar with the MSaT program. Additionally, he worked with NCATE as a representative for the Ohio State University College of Education. I wanted to add this faculty member for his insights regarding video assessment.

A description of the other survey takers is as follows:

1. MSaT professor in mathematics education and former section head of MSaT.
2. Visiting professor in technology education and co-supervisor of the participants as well as all Technology Education preservice teachers during this research.
3. Visiting professor in science education and supervisor of MSaT students during this research.
4. MSaT professor in science education and supervisor of MSaT students during this research.
5. Graduate Teaching Associate in Technology Education and co-supervisor of the participants as well as all Technology Education preservice teachers during this research.

It appeared that this group of educators would be able to assist in the mission of the survey. They all had experience with the teaching and learning of preservice teachers as well as supervisor roles or teaching roles. When I approached each person with the survey they were enthusiastic about completing it, and excited to be a part of the research. I was; however, concerned about the amount of time it would take to get the surveys back. All of the faculty was very busy at the time they received the survey.
Personal note: I was very excited to have this group of people participate in the research. I felt that they were stakeholders in this type of research and would contribute valuable insight to the study.

Another aspect of the faculty survey that differed from the student survey was I was able to use a key informant to take the survey and give insights regarding the instrumentation. I was unable to do this for the student survey due to a time factor as previously stated. I was able to find a key informant to inspect this instrument and provide feedback regarding the design. Her comments were very insightful and useful. As stated, I designed this survey in a similar manner to the MSaT Student Survey.

The survey document began with an overview of the research and short concise questions in addition to a section to provide comments if the survey taker wished. A CD-ROM was provided with a QuickTime™ movie of the presentation DVD that was shown to the MSaT students during the implementation their survey. The questions were changed to conform to the faculty perspective. Figure 3.4 shows the differing questions.

<table>
<thead>
<tr>
<th>Student Survey – Question 1</th>
</tr>
</thead>
<tbody>
<tr>
<td>After viewing the video do you feel being in a collaborative video group:</td>
</tr>
<tr>
<td>1) is something that you would have wanted to participate in your initial teaching?</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Faculty Survey - Question 1</th>
</tr>
</thead>
<tbody>
<tr>
<td>After viewing the video do you feel MSaT students in a collaborative video group:</td>
</tr>
<tr>
<td>1) is something that you would want MSaT students to participate in during their initial teaching?</td>
</tr>
</tbody>
</table>

Figure 3.4. Differing questions between the student and faculty surveys.
As shown in this example, the students had three options in which to answer the questions. The response of “Not Sure” was used due to an assumption that the students were not familiar with or had limited exposure to the plethora of research regarding video in education. I assumed that the faculty members that would take the Faculty survey would have been exposed to the literature regarding video in educational settings; therefore, they had the choice to respond “No Preference.”

As stated, feedback regarding the survey by the key informant was very helpful. The comments made were positive; however, the key informant did express that the survey taker was lead to answer, “yes” to almost all of the questions. This was something I may have done unconsciously, but it appeared that this opinion might not have been in context. Her comments are as follows:

Answering anything but yes to these questions about videotaping and analyzing it – a topic that was popular in the literature several years ago (particularly in Ed Leadership) – would be like saying that Mom and apple pie are useless. Of course any analysis that can be done - especially self-analysis is good and should be a part of teacher education. It is the basis of doing reflective teaching in [Edu T&L] 733 and should be added to seminars associated with the internships.

The problem with the design of the survey was not that I had designed all of the responses to be answered as “yes,” but that the outline was not clear as to what I wanted answers and comments to reflect. In this case, the key informant was well aware of the literature that surrounded this topic. However, the instructions state answers should be based on the video provided. The key informant’s comments were valid; however, it appeared that the overview was not compelling enough to provide a complete
understanding of what I wanted the survey takers to consider. It was clear to me that I
needed further guidance regarding this instrument. I approached my primary advisor for
assistance.

In speaking to my advisor, he agreed that the overview was fine for the student
survey, but changes needed to be made for the faculty survey. He agreed that my
assumption that the faculty was probably more familiar with the literature regarding
video in education was correct. Furthermore, the survey takers would probably base their
answers on their prior knowledge of the subject. Therefore, I needed to emphasize that
this was somewhat different than the literature they had read insofar as the editing
sessions and the collaborative or “team” aspects were concerned. Additionally, the notion
that all of the questions were guiding the survey taker to answer in a positive manner
needed to be addressed.

I decided to change several aspects of the instrument. First, I rewrote the
overview to reflect on what the research was about and how it differed from the literature
that they may have been exposed to or read. Second, I changed the response dimension
from “Yes,” “No,” and “No Preference,” to a standard Likert scale. A Likert scale
typically measures attitudes. As Gay and Airasian (2000) assert, “Attitude scales
determine what an individual believes, perceives, or feels about self, others, and a variety
of activities, institutions, and situations” (p. 156).

Even though the sample size of the survey was small, it appeared that this
measurement tactic would convey the survey takers thoughts and attitudes in a different
light than those of the students. I felt I could extract a deeper understanding of what I was
trying to get across to the faculty survey takers with this method.
The third change was framing the response design differently. Instead of questions, I wrote statements to elicit responses. According to Gay and Airasian (2000), Likert scales typically solicit responses from statements rather than questions.

The rationale behind the response statements was to simply inquire if the faculty felt that this research was worthy. If they agreed with the statements regarding the potential benefits of the research, I would have a sense that it was worthy and would ultimately help answer the research questions. Furthermore, the statements regarding their feelings on assessment in general would help me determine if video assessment was still a valuable tool as the literature suggests. The entire Faculty survey can be seen in Appendix H.

*Personal note*: Because I was not under the time constraints that were prevalent for the design of the MSaT Student Survey, I was able to put much more thought into the Faculty Survey. Looking back, I should have designed the student survey in the same manner as the faculty survey. However, I feel the student survey was strong in its own right. Furthermore, having two types of surveys was positive in terms of triangulation for the research as a whole. In both cases, I still felt it was necessary to keep the surveys simple and as non-time consuming as possible. I felt this was achieved and was satisfied I had produced good instruments for both groups.

Participant Follow Up Questions

Patton (1982) describes follow up questions as a way to probe deeper during an interview. He also explains that follow up questions are prevalent in many disciplines such as medicine. For example, a doctor will follow up with a patient after surgery is
performed. In this case, I had questions for all of the participants after the main data collection concluded. Some of the questions could only be asked after the data collection was complete mainly because I wanted to know if the research had any effect on the participants over the course of time.

I had not planned to ask follow up questions. I was hoping the research would be over and I would have defended my findings to my dissertation committee; however, I found myself in a position to ask the members of Team Gray what influences the research had on them throughout their year of student teaching. In addition I asked the members of Team Scarlet one question about their videotaping experience that could not be asked in the final reflective data in which all the participants responded.

All of the follow up questions were asked and answered via email. The answers will be discussed in the data analysis chapter, specifically in reference to Research Question 3.

Section Summary

The use of video permeated the data collection due to the members of Team Gray videotaping themselves, editing their videos, trying to interpret them, and then commenting on them. Furthermore, video was used in a quantitative manner for the MSaT Student Survey. Finally, all of the participants were asked to reflect on the use of video.

Other aspects of data collection were employed in addition to video. They included the notion of preparation and confidence in terms of conducting a lesson. This notion included video, but was not exclusively tied to video. The members of Team
Scarlet only used video sparingly. The details extracted from their experiences are a rich source of data for the sake of comparison and triangulation.

All of the data collection methods were designed to answer the research questions. The research questions dealt with confidence, preparation and value in regard to video being used as an assessment tool in a collaborative group. The faculty interviews and initial reflective data were designed to provide data that would be useful in determining the participants’ preparation for their student teaching as well as general background information that was vital to the overview of the research.

The participant tapings of lessons, editing sessions, peer review sessions, and post interviews were clearly designed to indicate if the aforementioned aspects of the research questions could be answered and what impact they would have regarding the research.

Finally, the MSaT Student Survey, the Faculty Survey, and final reflective data gave the research qualitative information relevant to the research questions as well as rigor to the research in general. The result of the data collection was a tremendous amount of information that was sifted through and analyzed.

Data Analysis

Section Introduction

Patton (2002) states, “Qualitative analysis transforms data into findings. No formula exists for that transformation. Guidance yes. But no recipe. Direction can and will be offered, but the final destination remains unique for each inquirer. Known only when-and-if arrived at” (p. 432).

The final destination was arrived at through an initial analysis and reanalysis. The initial analysis yielded a procedure for analysis but no direction in terms of interpreting the data in any meaningful context. Through inductive qualitative methodology, and
specifically the notion of a sensitizing concept, the theoretical backdrop of Bandura’s (1977) perceived self-efficacy model was employed to provide a contextual language for analysis.

The theoretical backdrop was uncovered through a second review of literature that focused on types of confidence. The literature indicated that the term “confidence” is a colloquial term and that confidence could be interpreted through perceived self-efficacy (Alderman, 2004; Pajares, 2002; Pajares and Shunk, 2002; Tschannen-Moran, et al., 1998; Bandura, 1977).

Although the original data analysis design consisted of a coding and an interpreting scheme, in the second analysis, another type of analysis was employed in conjunction with the original data analysis. This analysis surrounded the question of the stakeholders’ (Faculty and Students) thoughts in regard to the research. These data were analyzed in both a quantitative and qualitative manner. The responses to the questions of both the Faculty Survey and the MSaT Student Survey were calculated and presented in percentages according to the number of respondents. The comments were categorized and interpreted in terms of positive and negative aspects as well as contextual responses. Therefore, the analysis surrounding research question 3 did not change.

The reanalysis in terms of coding, surrounds research questions 1 and 2 regarding perceived self-efficacy and confidence in terms of lesson planning and delivery. The conceptual ordering of the data, the preparation of the data, and the coding scheme and keywords, in addition to the coding process, refer solely to research questions 1 and 2.
Conceptual Ordering of Data

Coding of data is an element of the qualitative interpretive paradigm methodology. Through coding of the interviews, reflective data, and transcripts, patterns should develop that can be put into context in relation to the research questions and in some cases (such as this research) support or oppose theoretical constructs through interpretation by the researcher.

In the case of this research, the only coded data was the peer review sessions. This was the “treatment” as known in quantitative research. The coding scheme that is forthcoming is based on Bandura’s (1977) perceived self-efficacy model; specifically the efficacy information and outcome expectancies constructs. All other data was interpreted using the inductive analysis as described in the review of literature.

The order of the analysis was conducted similar to the data collection in terms of structure in order to paint a complete picture of what occurred and why. From the interpretation of the participant’s efficacy beliefs in the form of the initial questionnaire, to the coding of the peer review sessions to extract efficacy information, to the follow up questions to establish how confident the participants thought they were in terms of producing a lesson plan and delivering a lesson when the research was concluded, the data sources served as the strokes to paint the picture. These data are shown in Table 3.3.
As stated previously, Patton (2002) indicated that there is no true way or design for analysis. I reviewed several qualitative studies and their analytical procedures. In addition, I consulted several books dedicated to qualitative analysis. What I found was that Patton’s assertions appeared to be correct.

Miles and Huberman (1994) advocate the consistency of codes throughout the data analysis. “Check-coding the same transcripts is very useful for the lone researcher (get code–recode consistencies over 90% before going on)” (p. 65). The theoretical backdrop made this process possible. My first analysis used a coding scheme based purely on observation and interpretation of the data. I recoded in the second analysis based on observation and the theoretical backdrop and then interpreted the data.

I utilized qualitative analytical software to achieve this undertaking. This software was HyperResearch™ Version 2.6, for the Macintosh operating system. HyperResearch™ allows the user to organize massive amounts of data and code text in several different manners. For example, the user can enter phrases such as “I felt confident” or “I did not like that,” and then apply the phrases to transcribed text. Each

<table>
<thead>
<tr>
<th>Data Sources</th>
<th>Analysis Methodology</th>
<th>Research Question Relation</th>
</tr>
</thead>
<tbody>
<tr>
<td>Initial Participant Questionnaires</td>
<td>Interpretive/Qualitative</td>
<td>Questions 1 &amp; 2</td>
</tr>
<tr>
<td>Field Notes and Observations</td>
<td>Interpretive/Qualitative</td>
<td>Questions 1, 2 &amp; 3</td>
</tr>
<tr>
<td>Participants Raw Video Data</td>
<td>Interpretive/Qualitative</td>
<td>Questions 1 &amp; 2</td>
</tr>
<tr>
<td>Peer Review Sessions</td>
<td>Coding/Qualitative</td>
<td>Questions 1 &amp; 2</td>
</tr>
<tr>
<td>Post Peer Review Interviews</td>
<td>Interpretive/Qualitative</td>
<td>Questions 1 &amp; 2</td>
</tr>
<tr>
<td>Final Participant Questionnaires</td>
<td>Interpretive/Qualitative</td>
<td>Questions 1 &amp; 2</td>
</tr>
<tr>
<td>MSaT Student Surveys</td>
<td>Interpretive/Quantitative</td>
<td>Question 3</td>
</tr>
<tr>
<td>Faculty Surveys</td>
<td>Interpretive/Quantitative</td>
<td>Question 3</td>
</tr>
<tr>
<td>Follow-Up Questions</td>
<td>Interpretive/Qualitative</td>
<td>Questions 1 &amp; 2</td>
</tr>
</tbody>
</table>

Table 3.3 Order of Analysis

Keyword Coding Process Design

As stated previously, Patton (2002) indicated that there is no true way or design for analysis. I reviewed several qualitative studies and their analytical procedures. In addition, I consulted several books dedicated to qualitative analysis. What I found was that Patton’s assertions appeared to be correct.

Miles and Huberman (1994) advocate the consistency of codes throughout the data analysis. “Check-coding the same transcripts is very useful for the lone researcher (get code–recode consistencies over 90% before going on)” (p. 65). The theoretical backdrop made this process possible. My first analysis used a coding scheme based purely on observation and interpretation of the data. I recoded in the second analysis based on observation and the theoretical backdrop and then interpreted the data.

I utilized qualitative analytical software to achieve this undertaking. This software was HyperResearch™ Version 2.6, for the Macintosh operating system. HyperResearch™ allows the user to organize massive amounts of data and code text in several different manners. For example, the user can enter phrases such as “I felt confident” or “I did not like that,” and then apply the phrases to transcribed text. Each
phrase would have a code attached to it; for example, the code for the phrase “I felt confident” could be “001-CO.” The “001” is the first code number in the coding script. The “CO” designates the phrase or word. The codes are then put into categories. In the above example, the code “001-CO” could be put in a category such as “confidence.”

Another way to code text is to use “Keywords.” This is the coding process I used for the original coding scheme. Furthermore, it was the scheme I used for the final analysis. In the above example, the category would be “confidence.” However, keywords such as “confident” or “assured” would be words associated to phrases or statements within the transcriptions or other data that were interpreted as being related somehow to confidence in the participants’ lesson planning and delivery.

Before the coding process could begin, I had to prepare the data to be used with the software. The peer review data was in video format and had to be converted into digital text form. To achieve this all of the data collected during the peer review sessions was transcribed into Microsoft Word. I employed a former court reporter to transcribe the data. I then read and re-read the transcripts as I watched the videos to check for accuracy.

HyperResearch™ requires that the data be converted into “text” format. This was easily done by simply opening each document and performing a “save as” command and choosing the “text only” option. Once all the files were converted, HyperResearch™ could be utilized and the coding process could begin.

Because the research used a conceptual language, i.e., Bandura’s (1977) efficacy information (performance accomplishments, vicarious experiences, verbal persuasion, and emotional states), the original categories used in the initial analysis was changed to
reflect these constructs. These constructs became the new categories. This type of coding is consistent with the open coding methods as described in the review of literature.

**Code Categories and Keywords**

As stated, the code categories were extracted from Bandura’s (1977) perceived self-efficacy model; those being the efficacy information constructs. The keywords were based on the literature surrounding Bandura’s (1977) perceived self-efficacy model. To keep the data manageable, I originally chose five keywords for each category. This type of “boundary setting” is consistent with the refinement of the categories (Tesch, 1990).

Furthermore, it kept specific data from overlapping into other categories. For example, if a participant stated that they were “nervous” and that made them talk fast, it could be inferred that nerves (emotional arousal) was to blame for a considered bad performance (performance accomplishment). The question was under which category should “nervous” fall? Because nervousness is an emotion, it naturally would fall under the emotional arousal category. This type of refinement of keywords prevents an overlapping of words that make for fuzzy categories (Tesch, 1990).

Having read transcripts and watched the videos of the peer reviews innumerable times, I had constructed a coding scheme with keywords I thought would be a good starting point. For this analysis, I manually coded by reading the transcripts and then rereading. Although HyperResearch™ had an automated coding component, I chose to manually code to gain a deeper understanding of the connections between the keywords and the constructs of lesson planning, delivery, and uncertainties. I then read the text and compiled a list of several keywords that I interpreted to be representative of what the
participants were saying and were in within the boundaries of the theoretical backdrop. I then refined the list after rereading and recoding that resulted in a final coding keyword list. This initial list was composed of five keywords.

The initial use of five words set boundaries in another sense. Several words have similar meanings. For example, nervous could mean anxious, tense, or uneasy. By limiting the keywords in terms of synonyms, the keywords within categories were formed and the analysis could begin. Table 3.4 shows the data analysis coding scheme based on Bandura’s efficacy information.

<table>
<thead>
<tr>
<th>Performance Accomplishments</th>
<th>Vicarious Experiences</th>
<th>Verbal Persuasion</th>
<th>Emotional Arousal</th>
</tr>
</thead>
<tbody>
<tr>
<td>Capabilities</td>
<td>Adaptation</td>
<td>Criticism</td>
<td>Fatigue</td>
</tr>
<tr>
<td>Experience</td>
<td>Comparison</td>
<td>Empathy</td>
<td>Fear</td>
</tr>
<tr>
<td>Failure</td>
<td>Impression</td>
<td>Encouragement</td>
<td>Frustration</td>
</tr>
<tr>
<td>Self-Perception</td>
<td>Influence</td>
<td>Opinions</td>
<td>Nervousness</td>
</tr>
<tr>
<td>Successful</td>
<td>Inquire</td>
<td>Praise</td>
<td>Pleasure</td>
</tr>
<tr>
<td></td>
<td>Internal Reflection</td>
<td>Strategies</td>
<td>Relaxed</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>Self-Assurance</td>
</tr>
</tbody>
</table>

Table 3.4 Data Analysis Coding Scheme

The initial use of only five keywords per category kept the data organized; however, as the analysis proceeded, keywords were added, changed, or deleted. For example, as I coded, I repeatedly came across the fact that the participants were frustrated with several aspects of their teaching experience. Therefore, the keyword “frustration” was added to the “Emotional Arousal” category.

Performance Accomplishments:

- **Capabilities**: The performer’s capabilities are directly tied to confidence and perceived self-efficacy. The performer often will assess their capabilities in terms of rating their performances and contextual information within the performance. Contextual information can include: management, instructional methods, organization of lessons, and evaluation and assessment of students.

- **Experience**: The experience that a performer gains with each performance can increase perceived self-efficacy and confidence.

- **Failure**: Failures associated with performance accomplishments can lower perceived self-efficacy and confidence and can contribute to the expectation of future performances that are considered failures. Performers can consider parts of a performance failures or the entire performance as a failure. However, recognizing and approaching failure as a problem that can be overcome by persistence can lead to successful performances in the future.

- **Self-Perception**: Self-perception is directly tied to how the performer feels about the perceived strengths and weaknesses regarding their competence and consequences surrounding those perceived strengths and weaknesses during a performance (teaching situation).

- **Successful**: Successful performances raise perceived self-efficacy levels and confidence and can contribute to the expectation of future successful performances. Performers can consider parts of their performance successful or the entire performance as successful as well.
Vicarious Experiences

• **Adaptation**: By watching another’s performance, the observer can adapt contextual information cognitively to his or her own beliefs. This information can be ideas, performance style, models, and task management.

• **Comparison**: By comparing another’s performance to their own, an observer may try to emulate what is considered successful or credible and avoid what is considered negative or failures and can lead to positive or negative efficacy.

• **Impression**: Perceived successful performances by others can leave lasting impressions (either positive or negative) on an observer.

• **Influence**: Positive or negative observations can influence the observer and may impact performances in the future.

• **Inquire**: Asking questions about another’s performance is a way to extract information that may be useful to the observer. Wanting to know why someone did what he or she did can give the observer a deeper understanding of a situation they may find themselves in sometime in the future.

• **Internal Reflection**: Internal reflection originates from self-reflection by a performer watching themselves. This substantive information can be used to compare self-performance with another’s performance.

Verbal Persuasion

• **Criticism**: Criticism, particularly verbal constructive criticism from someone a performer admires or feels is credible, can lead to positive levels of efficacy and confidence. The opposite can occur if the criticism is from someone who the performer does not know or may not trust and/or like.
• **Encouragement:** Encouragement can empower and cultivate perceived capabilities and possibly improve performance.

• **Feedback:** General positive feedback can be an advantage in any teaching situation. The feedback can come from peers, supervisor teachers or mentor teachers.

• **Praise:** Praise can strengthen perceived self-efficacy and lead to confidence. It must be noted that “knee jerk” praise or false praise can weaken perceived self-efficacy and confidence.

• **Strategies:** Strategies given by peers, supervisor teachers or mentor teachers in a personal verbal fashion can strengthen perceived self-efficacy and confidence.

**Emotional Arousal**

• **Fatigue:** This term can also mean tired or emotionally drained. While many emotional states can be of the performers own making (psychological), fatigue can be a physical as well as psychological state. Both can have effects on performance.

• **Fear:** Fear of the uncertain or apprehension concerning a self-perceived impossible task can lead to lower perceived self-efficacy and confidence. However, it can also lead the performer to focus more on the task at hand.

• **Frustration:** This term can also mean mad or angry. The source of frustration can be self-inflicted or come from external sources.

• **Nervousness:** This term can also mean anxiety or stress. This is a natural occurrence for novice or preservice teachers.
**Pleasure**: This term can also mean joy, elation, or happiness. Pleasure can occur when a performance is successful and may lead to increased perceived self-efficacy and confidence.

**Relaxed**: When a performer is relaxed they generally perform better. This can lead to increased perceived self-efficacy and confidence.

**Self-Assurance**: This term relates to the perception of value, and the confidence that the value has meaning.

The coded data was interpreted using inductive qualitative methods as described in the review of literature. Each peer review session was given a “case number” and inferences were made to determine to what extent (if any) commonalities were present regarding perceived self-efficacy. Frequency matrixes were calculated to determine the number of times each keyword was used. These commonalities were then classified and interpreted through the lens of the theoretical backdrop.

Finally, the code words were interpreted in terms of the connotation. For example, a “failure” within the performance accomplishment category could have several connotations. This could include a negative connotation if the participant felt the performance (or an aspect of the performance) was a failure and chose to avoid the problem that caused the failure. On the other hand, if the participant recognized the failure and approached the problem (or indicated that the problem needed to be addressed) the connotation would be considered positive.

This type of information is consistent with the literature that surrounds the perceived self-efficacy model. Furthermore, this information assisted in the classification
and interpretation of the data. Refinement of these type of keywords (Tesch, 1990) were labeled with either a (P) or an (N) for easy identification.

Outcome Expectancies

A major part of the theoretical backdrop is the outcome expectancies. They are performance, approach versus avoidance, and persistence. These constructs were also coded as well. However, they were not associated with any type of keywords; they were the keywords. Inductive analysis was used to try to classify any evidence of any occurrence of the outcome expectancies. The evidence was then interpreted through the lens of the theoretical backdrop.

As stated in the review of literature, interpreting data that has been inductively analyzed is an exercise in the classification of the data in an attempt to report a concept or process that may have occurred through data collection. Consumers of the research can utilize this evidence to make their own inferences (Patton 2002). In terms of the outcome expectancies, Bandura’s (1977) constructs of outcome expectancies were interpreted.

Chapter Summary

This chapter described the procedures used for this research. The first section discussed the assumptions, in addition to the limitations of the research. Further, it included my role as the researcher and an overview of the participants and MSaT. This section also described the procedures for collecting the data and indicated how the participants were chosen and the team concept.

The data collection section described the data collection phases and the methods used to collect evidence within those phases. In addition a personal narrative was used to describe many aspects that occurred during the data collection phases.
The analysis section described how the coding scheme was formulated in addition to how the coding process was created. The keywords were created with the language provided by the theoretical backdrop of Bandura’s (1977) perceived self-efficacy model. Through this language, I was able to produce keywords that would indicate how the video assessment process influenced the lesson planning and delivery of lessons the participants videotaped. I manually coded the data from the peer review sessions and interpreted the data involving the post interviews, the pre and post questionnaires, my observations and the raw video.

The surveys were analyzed using quantitative methods to calculate and organize who the survey takers were and how they answered the questions. In addition, qualitative methods were used to interpret the survey takers comments.
CHAPTER 4

FINDINGS

Introduction

This chapter presents the analysis of the data collected. To accomplish this undertaking this chapter will be in three sections. The first section will briefly revisit the purpose of this research in terms of the overarching concern, the research questions, and the theoretical backdrop. The second section will discuss the data analysis of each data source. As there were several data sources, the challenge of representing each in the context they were intended will be presented in a sequential manner. This chronological ordering will begin with the phase 1 (Initial Participant Questionnaires) as described in Chapter 3 and conclude with an analysis of phases 7 and 8 (Faculty and Student Surveys).

Furthermore, systematic analysis will be employed in terms of coding data, in addition to interpretative methods. Finally, in the last section, a culminating interpretation of all of the data sources will be presented in the form of assertions.

Revisiting the Purpose of the Research

The overarching question of this research was how would the processes regarding collaborative video assessment assist in overcoming the uncertainties that technology education preservice teachers face in their initial student teaching experiences. To answer this question the following research sub-questions were formulated:
1. What is the influence of collaborative video assessment on preservice technology education teachers in terms of perceived self-efficacy and confidence as they plan lessons in their initial quarter of student teaching?

2. What is the influence of collaborative video assessment on preservice technology education teachers in terms of perceived self-efficacy and confidence as they deliver their initial lessons?

3. How will the stakeholders of the Mathematics, Science, and Technology Education (MSaT) program at The Ohio State University view collaborative video assessment?

Bandura’s (1977) perceived self-efficacy model was used as a theoretical backdrop and provided a language for the data analysis. The four constructs or efficacy information utilized in Bandura’s model are performance accomplishments, vicarious experiences, verbal persuasion, and emotional arousal. The outcome expectancies that the constructs should produce are performance, approach versus avoidance, and persistence. The literature indicates that confidence can be interpreted through Bandura’s model (Alderman, 2004; Pajares, 2002; Pajares and Shunk, 2002; Tschannen-Moran, et al., 1998; Bandura, 1977).

Analysis of the Data Sources

Section Introduction

As stated in Chapter 3, coding was performed for only one data source; however, the coding constructs used (efficacy information, outcome expectancies, and uncertainties) did occur within the other sources of data. The constructs were analyzed with two considerations; internal and external aspects.
Internal aspects were those that were directly tied to the perceived self-efficacy of the participants. For example, many of the participants reported they felt nervous about aspects of their upcoming teaching duties when answering questions in the Initial Participant Questionnaires. This internal component is factored into the analysis as an emotional arousal construct of Bandura’s (1977) perceived self-efficacy model used for this research. Internal aspects such as these (and other efficacy information aspects) occurred within many of the data sources. They were either observed, within field notes, or within statements made by the participants.

External aspects are those that are directly tied to efficacy information that involved the research. For example, in the peer review post interviews, comments were made regarding the use of video as an assessment tool and how “important” and “good” the participants thought the process was. This type of praise is a verbal persuasion construct of the perceived self-efficacy model and is geared more toward the implications of the study and consumers of the research. It does not; however, have any ties to the perceived self-efficacy of the participants. These external aspects will be reported when necessary in the analysis; however, most of them will relate to the implications within Chapter 5.

Additionally, field notes will not be separately analyzed. They, along with observations will be weaved within the analysis process by way of thick description and contribute to the overall analysis to provide a source for trustworthiness. For example, within the editing sessions, field notes indicated that internal vicarious experiences were happening. I also observed these events. Thick description will be used to depict these types of occurrences within these data for analysis.
Finally, the concept of data reduction will be used within the data analysis. Data reduction according to Patton (2002) involves how much information to omit or keep when reporting findings. Patton states:

Description and quotation provide the foundation of qualitative reporting.

Sufficient description and direct quotations should be included to allow the reader to enter into the situation and thoughts of the people represented in the report. Description should stop short, however, of becoming trivial and mundane (p. 503).

Data reduction is also a means to organize and present the findings in a clear concise manner (Patton, 2002).

Initial Participant Questionnaires

As stated in Chapter 3, the initial participant questionnaires were utilized as a starting point to extract efficacy information in terms of the training they received prior to student teaching. The questions were limited to planning a lesson, conducting (or delivering) a lesson, perceptions of the initial training, and whether they thought videotaping themselves would give them any confidence regarding lesson planning and delivery.

Questionnaires, tests and surveys are common in both qualitative and quantitative research to establish thoughts and feelings prior to any type of treatment. Studies conducted by Sander and Sanders (2003) and Rodebaugh and Chambless (2002), as described in the review of literature, utilized initial information gathering techniques in an effort to establish their participants’ “state of mind” before they would embark on their self-efficacy and self-reflective investigation processes.
In the case of the participants of both Team Scarlet and Team Gray, a plethora of information was collected through the questionnaires regarding the participants’ perceptions of how confident they thought they were. The feelings of the participants were mixed regarding Question One. It must be noted that the participants were actively engaged in their student teaching when they answered these questions.

The confidence levels used in the tables were based on three factors. First, confidence is a “colloquial term” (Bandura, 1977) and can be interpreted in several ways. I chose to create the tables provided to categorize the participants’ confidence levels. Second, the participants’ own self-reporting provided a strong argument to use this categorizing process. Patterns emerged that indicated that only three types of confidence were present; those being very confident (High), average confidence (Moderate) and not very confident (Low). The third factor was data reduction. Having a long, arduous scoring system could be confusing to the consumers of this text.

Initial Participant Questionnaires – Question 1

Question One asked: Explain how confident you are in regard to preparing a lesson plan(s) to be used in the school to which you are assigned. The answers ranged from feelings of uncertainty, frustration, and uneasiness to feelings of being well-prepared and extreme confidence. Several comments illustrate these feelings. For example, in terms of uncertainties one participant commented:
“I'm very hesitant on what I need to put in it and what it needs to cover. I don't know exactly what material needs to be covered, what the teacher expects out of me, and not really sure how to set it up.”

Another stated:

“Even though I had exposure in creating lesson plans, I still had doubts about developing one that would be used in the real world.”

In terms of feeling confident one participant stated:

“I feel that I am very well prepared to create a lesson plan to use at my assigned school.”

Another stated:

“I felt the most valuable exercises we did last quarter involved making lesson plans. Hence, when I made up my first set of plans for the unit I'm currently teaching, I was fairly confident. If I had to assign it a numerical value, I'd say I was at about a 7.5 out of 10.”

Table 4.1 represents interpreted confidence levels of the participants regarding Question One. This interpretation is based on the comments’ the participants of both teams wrote regarding their perceptions of the ability to prepare a lesson plan. The uncertainty comment is very compelling and is consistent with the notions of Floden and Clark (1988) in terms of novice teachers and their initial uncertainties.
Table 4.1 *Interpreted Confidence Levels – Question 1*

***Initial Participant Questionnaires – Question 2***

Question 2 attempted to extract information from the participants regarding their perceptions in terms of delivering a lesson. The terminology within the question states “conduct” and infers the teaching of an entire lesson from inception to conclusion; however, delivery of the lesson plan is an important component of this process. The interpretation of this question is based on this concept.

Similar to Question 1, the interpreted levels of confidence were moderate to high. For example, uncertainties regarding experience, or the lack of experience, was a common topic within these responses. However, even in the face of the experience perceptions, nerves and feeling of being prepared were present. A representative statement was:

“I'm sure that I'll be nervous and that my skills will improve with experience, but I feel that I am prepared and ready to get started.”

Other aspects of the responses included high levels of confidence and low levels of confidence. The following statements represent those aspects.
“As a result, I believe that with the preparation of a solid lesson plan, I will be able to deliver effective lessons. I am not saying it is going to be easy [per say], or that I will not be nervous, but I believe that I will be successful so long as I am prepared and continue to keep my students' education at a higher priority level than my own comfort level.”

“I'd give my confidence level before teaching about a 4 out of 10.”

“I was only semi-confident in teaching a lesson. So many factors in the classroom weigh in on how well the lesson can or will go.”

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<thead>
<tr>
<th>Question 2</th>
<th>High Confidence</th>
<th>Moderate Confidence</th>
<th>Low Confidence</th>
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<tbody>
<tr>
<td>Explain how confident you are in regard to being prepared to conduct a lesson to students in the school to which you are assigned.</td>
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<tr>
<td>Team Gray – MST</td>
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<td>Team Gray - MSW</td>
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Table 4.2 Interpreted Confidence Levels – Question 2

Initial Participant Questionnaires – Question 3

Question 3 was designed to find out if the initial quarter of training the participants went through before the commencement of their student teaching gave them confidence with regard to preparing a lesson plan and delivering a lesson.

The feelings were mixed among all of the participants concerning of the initial quarter of training in terms of attitudes. This “mixture of attitudes” among the participants is consistent with studies such as Ethell and McMeniman (2000) and Meijer
et al. (2002). Many of the participants were critical of their training either in part or as a whole. Because instructors were the main aspect in the training of the participants, this aspect can be interpreted as an aspect of Bandura’s (1977) verbal persuasion construct although it must be noted that not all of the training was verbal persuasion; i.e., actually writing lesson plans.

This verbal persuasion included how to write a lesson plan, where to find lesson plan information including templates, and how to conduct a lesson. Pajares (2002) refers to this concept as “social messages.” Social messages can be praise, encouragement, recommendations, or relating similar experiences (Pajares, 2002). Furthermore, it is also easier to lower self-efficacy through unconstructive evaluations or judgments (Pajares, 2002; Bandura, 1977). Table 4.3 reflects my interpretation of the data based on these claims. This table indicates that the participants had possible concerns about their first quarter of training and expressed moderate to low confidence levels.

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<tr>
<th>Question 3</th>
<th>High Confidence</th>
<th>Moderate Confidence</th>
<th>Low Confidence</th>
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<tr>
<td>Explain how confident you are that your prior quarter training was in answering questions 1 and 2.</td>
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<td>Team Gray – MST</td>
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Table 4.3 Interpreted Confidence Levels – Question 3

Initial Participant Questionnaires – Question 4

The last question dealt with the notion of the participants videotaping themselves teaching a lesson; specifically, how confident they thought they might be in terms of
teaching a lesson and preparing a lesson plan. At this point the members of Team Scarlet knew they would have to videotape themselves at least once during the quarter. They did not know whether or not they would be showing the video to someone such as a supervisor or other student within the MSaT program. Follow-up questions to the members of Team Scarlet indicated that they did not show or watch their videos with anyone.

The members of Team Gray knew they would be videotaping themselves teaching a lesson, editing the video and participating in peer review sessions. They did not know at that point (nor did I) what this would encompass. Furthermore, the members of Team Scarlet were unaware of what Team Gray was doing as far as the process of editing videos and participating in peer assessment sessions. The members of Team Gray were asked at the beginning of the research not to divulge any information to anyone regarding their activities. To the best of my knowledge, they honored this request.

All of the participants expressed positive feelings regarding videotaping themselves teaching lessons. One participant did indicate that there could be potential pitfalls to other people watching a videotape lesson. He also suggested that working in groups could be beneficial. Table 4.4 reflects my interpretation of these responses.
<table>
<thead>
<tr>
<th>Question 4</th>
<th>High Confidence</th>
<th>Moderate Confidence</th>
<th>Low Confidence</th>
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<tbody>
<tr>
<td>Explain how confident you are that videotaping yourself teaching a lesson will be regarding questions 1 and 2.</td>
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<td>Team Gray – MST</td>
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<td>Team Gray - MSW</td>
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<td>Team Gray - RAT</td>
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Table 4.4 *Interpreted Confidence Levels – Question 4*

*Summary of the Initial Participant Questionnaires*

The initial reflective data extracted from the participants was valuable insofar as it was a starting point for this research and the research questions. The two teams were well balanced in their opinions regarding the questions given in the initial reflective questionnaire. The balance of the two groups indicated that selection of the teams was fair. These data also indicated that the members of both teams had very definite views on the issues asked of them.

To understand if the views had changed over the course of the research, a questionnaire was given to the participants at the end of the study. This final reflective questionnaire asked similar questions; however, these questions related to confidence in preparing lesson plans and implementing lessons in the future after their initial field experiences.

Although this was the participants’ initial teaching experience and they only taught on a limited basis that averaged a lesson a week, the data would be useful to find
differences the teams, particularly since Team Gray participated in multiple videotaping, editing, and peer review sessions and Team Scarlet went through the normal MSAT video reflection process.

Editing Sessions

The editing sessions started with a small refresher course on the technical aspects of attaching the camera to the computer to retrieve and digitize the video. Field notes indicated that this was not problematic; however, it did not run as smoothly as anticipated. For example, a computer would not recognize a camera due to a faulty cable. Other than that incident, there were no technical problems.

The field notes also indicated that the participants did not talk much. There were some “wisecracks” and joking as they set up their cameras and computers. This was attributed to the participants being friends and was considered a natural occurrence.

As indicated earlier, two types of efficacy information were present during the data collection; internal and external. Both of these notions were present during the editing sessions. The following are my interpretations based on field notes and observation during the editing sessions.

Internal Efficacy Information

Tschannen-Moran, et al. (1998) indicated that internal vicarious experiences could occur when a lone observer is watching a video. This was the case for the individual participants of Team Gray during the editing sessions. It was observed that the participants took this process very seriously. As the sessions progressed this seriousness increased. For example, in the second session they began to take notes as they watched the videos being digitized instead of waiting until the digitizing process was completed.
By taking notes, it appeared that they were trying to get a deeper understanding of their strengths and weaknesses through internal self-reflection. This was confirmed in the post interviews. They were intensely watching their videos and busily taking notes by the third session. One participant suggested that they receive headphones to drown out distracting noises for the third session. The other participants echoed this request, and headphones were provided. This, too, was an indicator of their wanting to gain a deeper understanding of what they had done in the videos.

One question within the field notes was: Are they picking out strengths and weakness that are truly representative of the actual footage of their classrooms? I had little doubt that these particular participants would be honest in their appraisals of their strengths and weaknesses; however, I collected the tapes after each session to compare their “raw” video to their edited videos. This comparison was conducted after each collaborative process forum; i.e., classroom tapings, editing sessions, peer review sessions and post interviews.

It was discovered that most of the raw videos were not much longer that the actual vignettes the participants produced. Furthermore it did not appear that there was any notion of “altering” the vignettes to make the participant look good in the eyes of their peers. There was only one case that could be remotely considered questionable. One of the participants taped the delivery of the same lesson plan to several classes (5) in the same day. He chose that last class taping to use for his vignette. This occurred during his third and last videotaping session in the classroom. He admitted in the peer review session that he had done so to show how he was able to deliver the lesson better the more
times it was performed. He also had several weaknesses in this vignette as well; therefore, it was deemed by the researcher that no deception had occurred.

The participants, in the peer review sessions and post interviews, confirmed the deep understanding they gained as interpreted through my observation. These confirmations will be discussed in the subsequent sections of this chapter.

External Efficacy Information

The participants were faced with several problems during the editing sessions. The main problems were time and distractions. Time was a concern due to the length it took to import the raw videos into the computers. In the first editing session, the participants imported the video and talked while the importing progressed. When the video was completely imported, the participants would then watch and edit. The participants were engaged in an internal vicarious experience; however, time was an external component.

In the second editing session, the participants collectively discussed how to alleviate the time problem. They decided that watching the video as it was importing and taking notes would help ease the time limitations. This proved to be an excellent idea and worked.

Distractions were also present. The main distraction was an individual participant hearing the other participants’ videos. Another distraction was people other than the participants in the computer lab talking. Field notes indicate that during the second session, students not associated with the research were constantly asking one participant questions. The participants came up with the solution of wearing headphones during the third editing session and that appeared to be helpful to them.
The problems the participants faced were by no means critical in terms of what could be interpreted as a successful experience editing their tapes; however, they devised processes (note taking, headphones, etc.) that made the experience more structured and less time consuming in addition to less distractive. These processes are consistent with many concepts within the review of literature; those being uncertainty (discussion with peers, verbal persuasion), collaboration (working as a group, verbal persuasion), and perceived self-efficacy outcome expectancies (approach and persistence).

The participants were uncertain of what was expected of them for the editing sessions in terms of time. The participants became increasingly effective with the editing process as it progressed. Fives (2005) indicates that positive experiences in any teaching situation in the face of uncertainties is beneficial and can transfer to other teaching situations. Even though the participants were not engaged in an active teaching situation during the editing sessions, they were within a teaching situation nonetheless insofar as self-reflection of their videotapes.

Having overcome the uncertainties they faced within these circumstances, it could be interpreted that the participants could have gained self-efficacy, not only as a result of the internal vicarious experiences, but making sense of the external efficacy problem of uncertainty. Floden and Clark (1988) indicate that some uncertainty can help make a teacher flexible. They further indicate that flexibility is a way to cope and prepare for future uncertainties.

In terms of collaboration, Gokhale (1991) indicates that critical thinking can be the result of discussion and that members of collaborative groups have the opportunity to take responsibility for their own personal learning. From an educational philosophical
standpoint, the participants were engaged in social constructivism activities and the processes they created are consistent with the views of Dougiamas (1988) and the team approach of shared learning. Within a team, relationships develop between the individuals that promote knowledge and learning that might not be attained through individualized methods.

The participants also were showing signs of collective efficacy. Collective efficacy is described as the extent individuals believe they can solve problems or complete tasks in an attempt to reach a collective goal or outcome while participating in a collaborative group situation (Papa, Singhal, Sood, Rodgers, & Shefner-Rodgers, 2000).

In terms of Bandura’s (1977) outcome expectancies, the participants were faced with a problem, that being a performance problem, regarding how to get the most out of the time they had to edit videos. They approached the problem and persisted until a feasible solution came about. Thus, the performance became better. They persisted using collaborative techniques, including performance accomplishments and verbal persuasion.

**Summary of the Editing Sessions**

The participants went through internal and external constructs consistent with Bandura’s (1977) perceived self-efficacy information. They were engaged in internal vicarious experiences and used collaborative and collective efficacy techniques to overcome obstacles to produce their strengths and weaknesses video vignettes.

The process they created and the value they perceived they received from the editing sessions were important to the research in terms of internal and external reflection, collaboration, and overcoming uncertainties. The participants of Team Gray
expressed the value they perceived of the editing sessions verbally during the peer review post interviews, which will be described later in this chapter.

Peer Review Sessions

As stated in Chapter 3, the peer review sessions were coded using a keyword scheme with the keywords based on Bandura’s perceived self-efficacy model. In reading the transcripts of the peer review sessions and beginning to code, it immediately became clear that the keywords based on Bandura’s efficacy information constructs (performance accomplishments, vicarious experiences, verbal persuasion, and emotional arousal) were prevalent. In continuing the coding process, it also became clear that these constructs permeated throughout the transcripts.

In addition, several of the keywords were within one observation. For example, a participant had delivered a PowerPoint presentation and was discussing that he gave a quiz at the end of the presentation to ascertain if the students were paying attention. He stated in the session:

“They weren't really hard, but they were, you know, there was like five questions I had them answer. They got them all right, so, it came off pretty good. I felt pretty good about it. I would say this and that - I need to talk myself into slowing down but I can do that.”

Within these comments the following codes were given: EA – Pleasure, EA – Nervousness, VP – Strategies, PA – Successful, and EO – Approach. He exhibited two emotional arousal (EA) constructs, those being pleasure that he felt he did a good job and nervousness because he felt he was talking too fast. He conveyed the verbal persuasion (VP) construct to the other participants due to describing the strategic notion of giving a
quiz to see if the students were paying attention. He felt good about the performance; therefore, his performance accomplishment (PA) was interpreted as successful, and finally, he recognized that his perception of talking too fast was a potential problem and indicated that the perceived problem needed to be addressed. He was not avoiding the problem; he was approaching the problem. Recognizing and approaching a problem is a construct of Bandura’s (1977) perceived self-efficacy outcome expectancies (OE).

This example also indicated how the peer review sessions brought about efficacy information regarding the delivery of a lesson. It was clear after manually coding the transcripts that discussions regarding delivery significantly outweighed discussions about lessons and/or lesson planning. This is not to say that meaningful conversations regarding lessons and lesson planning did not happen.

The following example is representative of a coded conversation regarding lesson planning in terms of incorporation of a PowerPoint Presentation in the class.

MST:  I had a good time making the PowerPoint. I thought there were some pretty good images in the PowerPoint. I kind of wanted to put too many in there, but...

RAT:  Are you going to continue to use that PowerPoint at all?

MST:  Well, he made a copy of it. [Mentor Teacher] made a copy of it too, so at least they liked it (inaudible). But it came out pretty good. It's just...

MSW:  It is now. It's probably part of the curriculum now.

MST:  They're just images of the tools we talked about and then there's like - I asked - I got a series of questions at the end that were directly from the lecture to see if they were paying attention and they got them all right, so....

RAT:  Good.
This discussion incorporated many of the keywords used to code the data. It was clear that MST believed he had a successful performance accomplishment using the PowerPoint presentation. He also exposed a strategy (verbal persuasion) to the other members of the group describing how he used the PowerPoint in his lesson to possibly extract information from the students. Furthermore, RAT praised (verbal persuasion) MST’s efforts. Finally, MST used an internal vicarious experience in terms of self-reflection, while the others were exposed to an external vicarious experience.

As stated previously, it became clear that the efficacy information keywords were repeatedly coded throughout the peer review sessions. Table 4.5 shows the frequency that each keyword was coded for all of the peer review sessions.

Table 4.5 Efficacy Information Keyword Frequency Matrix (All Peer Review Sessions)
Performance Accomplishments

A breakdown of the individual efficacy information frequencies shows the performance accomplishments construct of self-perception was the highest rated keyword throughout the peer review sessions. Table 4.6 shows that this keyword was coded twenty-one times closely followed by failure at eighteen times and successful at thirteen times.

Table 4.6 Keyword Frequency Matrix (Performance Accomplishments)

Performance accomplishments are not only the strongest indicator of perceived self-efficacy (Alderman, 2004; Pajares, 2002; Pajares and Shunk, 2002; Tschannen-Moran, et al., 1998; Bandura, 1977); they also directly tie into the research question involving the delivery of lessons.

The following quotes from the participants represent each of the keywords. After each quote, an explanation of how the keyword was connected to the quote is provided.
Capabilities – “I had problems the first time - didn't ask enough questions. They were kind of the questions that they could - they didn't have to answer. I didn't address people specifically - just like general things. Do you have any questions? Do you understand?”

This participant was questioning his ability to ask meaningful questions to his students.

1. Experience – “I think you did too and that's a good experience to have because I'm sure there are going to be times where, you know, maybe they finish some of the set projects we've teed up for them real quickly and then all of a sudden at the end of the week, we've got a week to fill and especially in our first year of teaching where we don't have drawers full of lesson plans we can lean back on.”

This participant was indicating that another participant gained experience.

2. Failure – “…and I was trying to explain that and say the actual words - What it came out as is like is this doesn't really apply, don't pay attention. And that's not what I was trying to say because it is extremely important to a mousetrap car - the scientific concept is important, but it came out totally wrong. And I know that as a kid I picked up things and you hear them and - that might be the only thing a kid picked out of this lesson was, oh yeah, the torque's not important and I don't want that to, you know…”

This participant was concerned the he conveyed the wrong content information to his students. Because of his perceived miscommunication he appeared to consider it a failure.
3. **Self-Perception** – “Well, part of it's like the material I was doing, I was kind of shaky with, so I tried to concentrate on getting that across clearly - like, you know, forget questions, I just want to at least tell you [his students] the correct information.”

This participant was not sure of the content in his delivery and that resulted in him questioning his ability to convey information to his students.

4. **Successful** – “What was going on there, there were people that were having trouble even entering the web address correctly and getting to the website and I was kind of running around trying to get that straightened out and it worked out fine.”

This participant was explaining how he turned a confusing and hectic situation into a positive performance accomplishment.

The above examples reflect the dialogue that the participants engaged in during the sessions in terms of performance accomplishments. It must be noted that other efficacy information constructs were present in some of the examples. For instance, internal self-reflection was present in the failure example. The participant was relating his own personal experiences into his description of his perceived failure.

**Vicarious Experiences**

Vicarious experiences are ranked second (Pajares, 2002; Tschannen-Moran, et al., 1998; Bandura, 1977) in terms of Bandura’s (1977) perceived self-efficacy model. Table 4.7 conveys the frequency of the coded keywords for this efficacy information construct.
Table 4.7 Keyword Frequency Matrix (Vicarious Experience)

The coded keyword of Internal Reflection was the prime topic of discussion as it was coded sixty-one times during the three sessions. Inquire and Comparison were second and third respectively, with thirty-six and twenty-five coding occurrences. Representative examples of these keywords are as follows:

1. *Adaptation* – “So like this girl, she didn't know what she was doing and so the next step of the instructions was something that they could all kind of work through on their own. It was just a good time for me to pull her aside and go back a step or two and help her get the lines on her fuselage and still, you know, not have to have the whole class stop...”

This participant was able to adapt to a situation that required one on one instruction without distracting the entire class.

2. *Comparison* – “I did the same thing and I have this weakness too. I just didn't, you know, I was too worried about some other things and didn't write that in my
plan and, you know, ask x, ask x, y, I didn't ask those kind of questions which I should have to see, because they'll give you a response and it's going to tell you, yeah, it got through or no it didn't get through.”

This participant was comparing a similar situation he encountered with another participants’ situation.

3. Impression – “Well, I think it depends on how well you know your class and how well you know your students. Like, if they’re at [School], like you said, you don't necessarily feel comfortable with your back turned for thirty seconds.”

This participant appeared to get the sense that another participant may not have been comfortable with his class in certain situations.

4. Influence – “Yeah. Watching this I'd probably think the same thing. I said wait a minute, what about all these kids over there?”

This participant indicated that by watching another participants’ video, he might have tried the same approach in that situation.

5. Inquire – “Do they do all their safety tests - or safety lessons on a projector like that or do they then go around and...”

This participant wanted to know how an application was being delivered.

6. Internal Reflection – “I had a good time making the PowerPoint. I thought there were some pretty good images in the PowerPoint. I kind of wanted to put too many in here, but...”

This participant was expressing how he felt about delivering content.

The most interesting aspect of this construct was that the internal reflection seemed to be fueled by the other keyword probes. In other words, a participant would vocally self-
reflect based on an inquiry, a comparison, an impression, or an influence. Additionally, other efficacy information construct keywords would educe internal reflection. For instance, the Internal Reflection example presented above also had the verbal persuasion keyword “Strategies” and the performance accomplishment keyword “Success” coded in association with it, in addition to the statement coming about through the Vicarious Experience keyword “Inquire.” During the entire discussion, inquires were made about the PowerPoint by the other participants. This was a continuing pattern interpreted through the coded data.

*Verbal Persuasion*

The efficacy information construct of Verbal Persuasion did not have the same characteristics as the Vicarious Experience construct; however, the previously mentioned pattern of several other efficacy information keywords coded within a sentence or statement was present.

Table 4.8 shows the keyword “Strategies” was the most frequently coded with seventy-seven instances during the sessions. This keyword was also the most coded of all of the keywords for all of the efficacy information constructs. Encouragement and Opinions were virtually tied with twenty-seven and twenty-eight coded occurrences.

Praise and Empathy were expected to be the more prominent coded keywords according to the literature (Pajares, 2002; Tschannen-Moran, et al., 1998; Bandura, 1977); however, this did not occur. It must be noted that the literature suggests that false praise could be present when interpreting verbal persuasion situations. Of the fifteen instances that Praise was coded, this sentiment appeared to be genuine.
Table 4.8 *Keyword Frequency Matrix (Verbal Persuasion)*

Representative examples of these keywords within the verbal persuasion construct are as follows:

1. *Criticism* – “Well, he's the mentor. It's his classroom. I'm doing his lesson plans.” This participant indicated that he was delivering the mentor teachers’ lesson plans and not his own in which he disapproved.

2. *Empathy* – “Yeah. That's frustrating.” This participant expressed his agreement to another participant and indicated that he knew what the other participant was going through and feeling.

3. *Encouragement* – “Yeah. I mean I think you're doing fine. I mean it's a pretty dry thing to teach to begin with.” This participant was supporting the other participant’s concerns about a content issue; specifically, the appearance that subject matter that is perceived dull can be hard to deliver to high school students who may or may not show an interest.
4. *Opinions* – “If you hit close with that well then - If you don't expect very much, the less you're going to hit close to, you know. That's what you're going to get. If you expect a lot; that's just my philosophy.”

This participant was making a judgment based on his experience.

5. *Praise* – “Now you did do a good job, though, of, you know, after you answered some questions over here or asked some questions on that one side then you did turn around and ask if there were other questions over here.”

This participant was indicating that he approved of the other participants decisions.

6. *Strategies* – “You may have to just go out and find something the night before and stay just one step ahead of the class so you'll have a leg up on being able to handle that or know what it feels like and not have it freak you out, you know, your first year of teaching.”

This participant was offering alternatives.

In the continuing pattern of keywords influencing other keywords and efficacy information, “Strategies” was the most prominent of this observation. The coded keywords involving Strategies were mainly the result of a delivery method “Self-Reflection”; however, other keywords, particularly in the efficacy information construct of Vicarious Experience such as “Inquire” and “Comparison” appeared to facilitate discussion that lead to strategies. The following example illustrates this claim. Note the coded keywords after the participant’s statements.

MSW: Most people, do they pay attention? (Inquiry)

MST: Yeah. Yeah.

MSW: They all want to be there? (Inquiry)
MST: In that class, it's an elective, yeah, and they all signed up for it and they all seem to want to be there. And, all Tech Ed at [MST’s School] is that way, so it's all volunteer. It's all elective, so they seem to be pretty much into it mostly. Some kids in the - and there's been - not many - it's just some kids in the other classes just seem like they're being, I don't know about typical or whatever, but, ‘I'm not a motivated individual’. You know, they just want to kind of sit there and go through the motions, you know. (Internal Reflection)

RAT: Do you have any idea why? Are they kids that are just there to play on the football team? (Inquire)

MST: No. I think what it is it's the kids that are - They have really poor attendance at this school and it's kids that aren't there on Monday and Tuesday and they show up on Wednesday and they're lost because they missed the other two days. I think that seems to be part of it. They're behind and once they get behind, they kind of just quit. (Uncertainty, Internal Reflection, Frustration)

RAT: Yeah. (Empathy)

MST: And I'm trying to - Then the thing is - I'm pretty much just teaching that class - that period - it's me - and I don't want to spend the entire period with one kid who's behind... (Strategies, Self-Perception)

RAT: Right. (Encouragement)

MST: ...and the other kids are getting behind. It's like this big tug back and forth of what are you going to do. (Uncertainty, Frustration, Failure)

RAT: Maybe you can build in - like if you - if you - If that was your class...

MST: Correct.
RAT: ...that was your job - your position there - maybe you could build in like one buffer day a week where the kids that are on task can continue to work on their projects. (Encouragement, Strategies)

MST: Right. (Encouragement)

RAT: The other kids can catch up a little bit.

MST: I think also teams (Opinion). If you devote a team... (Strategies)

RAT: Yeah. (Encouragement)

MST: ...if someone gets behind, they can get caught back up and the other kids can show them what's going on. (Strategies) They're kind of doing a little bit of that, but lots of times, both (inaudible) are gone. There is like 84% attendance for the freshmen class, which is not good. So, I don't know. (Self-Assurance, Uncertainty)

RAT: Interesting. Good work, [MST]. (Praise)

This type of dialogue represents the pattern that emerged within the peer review sessions that shows how every efficacy information construct was present within the discussion. This did not happen with each discussion; however, I observed this pattern a significant amount of times. This pattern continued to evolve and will become apparent throughout the remainder of this chapter.

*Emotional Arousal*

The last efficacy information construct is Emotional Arousal. According to the literature, this is the least reliable construct to gauge perceived self-efficacy on a “stand alone” basis (Pajares, 2002; Tschannen-Moran, et al., 1998; Bandura, 1977). Table 4.9
shows that Frustration was the overwhelming leader in this category. Frustration was coded thirty-eight times and came in third in the overall coded keywords.

Table 4.9 *Keyword Frequency Matrix (Emotional Arousal)*

Examples of the keyword “Frustration” along with the others in this category are as follows:

1. **Fatigue** - “Because I have an M.Ed program. I'm exhausted every minute of every day. I never get to sleep, so I'm always tired.”

This participant was indicating he was not able to get the rest he perceived he needed due to the MSaT program requirements.

2. **Fear** - “Like I stay up near that computer and that desk because that's where I am like for free periods or if I'm testing out something on the CAD Program. That's the computer I use and that's like my space and a certain amount of safety being up there.”
This participant was indicating he had concerns about going out among the students to deliver lessons. The safety he mentioned was not his personal safety, but rather his emotional safety.

3. **Frustration** - “I mean, you know, I try to get that through to them and it's a hard thing to do without giving them the answers. I want them to figure that out on their own, you know, so I'm trying to do that and it's just kind of difficult.”

This participant was delivering a quiz and was getting aggravated that the students were not responding as he had hoped.

4. **Nervousness** - “I think I was more nervous than I thought I was.”

This participant indicated that he was anxious.

5. **Pleasure** - “I had a good time making the PowerPoint. I thought there were some pretty good images in the PowerPoint.”

This participant expressed his enjoyment with a construct of his delivery.

6. **Relaxed** - “There was a difference between the first one I did and the last one. It was definitely different today. Not a whole lot, but there was enough, you could tell, and I felt more comfortable...”

This participant is indicating that he felt more at ease with his delivery.

7. **Self-Assurance** - “When I sit down and watch myself, I'm like, who is that guy? Is he making this stuff up?”

This participant is indicating that he was unsure of his delivery and himself as a teacher.

Again, the underlying pattern of efficacy information constructs and the keywords within those constructs drawing out other keywords was clearly present in terms of emotional arousal. For example, the last keyword in the above example was the result of
a discussion involving a comparison among the participants regarding self-perception. 

RAT was questioning his abilities in terms of delivery. The following dialogue occurred. 

Note the codes within or at the end of each statement. 

RAT: I wish I could pick up more of your animation. (Praise) I still feel like I'm just a little dry. (Self-Assurance, Self-Perception) 

MST: Well, I think part of it's - Well, I guess I've always been this way. I guess that's just the way I am. I still need to slow down. There's no doubt about it. I just - enunciate and just the whole thing is... (Self-Perception, Frustration, Nervousness). 

RAT: My whole deal is like when I'm explaining what they need to do, like we're working on the pen making now - I'm explaining how to put the blanks and the bushings on the [man drill], you know, it's like serious time, but then when we're turning them, we're all, you know, joking around and having fun... (Self-Reflection). 

MST: Right. 

RAT: You know, it's a little bit lighter and everything like that. 

MST: It seems like both of you guys have a little - I will tell you this - I think - Both of you seem like - How do you say it? You seem like you're where you're supposed to be. Does that make sense? I mean that's what I'm trying to say. I guess, what I'm trying to say is it seems natural to me. You don't seem like you're out of water (Praise). 

RAT: You seem natural too (Praise). 

MST: Well, it seems to me like both you guys seem like experts in your field. Like, whatever you're teaching - you're teaching these kids - you're not just making it up.
When I sit down and watch myself, I'm like, who is that guy? Is he making this stuff up? (Self-Perception)

RAT: You don’t come across that way to me (Empathy, Praise).

*Uncertainties and Efficacy Information Outcome Expectancies*

The last analysis procedure regarding the peer review sessions involved uncertainties and efficacy information outcome expectancies. In terms of uncertainties the keyword “Uncertainty” was coded twenty-seven times throughout all of the peer review sessions. The array of uncertainty ranged from how students visualize abstract concepts to one of the mentor teacher’s perceived low expectations of his students and how the participant would deal with that issue.

Floden and Clark (1988) discuss problems novice and beginning teachers face in terms of uncertainties in the review of literature. Their assertion that: “Students entering teacher education cannot be sure of their ability to manage a class or explain a concept. Nor can they know how much they will be able to improve during teacher preparation or the first years of teaching” (p. 513) was clearly present during the peer review sessions. The participants, however, appeared to gain some insight regarding the uncertainties they faced by comparisons with each other’s individual situations. It appeared that deep understanding and efficacy information constructs accompanied this concern. The following dialogue is representative of this claim. Again, the patterns of efficacy information constructs within the topic were present. The following dialogue is presented with the efficacy information keywords as previously offered.

MSW: ...When I write questions for slides or PowerPoint or anything like that, sometimes I look at it and I'm like, will they understand this? (Uncertainty) Is it
too...Because, you know, it makes sense to me, but will it make sense to them? Is it over their head? And usually I just say, you know, whatever, go with it. See how it goes. (Internal Reflection)

MST: I think it's important to expect a lot. (Opinion)

MSW: Yeah.

MST: If you hit close with that well then - If you don't expect very much, the less you're going to hit close to, you know. That's what you're going to get. If you expect a lot - That's just my philosophy. (Opinion)

MSW: But then you have like - I haven't been getting good feedback - It's like, do you understand this? (Uncertainty) Well, they won't say yes or no either way because they're afraid to say anything. So... (Opinion)

RAT: Maybe instead of asking if they understand it, ask them to explain it. (Strategies)

MSW: Yeah.

MST: Is there any way - we were just talking about this Monday class - the round robin thing - getting people to learn parts of something and give an explanation up in front of people. I know that's going to make them - They're going to hate it, but it might break that ice. It might be a way to get them to say, "I gotta do it". You know, even if it's only a little five minute thing each, you know... (Strategies)

MSW: I don't think they'd ever have an experience with that in that class. (Uncertainty)

MST: Right. It might break the ice - get them used to talking out in front of people, you know. (Strategies)
RAT: And they're old enough where they have to start doing some group work and things like that. (Strategies)

MSW: Usually once they do group work - well, not in the class that I teach, but in some other ones...

MST: It's contagious.

MSW: They don't share well.

MST: Once you get one of them going, I think it should - the ball should start rolling. (Strategies)

RAT: Yeah.

MSW: Yeah.

The dialogue represents how a participant who was uncertain about the delivery of a PowerPoint presentation manifested into a conversation that led to strategies that could possibly help him with future presentations. This particular dialogue had possible positive aspects in both planning the lesson and the delivery of the lesson.

In terms of outcome expectancies, all three participants had concerns with their perceptions of delivery. For example, MST thought he talked too fast, MSW thought he was too monotonous and dry, while RAT felt he was nervous and it came across to his students. All of these examples were brought up during the first peer review session and established that the participants each perceived that they had a problem. They also acknowledged that they planned to work on the problem. This is a characteristic of Bandura’s (1977) outcome expectancies construct of approaching a problem.
Subsequent peer review sessions revealed that MST and MSW both were struggling with their problems but were persistent on working through them. They also claimed that the videos helped them recognize that they had made improvements. In addition, verbal persuasion within the team was present and appeared to help. The following statement illustrates this claim.

RAT: Well, I think it's one thing for someone to say, "Hey, you need to loosen up, you know," and you're probably like, "Yeah, yeah. I guess I need to," or whatever like that, but I don't think the gravity of how tightened up someone could be would be recognized unless they actually saw it, you know...and I felt that way in mine a little bit, you know, when I watched it. I was like, man. I knew of at least one particular thing I knew I was doing or I knew I had gotten a comment on or something like that, but then when you actually see it, you know, you see the degree to which you're doing it or not doing it or whatever like that, which I don't think comes through when you're just talking about it afterwards.

Summary of the Peer Review Sessions

It was clear that a pattern had occurred during the peer review sessions in terms of the perceived self-efficacy constructs and the keywords within them. Keywords from differing efficacy information constructs appeared to draw out other efficacy information that appeared to be beneficial to the participants. The analysis of the post interviews further supports this claim.

These data are clearly an indicator of the perceived self-efficacy claim as a way to measure confidence. The participants clearly used efficacy information to help each other in terms of possible benefits to lesson plans and planning; however the most compelling
influences of these data appeared to be the perceptions of the delivery of lessons by the participants and the immense amount of efficacy information that lead to outcome expectancies.

Peer Review Post Interviews

The post interviews were similar to the editing sessions insofar as they produced internal and external efficacy information. Many of the participants’ statements were positive regarding the process of collaborating with the videos as a platform. The interview scripts for each interview were flexible and allowed for open-ended dialogue.

The external components of the interviews consisted of ways to improve the editing process (headphones, note taking while importing the video footage, the possibility of having another participant videotape a session of a participant teaching) in addition to improving the logistics and ways to cut the time it takes to edit.

The internal components that incorporated efficacy information included the benefits of the editing sessions as a way to self-reflect (vicarious experience through internal self-reflection) and the collaborative aspects of the constructs of verbal persuasion and performance accomplishments.

In terms of vicarious experiences and specifically internal self-reflection, a participant stated:

“… I think I'm more engaged into watching everyone else's videos and then during my video watching everyone else as they watch my video. So, that's where I got the most out of looking at myself teaching on the videotape was during the editing session.”
The participant was indicating that the editing sessions were a place where he could self-reflect. This is a representative statement echoed by the other participants as well. They indicated that they were able to watch themselves and make notes as to what they perceived to be their strengths and weaknesses, and while doing so, reflect on what they did and why. Their comments suggest that they were gaining a deeper understanding of their strengths and weakness in terms of delivery by watching their videos and self-reflecting.

The question also came up as to where the editing sessions should take place. One participant expressed that he felt it was unnecessary to have formal editing sessions due to the fact that the participants were not interacting with each other as they had done in the peer review sessions. He indicated that he might be able gain as much understanding of his strengths and weaknesses on his own in an informal setting such as his home.

“So, I'm saying if everything was equal, you know, it's not necessary to have peer editing sessions. Now, the reviews and stuff like that would definitely be good to do together, but the editing, I don't know.”

I probed deeper into this notion by asking the other two participants their opinions on this matter. At this point, RAT made a strong argument that the formal sessions were beneficial to him due to the structure. He was required to sit and watch himself in a formal environment and he felt that if he was doing this editing at home, he would probably do it on a Sunday while watching a NASCAR race and felt he would not have got the full benefit of the self-reflection as in the structured editing sessions.
His argument led to the participant who originally thought he could get as much value from editing in an informal setting to change his mind.

“...that maybe, you know, I'm saying that we could have done it on our own, but, you know what? Maybe I couldn't have on my own - I'm thinking about it now, I probably wouldn't have done it on my own this quarter. If I had five minutes at home when I was going to do something else so you're probably right that maybe it is actually a good thing now that I rethink it.”

The structural aspects that the participants discussed are aligned with Tochon’s (in-press) contention that even though this type of undertaking, concerning video and collaboration, is generally thought of as informal and casual, structure definitely has a place in terms of design of such an activity. It was clear that the participants struggled with this concept and collaboratively agreed that structure was beneficial in terms of value.

Other aspects of internal efficacy information came in the form of performance outcomes. The first interview was designed to extract information about the process in terms of logistics and the perceived notions of the benefits of future tapings. At this point, the participants were unsure how future tapings may or may not have been beneficial. The second interview session drew out valuable information about efficacy information in terms of both the preparation of lessons and the delivery of lessons as well.

I asked about the differences between the first and second videos, specifically if the first peer review session had any effect on the participants’ second video tapings. I was trying to find out if the participants consciously thought about the first peer review session and their video while performing in their second videotaping in their classrooms.
One participant indicated that although he thought it was not conscious while delivering the lesson, he was consciously thinking about the taping during his lesson planning prior to class.

“So, it was conscious in how I put my lesson together, but then once I was up in front of the kids teaching, I wasn't thinking like, oh, I'm going to be videotaped this time, you know, again. I need to make sure, you know, how I come across on the videotape so it's better than it was the last time.”

Another participant indicated the same type circumstance was apparent for him as well. He suggested that it made him focus on what he wanted in terms of lesson planning rather than what he would look like delivering the lesson. He stated:

“It kind of helped me focus what I wanted to do instead of how it was going to look.”

Bandura’s (1977) outcome expectancies came into play regarding the peer review sessions becoming a sounding board for perceived problems, specifically in terms of recognizing a problem and approaching the problem in a meaningful manner. In the first video sessions, two of the participants felt their performances had flaws. It appeared that by watching the first videos in the first peer review session, the participants recognized those perceived flaws. One indicated that he consciously tried to structure his lesson plan to avoid “being dry” in his delivery by incorporating what he deemed “fun and engaging.”

“I think that was in my mind that I wanted to do something that was more fun, you know, that was more engaging and I figured it would come across that way.”

This type of self-reporting in terms of identifying and approaching a perceived
negative performance was mutual among all three participants. The above quote is representative of this notion and suggests that they identified perceived problems with their delivery and were attempting to persist by adjusting their perceived flaws to improve their performance through modifying or creating a new lesson plan.

The final aspect of the interview analysis involves the participants’ perceptions of uncertainties and how the peer review sessions influenced insecurities that the review of literature discussed in terms of being novice teachers. One participant was very vocal in his concern with this topic in the first interview. He indicated that he was unsure his progress as a teacher compared to the other participants. He suggested that he thought, by watching the other participants’ videos, that he may not have been at the same level as them in terms of delivering a lesson. By the third interview he indicated that he was gaining more confidence as a teacher. He stated in the third interview:

“\text{I'm not worried as much about going out there and standing in front of somebody teaching now because I got - after watching this, I can do this. So, I'm doing it. There it is. I did it. I'm out there doing it already so I feel pretty comfortable about it. After watching some of these videos, I feel better about it.}”

This statement suggests that this participant did gain some value from the collaborative video process; however, this statement may be misleading. It cannot be claimed that watching the videos was solely responsible for this participant’s self-reported comfort. It could be argued that just by teaching and/or being in a teaching environment for an extended period of time could have influenced his comfort. It can be suggested that the collaborative video process may have been one of many influences on his comfort level. Although this is one discussion, the participants indicated that they
were all experiencing uncertainties for a myriad of reasons that included many aspects within the literature review. For example, Fives (2005) and Floden and Clark (1988) indicate that uncertainty can be relieved through meaningful discussion with other preservice teachers. This appeared to be the case with these participants. It also appears that the process of collaborating with a video assessment group intensified this claim.

Additionally, the interviews were replete with the same type of information. For example, in all of the interviews the participants indicated that they liked being able to see other classroom settings. They stated this and other opinions several times. To condense this type of dialogue, a table was created to simplify the data saturation that was occurring. Data saturation refers to the notion that no additional information is evident within the data. Richards (2005) states: “This term is variously used in qualitative research to describe arrival at a stage when nothing new is coming up” (p. 138).

The table created reflects repeated aspects that came from the post interviews in terms of likes and dislikes as reported by the participants. Table 4.10 lists these factors.
They liked seeing classrooms other than their own.

They liked seeing different lessons being taught.

They liked being able to get feedback from their peers.

They liked the research criteria and indicated that they may continue to videotape themselves for their own edification in the future.

They liked collaborating and coming up with strategies that may have been of value to their fellow participants.

They did not like the uncertainty of knowing when they would videotape and how they would get the equipment.

They did not like worrying about the equipment possibly failing during their classroom tapings.

They did not like the responsibility of keeping equipment overnight.

Although they indicated that they did gain value from this process, they did not like the time it took to participate. They indicated that a class should be dedicated to an endeavor such as this.

They indicated that they did not like their preparation for their roles as participants. They indicated that they did not fully understand what was expected from them until the first editing and peer review sessions.

Table 4.10 Participant likes and dislikes

The dislikes are a summary of the many aspects that were not directly tied to the research questions; however, they were a part of the data collection process and may have had an effect on the participants.

Summary of the Peer Review Post Interviews

During the post interviews many aspects of Bandura’s (1977) perceived self-efficacy model of efficacy information constructs were apparent in either internal or external form. Explanations by the participants indicted that they were influenced by each other’s videos in terms of vicarious learning and verbal persuasion. The participants indicated that they engaged in deep internal self-reflection during the editing sessions in addition to the importance of editing sessions being structured.

The participants also pointed out the benefits they perceived as beneficial to them in terms of lesson plans and delivery through the peer review sessions. They indicated
that seeing each other’s videos as well as their own in the peer review sessions helped them change their delivery in some cases, and think about how they might change some of the lesson plan strategies they employed. They also indicated that the process helped with their uncertainties as preservice teachers.

Final Participant Questionnaires

The final participant questionnaires were similar to the initial participant questionnaires with one variation; these questions asked about the future. For example, question one of the initial questionnaire asked: Explain how confident you are in regard to preparing a lesson plan(s) to be used in the school to which you are assigned. The final questionnaire asked: Explain how confident you are in regard to preparing a lesson plan(s) to be used in future student teaching.

The following tables indicate my interpretation of the questions. Additionally, the symbol “ø” will indicate how the participants responded to the initial questionnaires. The symbol “X” will indicate my interpretation of the final questionnaires.

Final Participant Questionnaires – Question 1

Question 1 asks about confidence in the preparation of lesson plans for future student teaching. All of the participants would ultimately be teaching two more quarters with more responsibilities regarding actual preparation of lesson plans and teaching.
Table 4.11 Interpreted Confidence Levels – Question 1

The two groups were more diverse with regard to this question. The members of Team Scarlet clearly indicated that they were either “pretty confident” or “fairly confident” to create lesson plans. Two members of Team Gray indicated that they were very confident in terms of preparing a lesson plan. The comparison to the initial questions indicate that the members of Team Gray expressed that they were initially confident with regard to preparing lesson plans.

Final Participant Questionnaires – Question 2

Question 2 attempts to draw out views regarding confidence concerning the implementation of a lesson.
Similar to the responses to Question One, the teams were divided in their opinions. The members of Team Scarlet used the terms “less confident” and “low confidence” within their responses. In addition, DOB indicated he thought his confidence would grow; however he appeared to be somewhat less confident compared to his initial confidence. Two members of Team Gray again expressed they were confident in conducting a lesson plan. MSW was appeared to be somewhat less confident compared to the initial questionnaire.

*Final Participant Questionnaires – Question 3*

Question 3 relates to the training that participants received for the quarter in which the research was conducted and the confidence levels that came about regarding preparation of lesson plans and implementing a lesson.

<table>
<thead>
<tr>
<th>Question 3</th>
<th>High Confidence</th>
<th>Moderate Confidence</th>
<th>Low Confidence</th>
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</thead>
<tbody>
<tr>
<td>Explain how confident you are regarding this quarter's training in answering questions 1 and 2.</td>
<td>X ø</td>
<td></td>
<td></td>
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<tr>
<td>Team Gray - MST</td>
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<td>Team Gray - MSW</td>
<td>X</td>
<td></td>
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<td>Team Gray - RAT</td>
<td>X</td>
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<td>Team Scarlet - BJN</td>
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<td>Team Scarlet - DGR</td>
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<td>Team Scarlet - DOB</td>
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<td>X</td>
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</table>

Table 4.13 *Interpreted Confidence Levels – Question 3*

The teams were mixed with regard to this question; however, this is consistent with the responses within the initial reflective data concerning the training methods used within the MSaT program that indicated that many participants were not completely satisfied with their training. It is also consistent with views of Ethell and McMeniman.
(2000) and Meijer et al. (2002) in the review of literature that suggests there can be considerable differences and tensions between a teacher education program and preservice teachers insofar as training methods.

MSW was inconclusive in his statements; conversely, the other members of Team Gray expressed positive feelings towards their training. The members of Team Scarlet were a bit more expressive in their comments. DOB felt the best part of the training was his “in-class” experiences; not necessarily his coursework. DGR expressed that the training helped with his field experiences, while BJN articulated that the training helped him prepare lesson plans, but did not help him conduct lessons.

*Final Participant Questionnaires – Question 4*

This last question enlisted the participants’ opinions regarding the use of videotaping lessons and confidence concerning preparing lessons and conducting lessons in future teaching.

<table>
<thead>
<tr>
<th>Question 4</th>
<th>High Confidence</th>
<th>Moderate Confidence</th>
<th>Low Confidence</th>
</tr>
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<tbody>
<tr>
<td>Explain how confident you are that videotaping yourself teaching a lesson will be regarding questions 1 and 2 in future student teaching.</td>
<td>X ø</td>
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<td>ø</td>
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<td>Team Gray - MST</td>
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<td>Team Scarlet - BJN</td>
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<td>Team Scarlet - DGR</td>
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<td>Team Scarlet - DOB</td>
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<td>X</td>
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</table>

Table 4.14 *Interpreted Confidence Levels – Question 4*

The members of Team Gray all thought videotaping themselves was a positive experience. MSW stated, “For me it was helpful to see and hear myself in action.”
MST commented: “It is an effective way to objectively observe your performance and evaluate how you have done.” RAT expressed: “. . . when a lesson is captured on tape it can then be shared with an infinite number of peers, superiors and even students in order to gain additional feedback.”

The members of Team Scarlet were not as receptive to videotaping as the members of Team Gray. DOB explained, “The video taping really didn't have that much effect on me.” DGR conveyed: “I feel that videotaping a lesson can be beneficial only if it is done more than one time a quarter and if it is done with another expert who can review the videotape alongside the preservice teacher.” BHN stated, “Overall, I'd say that taping oneself doesn't provide as useful feedback as a mentor teacher or supervisor, but is certainly worthwhile.” Finally, DOB and DGR expressed that they thought videotaping themselves several times would have been beneficial. They made a significant shift to being very confident in their initial responses to moderately confident after their field experiences.

The possibility exists that the members of Team Gray expressed positive feedback in their final reflective data due to the fact that they participated in the editing sessions and the peer review sessions. Not participating in those sessions could also explain the frequency of the moderate confidence levels of Team Scarlet.

As stated in Chapter 3, follow up questions were asked of all of the participants. In the case of Team Scarlet, I wanted to affirm my contention stated in Chapter 1 that the use of video in the MSaT Program could possibly have more potential to benefit preservice teachers. I asked the participants questions about their video experience during their initial quarter of teaching. To ascertain this information I asked the following:
1. How many times did you actually videotape yourself last quarter teaching a lesson?

2. Did you watch the video by yourself or with someone else?

3. If you did watch it with someone else:
   - Who was it?
   - Did this person make comments?
   - Were the comments helpful? If so, in what way?

Two of the participants videotaped themselves only once. The third taped himself twice, although he was only required to tape himself once. They all watched the videos by themselves. Although they were required to write a one-page reflection regarding the videotape, they received no formal feedback from their supervisors or mentor teachers and no informal feedback from their peers.

Summary of the Final Participant Questionnaires

The data indicated that the participants were balanced in their opinions regarding the questions given in the initial reflective questionnaire. They all had concerns about the uncertainties they were about to face. Additionally, they all felt videotaping themselves would be beneficial. This was not the case in the opinions regarding the final reflective questionnaire.

The two teams were much more divided in their confidence levels. Team Gray was clearly more confident with regard to their future teaching. The most significant difference concerned Question 4. In recalling the initial question that asked about confidence and videotaping a lesson, the initial response of all of the participants was
overwhelmingly high. In the final questionnaire, all of the participants of Team Gray had high confidence levels, while all of the members of Team Scarlet had moderate levels.

MSaT Student and Faculty Surveys

In order to answer Research Question 3 concerning the views of stakeholders of the outcomes of this research, I designed two surveys. One was targeted at all MSaT students enrolled in the MSaT program during the time the research was conducted. The other survey was given to four MSaT faculty members, one MSaT graduate teaching assistant, and the NCATE representative for the College of Education at The Ohio State University at the time of the research. The characteristics of the surveys can be seen in Chapter 3, phases 7 and 8.

The mixed methodology method was employed to answer this question; specifically, quantitative data in terms of survey responses and qualitative data in terms of written comments. A simple quantitative survey was employed to gather statistical data. Furthermore, qualitative data in the form of the survey taker’s comments was interpreted. I used calculated means to quantify the survey data.

The faculty survey as mentioned in Chapter 3, was given to key informants chosen based on their experiences in the MSaT Program or teacher education in general. The data derived from this survey will be presented on an individual basis, and then interpreted. The analyses of these data are as follows:

MSaT Student Survey

Sixty-three out of sixty-eight MSaT students enrolled in the MSaT program at the time directly after the research was conducted participated in the survey. Two were absent from the class in which the survey was given and three chose not to participate. Of
the sixty-three who participated, twenty-two were preservice mathematics education teachers, thirty-one were preservice science education teachers, and eight were preservice technology education teachers. Two declined to identify an association with any of the three disciplines. Therefore, the sample size was 92% of the population.

I chose to allow the participants of the study to take the survey for two reasons. First, I wanted to know what the members of Team Scarlet thought of the collaborative assessment that the members of Team Gray did. Second, I wanted to know what the members of Team Gray thought insofar as member checking. Schwandt (2001) asserts, “Also called member or respondent validation, this is a sociological term for soliciting feedback from respondents on the inquirer’s findings. It is often claimed to be an important procedure for corroborating or verifying findings or of ensuring they are valid and meet the criterion of confirmability” (p. 155). The responses of the members of both teams are calculated with the entire sample; however, they will be presented separately as well. The members of Team Gray were provided with the findings of the survey but offered no significant feedback.

Because I knew the participants of the research would be taking the survey, the survey was anonymous for non-participants only. Table 4.15 shows the responses of the MSaT students who completed the survey and the percentages regarding their responses.
Table 4.15 MSaT Student Survey Responses

These data show that, for the most part, the students felt positive about collaborative video groups. Almost half of the students indicated that they would have wanted to participate in a collaborative group as part of their initial teaching. The majority thought that it would have been beneficial to their initial teaching.

Similarly, a little over half of the students thought being in a collaborative group would better prepare them for their initial teaching, while 68.2% thought it would help build upon their future teaching. In addition, 63.4% thought participating in a collaborative group would help them prepare future lesson plans.

The looming question is why would the majority of the students think it would have been beneficial to their initial teaching, help build upon their future teaching, and
help them prepare future lesson plans, but less than half think they would have wanted to participate in such an endeavor? To try to answer this question, I looked at the comments the students made at the end of the survey.

Of the sixty-three students who took the survey, forty-two made comments. Half of the students made comments that indicated that they were very busy and time was an issue. Several indicated that the collaborative video group concept was a good idea and they would have wanted to participate in this type of endeavor if it was part of a class. Several comments are listed below that support the previous statements. The comments are unedited and are representative of twenty-one comments regarding time as a negative to this research.

*MSaT Student Survey Comments regarding “Time”:*

“It seems as if this would be a good idea, although I would be concerned about the amount of time that would have to be spent putting the videos together and viewing with my group.”

“I don’t feel this type of peer review is necessarily beneficial. This is too time-consuming of a project.”

“I like the idea of reviewing teaching on video, but I think enough good is accomplished by reviewing yourself. These groups look too time-consuming, especially considering a busy schedule.”

“I would be willing to participate in a collaborative video group, but this program’s extremely time-consuming and it may become an extra stressor with extra “stuff” to do.”
“I think videos would have been helpful, but some of the discussions could have come up without a video. Looked as if we could receive good feedback from peers, but would take a lot of time.”

“(In regard to question #1) – Only if they lighten the load of work. The videotaping and review on top of everything else we have to do would not be realistic time wise.”

“(In regard to question #1) – I would like to, but it’s an added time consuming project. I couldn’t fit it in.”

Several other comments were made regarding the research as a whole. Several were positive; however, a few were negative. The following are general comments that will be followed up with a narrative statement.

Positive Statements:

“Good to see others’ views. We have a tendency to be tunnel-visioned and critical of ourselves.”

“I think the more feedback you get the better. I agree with point made that cameras are not a distraction in the classroom. They soon become part of the “furniture.” The video of the lesson is always insightful and can be nothing more than help in our teaching methods!”

“I tend to forget details shortly after the lesson is over, so when I’m talking to someone about it later, it would help to have the video to look at and remember specific details.”

“Especially beneficial when reviewing with a small group—as in the video . . .

Last quarter, when I viewed my video, I watched the entire class session very
carefully . . . I did find areas of improvement, but a group discussion would have drastically heightened the results—I think this (peer review sessions) would be a great use of MSaT class time.”

Negative Statements:

“You know we’re insanely busy and yet you choose to waste our time with this? Are you guys insane? This has nothing to do with this class, don’t waste our time. We have mentors and supervisors to supply the feedback. This is redundant and time-consuming and not informative. Peers are as naïve as I am, expert evaluation is what matters.”

“I think I’m “not sure” about most responses because initial teaching should just be about getting out and doing it. Maybe later on in our teaching career it would help to fine-tune. However, early on I have been satisfied with just watching my video and self-critiquing.

“(In regard to question #2) – More stress than worth (time, effort and anxiety). (In regard to question #5) – I would freak out from anxiety. The anxiety from initial teaching is enough. I don’t have time to be fooling around with iMovie on a Mac.”

“I think this method would be beneficial. However, with some teachers, the overhead involved could put a large time strain on the individual, particularly non-technology teachers. I also think that the process could be optimized: in order to make video and group analysis worthwhile. I’d like to see more commentary from group members about what they observe.”
The positive feedback indicates that many of the survey takers liked the idea of collaborative video assessment. The negative feedback is beneficial for the most part as the implications provided feedback that could be reported in Chapter 5. I was not quite sure what to make of the first person’s statement except this person obviously believes his peers are not capable of giving any meaningful feedback.

The second comment deals with self-reflection versus group reflection. I recognize that some people are not comfortable working in groups, in addition to having others critique their teaching. This will always be a problem with this type of endeavor and will be addressed in Chapter 5, Implications and Recommendations.

The third respondent indicated that anxiety and uncertainty could be a factor. This too is something I recognize as a potential problem with this type of undertaking. This issue will also be addressed in Chapter 5. The last comment is in line with the third comment insofar as these respondents were obviously not technology education teachers. The notion of non-technology teachers undertaking this type of activity is and should be a concern if this were to be a part of an MSaT class. Again, this too will be addressed in Chapter 5.

Of the 42 comments made by the respondents, only one was truly negative. Three were somewhat negative, but I consider them constructive criticism and I am thankful for their honest opinions. In general, many of the respondents seemed to like the idea of collaborative video groups, but had realistic concerns.

As previously mentioned, the members of Team Scarlet and Team Gray also took the survey. I asked them to put their names on the survey in order to separate their responses for further analysis. Their responses are shown in Table 4.16.
### Table 4.16 Research Participant Survey Responses

<table>
<thead>
<tr>
<th>Question</th>
<th>Yes</th>
<th>No</th>
<th>Not Sure</th>
</tr>
</thead>
<tbody>
<tr>
<td>After viewing the video do you feel being in a collaborative video group:</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>1) is something that you would have wanted to participate in your initial teaching?</td>
<td>MSW</td>
<td>MST</td>
<td>RAT</td>
</tr>
<tr>
<td></td>
<td></td>
<td>DOB</td>
<td>BJN DGR</td>
</tr>
<tr>
<td>2) would have been beneficial to your initial teaching?</td>
<td>MSW</td>
<td>MST</td>
<td>RAT</td>
</tr>
<tr>
<td></td>
<td></td>
<td>DOB</td>
<td>BJN DGR</td>
</tr>
<tr>
<td>3) would better prepare you for your initial teaching?</td>
<td>MSW</td>
<td>MST</td>
<td>DGR</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>BJN</td>
</tr>
<tr>
<td>4) would help build upon your future teaching?</td>
<td>MSW</td>
<td>MST</td>
<td>DOB</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>BJN</td>
</tr>
<tr>
<td>5) would bolster your confidence in regard to your initial teaching?</td>
<td>BJN DGR</td>
<td>DOB</td>
<td>MSW</td>
</tr>
<tr>
<td></td>
<td>MST RAT</td>
<td></td>
<td></td>
</tr>
<tr>
<td>6) would help you in the preparation of future lesson plans?</td>
<td>RAT</td>
<td>BJN</td>
<td>MST</td>
</tr>
<tr>
<td></td>
<td>DOB</td>
<td></td>
<td>MSW</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>DGR</td>
</tr>
</tbody>
</table>

Note. Team Gray members = MSW, MST, RAT. Team Scarlet Members = DOB, DGR, BJN.

The responses of the participants were mainly positive. However, MSW was not sure if his confidence was bolstered in terms of his initial teaching. In addition, MSW was not sure if his participation in this research would have helped in the preparation of
his future lesson plans. In fact MSW was the only participant to make any comments. He gave the following statement: “I didn’t bring this up (I think) during our meetings, but I don’t think my lesson plan preparation improved as a result of these review sessions.” This comment was interesting in terms of his final reflective data in which he stated: “The videos helped point out students’ interest in the class. I was able to observe my strengths and weaknesses and this will help me know what areas of my preparation and presentation need work.” At the time of his final reflection he thought the review sessions would help his preparation; however, they apparently did not help his future preparation.

Whether or not the sessions helped during his initial teaching is inconclusive. MSW’s responses are also interesting due to the responses of the non-participants regarding question 5. Their responses were divided into almost thirds regarding this question. The question was poorly written and confusing. The term “bolster” is a confusing word. Perhaps “improve” would have been a better term.

The responses of all of the participants are consistent with the comparisons made in attempting to answer Research Question 3. As pointed out when analyzing that question, the members of Team Scarlet had some reservations about the use of video as an assessment tool for teaching. However, they all indicated that they would have liked to have participated in collaborative video groups in addition to believing the groups would have been beneficial to their initial teaching. I chose to add future endeavors on the survey to ascertain if this process could possibly be beneficial to preservice teachers’ future preparation and implementation of lesson plans.
The Faculty Survey also yielded useful data. As stated, the faculty who took the survey used were considered “key informants.” The responses will be presented individually with an identifier of the faculty discipline to which the respondent was associated. The rationale behind this presentation procedure is that the survey was intended to help answer the research question 3 insofar as whether these key informants thought collaborative video groups would be beneficial to MSaT students in their initial teaching experiences. These data are as follows in Table 4.1.

Please rate your feelings regarding the following statements. Circle the number that best describes your feelings. 1 = Strongly Agree, 2 = Agree, 3 = Neutral, 4 = Disagree, 5 = Strongly Disagree.

<table>
<thead>
<tr>
<th>Question</th>
<th>Strongly Agree</th>
<th>Agree</th>
<th>Neutral</th>
<th>Disagree</th>
<th>Strongly Disagree</th>
</tr>
</thead>
<tbody>
<tr>
<td>1) Collaborative video assessment would help improve field experiences.</td>
<td>M S2</td>
<td>S1</td>
<td>N</td>
<td>TG</td>
<td>S2</td>
</tr>
<tr>
<td>2) MSaT students would benefit from editing their videos to find strengths and weaknesses.</td>
<td>M S1</td>
<td>S2</td>
<td>T</td>
<td>N</td>
<td>TG</td>
</tr>
<tr>
<td>3) MSaT students benefit more from written reflections based on memory than oral or written reflections on video in regard to their initial field experiences.</td>
<td>M S1</td>
<td>S2</td>
<td>T</td>
<td>N</td>
<td>TG</td>
</tr>
<tr>
<td>4) MSaT students would benefit more from self-assessment than collaborative assessment regarding video.</td>
<td>S1 S2</td>
<td>M</td>
<td>S2</td>
<td>T</td>
<td>TG</td>
</tr>
<tr>
<td>5) Collaborative video assessment would promote confidence in regard to initial student teaching.</td>
<td>S2 T</td>
<td>M S1</td>
<td>N</td>
<td>TG</td>
<td>S2</td>
</tr>
<tr>
<td>6) Collaborative video assessment would help in the preparation of future lesson plans.</td>
<td>M S2</td>
<td>S1</td>
<td>T</td>
<td>TG</td>
<td>N</td>
</tr>
<tr>
<td>7) MSaT students should participate in collaborative video assessment in their initial quarter of field experience.</td>
<td>S1 T</td>
<td>M S2</td>
<td>N</td>
<td>TG</td>
<td>S2</td>
</tr>
<tr>
<td>8) Collaborative video assessment is something a possible class should be dedicated to in the future.</td>
<td>S1 N</td>
<td>M S2</td>
<td>T</td>
<td>TG</td>
<td>T</td>
</tr>
</tbody>
</table>

Table 4.1 Faculty Survey Responses
The actual survey was overwhelmingly positive. The faculty members felt this type of assessment would help preservice teachers’ field experiences in terms of Question 1 of the survey. In addition, they felt the editing sessions would be beneficial, although the mathematics professor commented that Question 2 of the survey might have been confusing.

The notion of student reflection, from memory or self versus collaborative, is a topic designed to set up the implication section of Chapter 5. For example, this research was never intended to replace or dominate other forms of assessment. If anything, it would augment or complement other forms of assessment. Questions 3 and 4 addressed these issues.

The respondents indicated that they felt that students who created reflections based on memory benefited less that those who engaged in oral or written reflections based on video in regard to their initial field experiences. Additionally, they either disagreed or strongly disagreed that students would benefit more from self-assessment than collaborative assessment regarding video.

The faculty gave positive responses regarding questions 5, 6 and 7. They indicated that collaborative video assessment could be beneficial to initial student teaching, as well as preparation of future lesson plans, and that the students should participate in this form of assessment. Question 8 was specifically designed to be
addressed in Chapter 5, and will be addressed at length. Many of the faculty comments expressed similar opinions in terms of reflections, collaboration, assessment, and value.

Representative comments included:

“ I think the most beneficial reflection would be after oral group reflections on the video. Wait! As I think about this, the most beneficial would be to 1) view video, 2) write a reflection, and 3) discuss/group reflection.”

“I gave positive responses to video assessment, but I think a variety of methods of assessment is appropriate.”

“They realized that videotaping is not as intrusive as they generally think. Those who still find it to be distracting might find that students are adaptable to it.”

“Their comments about each others (teaching) is likely to be more relevant than just hearing about a situation.”

“Allows them to reflect on teaching more specifically.”

“Collaborative critiques should always be more beneficial than self-evaluation. Many viewpoints add to the assessment.”

The faculty comments raised a variety of questions as well, many of which will be addressed in Chapter 5, Implications and Recommendations, in terms of reflection; specifically, how this process might be useful as a reflective tool for future MSaT students. They also had many suggestions that could help optimize this type of process if it were to be used as part of a class, such as the ordering of the reflective process. The comments of the mathematics education Professor, science education Professor 1, the technology education Professor, and the NCATE representative, all gave great insight as to how this research could be furthered. For example, the second science teacher and the
NCATE representative inquired about the value of the research regarding the different components of the process. Again, these comments do not specifically help answer this particular research question; however, the comments are extremely valuable with regard to implications regarding value that will be discussed in Chapter 5.

The comments made by the second science education Professor and the technology education Graduate Teaching Associate, are pertinent to this research question. The second science education Professor pointed out that the participants of Team Gray “…realized that videotaping is not as intrusive as they generally think.” This is important due to the fact that several of the MSaT students indicated in their survey comments that they might be apprehensive about this process.

The next comment made by the second science education Professor indicated that the members of Team Gray made comments about their teaching that “…is likely to be more relevant than just hearing about a situation.” This was interesting confirmation of participants of both Team Scarlet and Team Gray who made reference to parts of their training, both in their initial and second quarter, as somewhat confusing in terms of theory versus practice.

The last two comments made by second science education Professor were helpful, except the third comment was somewhat confusing. I think it is safe to say this respondent meant that: “…even if students did not pick up on some deeper issues of teaching, this process may allow them to reflect on those issues of teaching more specifically if the process were done regularly.” This respondent also indicated that, if done regularly, collaborative video assessment could help students gain a genuinely better understanding of teaching issues that include preparing and delivering lessons.
The comments made by the technology education Graduate Teaching Associate were also very insightful in terms of the implications of this research. This person has been teaching in the K-12 field for over thirty years and I value his opinion greatly as a key informant. This was his first year as a supervising teacher and his comments could impact future video assessment. Specifically his comment: “I can see how this type of sharing would have helped the interns I was supervising and would have helped me to help them.” However, this respondent indicated that not all of his students would be open to a process such as this. This detail is extremely relevant as not all students may be receptive to this process. It must be noted, and I will stress this point in Chapter 5; specifically, that this research appeared to help the participants in Team Gray only and may not be beneficial to all students.

This respondent also indicated that this research was rich due to the “community” the participants built initially and throughout the process. This is an excellent observation and is relevant to the theoretical framework that will be discussed in the next section of this chapter.

*Summary of the MSaT Surveys*

Research Question 3 asks: How will the stakeholders of the Mathematics, Science, and Technology Education (MSaT) program at The Ohio State University view collaborative video assessment? A strong argument could be made that they viewed it in a positive manner. The data from the student survey was persuasive in that regard. Over half of the respondents indicated, by watching the video and through each of the survey
questions, that they thought this was a worthwhile endeavor. Their comments on the whole were positive, although many were concerned about the time and uncertainties involved in such an undertaking.

The faculty members, who served as key informants, also indicated that this type of process could be useful to students within the MSaT program. Many questions and suggestions were made that will be discussed in Chapter 5; however, their responses and comments were extremely valuable in answering this question.

From these data, inferences can be made that the process that the participants went through has great potential to be helpful to students such as those within the MSaT program.

Putting it All Together

Thus far, all of the data collected has been analyzed; however, it has not been put into context. First, the looming question is: what does all of this mean? To answer this question, the overarching question that led to the research sub-questions must be reviewed.

The overarching question of this research is how will the processes regarding collaborative video assessment assist in overcoming the uncertainties that technology education preservice teachers face in their initial student teaching experiences. To answer this question the following research sub-questions were formulated:

1. What is the influence of collaborative video assessment on preservice technology education teachers in terms of perceived self-efficacy and confidence as they plan lessons in their initial quarter of student teaching?
2. What is the influence of collaborative video assessment on preservice technology education teachers in terms of perceived self-efficacy and confidence as they deliver their initial lessons?

3. How will the stakeholders of the Mathematics, Science, and Technology Education (MSaT) program at The Ohio State University view collaborative video assessment?

To answer these questions, assertions and assertion rationales regarding the overarching concern of uncertainty and the research questions will be presented based on the data analysis.

**Assertions**

Assertion One: All of the participants exhibited varying degrees of uncertainty concerning their initial teaching experience before the research began.

Assertion One Rationale: The initial questionnaires of all of the participants indicated that they were unsure of many aspects of their initial training. Those aspects included comments such as “I'm very hesitant on what I need to put in it and what it needs to cover. I don't know exactly what material needs to be covered, what the teacher expects out of me, and not really sure how to set it up.”

Assertion Two: The uncertainties continued throughout the research period; however the Team Gray members’ uncertainties appeared to be reduced through the experience of teaching, the training they received, and the process of video collaboration.

Assertion Two Rationale: Based on the coded data from the peer review sessions and the interpretation of the post interviews, the uncertainties appeared to be reduced from the efficacy information they expressed. This included collaborative learning primarily in
terms of vicarious experiences and verbal persuasion; in particular, the pattern that emerged during the peer review sessions that involved efficacy information constructs interacting and producing beneficial outcomes such as strategies to reduce uncertainty. However, the interpretation of the peer review post interviews indicated that the repetition of constructing and delivering lessons might have been a further influence to reduce uncertainties.

Assertion Three: The process of collaborative video assessment appeared to have a notable influence regarding the perceived self-efficacy in planning of lessons for the participants of Team Gray.

Assertion Three Rationale: This assertion is based on the participants’ responses during the peer review post interviews. Several times the participants indicated that by watching the videos they saw weaknesses such as negative performance accomplishments and adjusted their lesson plans to strengthen future performances.

Assertion Four: The process of collaborative video assessment appeared to have a significant influence regarding the perceived self-efficacy in the delivery of lessons for the participants of Team Gray.

Assertion Four Rationale: Several times throughout the peer review sessions and the peer review post interviews the participants indicated that they did receive beneficial efficacy information that appeared to help them deliver their lessons more successfully during the research period.

Assertion Five: The members of Team Gray appeared to be more confident regarding their future endeavors regarding teaching, particularly lesson planning and delivery.
**Assertion Five Rationale:** The final participant questionnaire responses; specifically, their responses to Questions 1 and 2, indicated that two of the three members of Team Gray were very confident that they would be able to plan and deliver lessons effectively in the future. Additionally, the responses during the peer review post interviews; specifically, the participants’ indications of videotaping themselves in the future in order to gain further efficacy in terms of planning and delivering lessons support this claim. Furthermore, the follow-up questions that the members of Team Gray responded to reinforce this claim.

**Assertion Six:** The process of collaboration with regard to video assessment appeared to be potentially beneficial to the MSaT program as interpreted from the views of the stakeholders. There were, however, some concerns such as time and working in groups.

**Assertion Six Rationale:** This claim is based on the comments made by the faculty and students who took surveys after viewing representative video clips of what the participants did during the research. The faculty members had mainly positive comments, while the students were mixed in terms of participating in such an endeavor. Their primary concerns were the time it would take to participate and the anxieties that may be associated with participation.

**Chapter Summary**

The analysis consisted of organizing the data sources into a chronological presentation that interpreted the context of each source. The analysis began with the initial questionnaires of all of the participants. Tables were presented showing the researcher’s interpretation of the confidence levels of the participants. The confidence levels expressed that the participants of each team had differing, but consistent findings.
The strongest interpretations were that all of the participants were concerned about the training they received and that they thought videotaping themselves would be beneficial.

The editing sessions were then described in addition to the outcomes that transpired through interpretive analysis. The participants of Team Gray used collaborative methods to self-structure the sessions in order to gain what appeared to be a deeper understanding of their videos through internal (self) reflection and external (vicarious experience).

The peer review sessions were presented through frequency tables that illustrated the various coded efficacy information, in addition to the relationships and patterns that emerged to assist in the assertions of the research questions. The pattern that emerged was that some keywords were educing other keyword and efficacy information. The peer review sessions indicated that the participants were influenced more regarding the delivery of lessons than the planning of lessons. Furthermore, the use of Bandura’s (1977) perceived self-efficacy model proved to be valuable to extract meaning from the participants’ dialog in terms of efficacy information keywords.

The peer review post interviews were offered and enhanced the interpretations of the peer review sessions by means of verbal interpretation of what the participant thought occurred during the editing and peer review sessions. The participants indicated that they found value in the editing sessions and the peer review sessions in terms of lesson planning and the delivery of lessons.

The last data source that pertained to research sub-questions 1 and 2 were the final questionnaires. Again, tables were presented showing the researcher’s interpretations of the confidence levels of the participants. These data were compared to the initial
questionnaires and showed what appeared to be a shift in confidence levels of Team Scarlet, particularly lower confidence of videotaping lessons in the future.

The final data sources that involved research sub-question 3, involved the MSaT surveys. The surveys were presented using qualitative and quantitative methods. Tables were provided to represent the numeric values that the surveys extracted from both the MSaT students and the faculty. The stakeholders of this research indicated that this process was positive and could be beneficial to future MSaT students.

Finally, I interpreted all of the data and made assertions that appeared to be meaningful and may have been of benefit to the participants and would help the consumer of this research understand what had occurred, in addition to the positive and negative aspects that may have had value to future research of this process.
CHAPTER 5

IMPLICATIONS AND RECOMMENDATIONS

Introduction

The data analysis was designed to answer the research questions. Many implications of the actual research questions were addressed within the analysis, including issues surrounding time and logistics. Although it appears the implications were present in the analysis, no recommendations were given. My overall recommendation is that this research be continued within a (technology education) teacher education program such as the MSaT program at The Ohio State University. This recommendation is supported by the analysis of the research participants of Team Gray and the indication that this process had various levels of benefit to their preservice teaching experiences.

This research was conducted to investigate if a collaborative video assessment process would benefit preservice technology education teachers’ uncertainties about the creation and delivery of lesson plans and increase their perceived self-efficacy and confidence. It was based on the premise that, because these preservice teachers would be teaching multiple components of the technology education curriculum; i.e., construction, manufacturing, communications etc., thus, the research could potentially be valuable as a teaching and learning tool. The members of Team Gray pointed out that this process gave
them a chance to see different teaching situations and procedures used in technology education classes and that this process was beneficial to them for a number of reasons that included reducing uncertainty.

Based on assertions 4, 5, & 6 of Chapter 4, this process could transfer to the preservice teachers within the mathematics and science education cohorts of MSaT as well. Both use various teaching methods and content to educate their students including the use of calculus and trigonometry in mathematics education, as well as astronomy, chemistry, and biology in science education. Although these methods are not as diverse as technology education, this process has the possibility of being transferred to almost any teacher education situation; however, for the sake of this recommendation, it has been narrowed down to a teacher education program such as the MSaT program. My contention is that if this process were successful in the MSaT program it could be successful in other teacher education entities as well although this claim must be tested through further research.

This recommendation has many additional implications brought about by the data analysis of the research questions. Many issues were a result of the two surveys that were designed for the faculty and the MSaT students. This chapter will delve into these issues and will be presented in the following format: an implication will be offered and then a recommendation will be given. Furthermore, the MSaT program at The Ohio State University will be used as a model for these recommendations based on the previously stated criteria. Additionally, a section of this chapter will be devoted to aspects of further research regarding this study, specifically The Collaborative Video Assessment Process (CVAP). Finally, a summary of this chapter will conclude this research.
Implication: Time

The issue of “time” came up on several occasions throughout the course of this research. As indicated in Chapter 4, many of the students who took the survey, and offered comments, expressed that time was a main concern to them. Almost half pointed out that they would have liked to have participated in this type of process, and over seventy-five percent felt this process would be beneficial to their initial teaching; however, several indicated that they did not think they would have time to participate in such an endeavor. They cited the hectic schedule that they are constantly under as the main reason for their views.

Additionally, the members of Team Gray indicated that time was a negative aspect of their participation. During the peer review post interviews, the members of Team Gray were asked what they thought were the negative aspects of the process. Because “time” was the only negative mentioned by these participants, their views were not offered in the data analysis due to the nature of the research questions. However, since the members of Team Gray did indicate that time was an issue, the following recommendations are offered.

Recommendations Regarding Time

The participants in the study, particularly the members of Team Gray, expressed that time was an issue in terms of the editing sessions and participating in the peer review sessions as well as the post interviews. However, they indicated that, if they had not been given a “tradeoff,” time would have been more of an issue. In this case, the members of Team Gray were excused from writing a weekly reflection paper during the weeks they participated in the collaborative video assessment process. The MSaT students who
responded to the survey and gave comments also indicated that time was an issue; not only because of the chaotic schedule, but the time it could possibly take editing as well.

Time was always a concern to me regarding this research even before the actual data collection had begun. Two thoughts were always in the back of my mind. First, I was unsure exactly how much time the process would take. I painstakingly created a structured schedule that I hoped would work for the participants based on my knowledge of their abilities concerning video and editing. As it turned out, they were able to complete the tasks involved within the time frame I had planned. Scheduling conflicts were the main culprit of the process; not the time involved. Therefore, another component should be included with the implication of time; that being logistics. For example, the members of Team Gray (as was I) were always concerned about the responsibility of making sure “the bag” was either going to be available to them or that they could successfully transfer “the bag” to another member within a certain timeframe.

The second thought was the possibility of incorporating this process into a graduate teacher education program such as the MSaT program at The Ohio State University. Even though this notion was not part of the research in terms of a research question, the data collected led up to this recommendation. For example, the faculty surveys revealed that the faculty either strongly agreed or agreed that this process was something a possible class should be dedicated to in the future.

With this in mind, I do recommend that this process be integrated into a dedicated course within the MSaT program. To achieve this, several factors must be considered. First and foremost, the MSaT program is extremely regimented in terms of the classes offered during any given quarter of the five-quarter period. The creators of the MSaT
program have worked extensively, and continuously work, to provide an exceptional teacher education program. However, adjustments could be made in the form of realigning some of the classes. For example, several MSaT students indicated, either through informal conversations or through the comments given for the MSaT Student Survey, that they felt some classes were unnecessary or redundant. This was also apparent within the participant reflection responses.

The feelings of the participants and the MSaT students in and of themselves are not a significant reason to realign the MSaT program in order to implement a new course. However, the analysis suggests that the participants did gain value from their experiences. This research may be of value to the coordinators of MSaT in terms of their continuous revaluation of the program and they would have to determine if a course should be eliminated or courses could be condensed. The design of the MSaT program is not in question; however, based on the comments of both the faculty and students, I have rendered this recommendation.

Assuming that some type of arrangement could be made to make a class available for this process, such as realigning or consolidating classes, the following basic recommendations are offered for a class that would include collaborative video assessment as part of its content or a totally separate class altogether.

1. *This course should include several types of reflection and assessment, not just video assessment.*

Although the members of Team Gray went through self-assessment in the editing sessions and group or peer assessment in the peer assessment sessions, they also engaged in written self-reflections during the weeks they were not participating in the research.
Written self-reflections should be incorporated within this class. This concept will be discussed in the next set of implications and recommendations.

2. *There should be enough cameras to accommodate groups of three.*

In conducting this research, I was forced to use my own personal equipment; in particular, a DVD camera, tripod, and an omni directional microphone. In order to accommodate the approximately seventy students within a typical MSaT program at The Ohio State University, this type of equipment must be available to the collaborative video groups.

My recommendation is that for every three students, one DVD camera, one tripod, and one microphone would have to be available. Additionally, three computers with the capability to edit videos would have to be available. In the case of the MSaT program, there are two computer labs dedicated to MSaT students that could provide computers capable of this endeavor. Additional cameras, tripods, and microphones may have to be purchased; therefore, cost could be a factor.

3. *There should be two instructors for the class; both should have extensive knowledge in the use of video editing software in addition to experience in guiding students in reflective practices.*

Because the number of students within any given MSaT class is approximately forty to seventy students, two instructors or an instructor and teaching assistant are usually designated to teach a MSaT class. This class would be no different in that regard. However, in order to assist students with technical question, the instructors should have extensive knowledge of all aspects of video production.
Additionally, the participants in this research had some prior knowledge of video processes. This may not be the case with Mathematics and Science preservice teachers. This is important because several students in the MSaT program may have absolutely no experience in video production whatsoever. It is imperative that the instructors have extensive knowledge in video production in addition to the ability to impart such information to the students throughout the course.

MSaT classes normally meet once per week in a ten-week period; thus a carefully sculpted schedule would have to be implemented. For example, the first class would have to be dedicated to instruction of how to use editing software. This would include how to import video and how to produce vignettes. Additionally, groups would have to be formulated. The first out-of-class assignment should be for one of the group members to make a test video and meet with the group to try importing and editing the video. Any problems with this procedure should be noted and ready for the next class meeting. During the second class meeting, problems should be addressed by the instructors and discussed in class with the all of the students. This would be of benefit as many of the students would more that likely have similar problems such as importing problems.

During the second class period, the first construct of what the students should focus on in terms of what to video; i.e. strengths and weaknesses, and how to reflect on these constructs (peer review), should be discussed. It is important that the instructors have the knowledge to assess the reflections of the students. As many of the faculty members within the MSaT Program are supervising teachers, they possess this type of knowledge. Others that are not supervisors and do not possess the knowledge to assess reflection would have to be trained in order to teach this type of course.
The constructs of future tapings and reflections would be up to the instructors. My recommendation is that they align these tapings with what is expected from the preservice teachers within the preservice teachers handbook (See Appendix I). For example, all preservice teachers are expected to conduct a lesson that integrates math, science and technology. This integrated lesson could be used as a construct for the second videotaping.

4. Devote a portion of the class to video editing in different video authoring software, such as iMovie for the Macintosh and Windows Movie Maker for PCs.

In order to make the process as uncomplicated as possible, I would advocate the use of iMovie for the Macintosh and Windows Movie Maker for Windows-based computers for the editing sessions. Both of these software applications are very user-friendly and easy to negotiate. This would also give students the opportunity to use an operating system they are comfortable with. Both software programs are included with their respective operating systems package; therefore, they are essentially free when an operating system is purchased. Both programs are known for their ease of use and are advertised by their developers as simple to use and as “fun” and “easy” to make movies. Both programs have online support that includes tutorials (Apple.com, 2006; Microsoft.com, 2006).

Hard drive space to accommodate all of the vignettes produced by the students will also be an issue. In the case of Team Gray, the average vignette took 1.26 Gigabytes (GB) of space. Furthermore, each continuous movie of the vignettes I produced for the peer review sessions averaged 12.27 GB. The hard drive space could be a potential
problem. Based on the participants’ use of hard drive space, it is estimated that three to five Gigabytes would be needed for each student to store each vignette.

I recommend that the collaborative groups transfer the vignettes to a VHS tape or burn onto a DVD. This process could be helpful insofar as the students could watch and conduct peer review sessions at a student’s home. The VHS tapes or DVDs could then be collected by the instructors for grading purposes. Furthermore, after the vignettes are transferred to either VHS or DVD, the data could be deleted from the computers used for editing.

5. *The instructors of this class should have good communication with students’ mentors and supervising teachers.*

Having good communication with the mentor and supervisor teachers is essential. The members of Team Gray indicated that the mentor teachers did not know exactly what the goals of the program were during this research. Additionally, even though it was explained to the mentor teachers what the research was trying to accomplish, one mentor teacher indicated to a participant that he wasn’t sure why this process was necessary. Furthermore, I did not share this research with any supervisor teachers. I simply did not have the time to meet with all of the supervisors.

Additionally, the technology education graduate teaching associate indicated that he would have liked to have known about the process during the period of the research. I would submit that communication between the instructor, the mentor teacher, and the supervisor teachers would benefit the students and further the goals of the program.
6. *Legal and ethical issues must be addressed.*

Because school children will appear in the vignettes, and various persons will share the vignettes, the issue of legalities and ethics becomes a concern. An individual preservice teacher does not need consent (in most cases) to videotape a class (much like the members of Team Scarlet) if the video is to be watched only by the preservice teacher and the supervisor teacher. However, the collaborative video assessment process prescribes that several individuals watch the vignettes in which the school children will most likely come into view.

I recommend that the preservice teachers talk to their mentor teachers and school principals to ascertain what type of consent from the school and the children’s parents is necessary. Furthermore, consent should be investigated if the individual members of the collaborative groups want to keep the videos for future use. In order to accomplish this type of endeavor, signed written consent from the student as well as the parents and the school must be secured without exception. This is to protect the University, the preservice teacher, and the students. If this type of consent cannot be secured, the instructors at the end of the course should destroy all viewing media (DVD camera tapes, edited DVDs and or videotapes). Additionally, any digital information on computers should be password protected during the course to prevent any unauthorized viewing and should be erased at the end of the course.

7. *Logistics must be organized in a realistic manner.*

Because I recommend that a class be dedicated to this process, the notion of time as an implication has been somewhat suppressed. However, the issue of logistics will be of constant concern due to the magnitude of the potential class sizes. Several times
throughout the duration of this research, the members of Team Gray indicated that logistics were somewhat of a problem. This was an issue for several reasons. For example, MSW didn’t know when he would have the opportunity to teach a lesson within his preservice teaching schedule. He indicated that his mentor teacher often “sprang” his teaching days on him at the last minute. This is another reason for good communication between all parties.

I recommend that a strict schedule be adhered to in an effort to make the process as smooth as possible. It is impracticable for the instructors to contact the (potentially) seventy mentor teachers to ascertain the preservice teacher’s teaching schedules. It is recommended that the supervisor teachers as well as the preservice teachers ascertain this information. It is likely that problems will arise in scheduling given the many diverse schedules of all of the parties involved; however, this notion makes the communication of all parties concerned even more essential.

These basic recommendations are just a starting point. Obviously, a great deal of time and effort would be required to make the class successful. The logistics would be a main concern in addition to the cost of equipment; i.e., cameras, tripods and tapes. Finally, more research should be conducted to strengthen the goals and outcomes of such an undertaking.

Implications: Assessments and Reflections

The issue of student reflections was also questioned within the survey comments from both the students and faculty. Several variables surround this topic. For this chapter, I will address three of the more prominent variables. First is the notion of self-assessment and self-reflection versus collaborative assessment. The two terms “assessment” and
“reflection” have different meanings. From the review of literature the term “assessment” in the education field is “the relationship between effective teaching and student learning” (Cawyer and Calswell, 2002, p.1). Reflection; specifically self-reflection, is the process of a person appraising their own particular experiences and thought progressions (Pajares, 2002; Pajares and Shunk, 2002). Thus, reflection is a part of assessment. The question is: What are these students doing within this process; assessment or reflection or both?

The second variable is the anxiety created by working in groups, and, in essence, group critiques. One of the comments by an MSaT student was: “Criticism kills my self-esteem, even constructive criticism.” Another commented: “I would freak out from anxiety. The anxiety from initial teaching is enough.” Furthermore, according to Stigler, et al. (1999), in the review of literature, bias could be a problem. Anxious students, in order to present a good depiction of their teaching, could alter the “strengths and weaknesses” during the editing sessions in order to look good to their peers.

The third concern is when, in the course of five quarters, this should be taught. One MSaT student commented that the class should not be a part of the initial quarter of teaching. “…initial teaching should just be about getting out and doing it. Maybe later on in our teaching career it would help to fine-tune.”

Recommendations Regarding Assessments and Reflections

The differences between assessment and reflection are valid. I would contend that reflection should be a part of the assessment process. I am drawn to a comment made by a mathematics education Professor in the faculty survey. He stated: “I think the most beneficial reflection would be after oral group reflections on the video. Wait! As I think
about this, the most beneficial would be to 1) view video, 2) write a reflection, and 3) discuss/group reflection.” This suggestion has merit; however, I would recommend the following:

1. Edit the video for strengths and weaknesses (self-reflection)
2. Write a reflection based on the editing (self-reflection)
3. View and discuss the videos. (collaborative video assessment)

This recommendation is given for two reasons: consistency and grading purposes. In the case of consistency, comparing the written reflections to the vignettes would allow the instructors to compare data for uniformity and the notion of “classroom fiction” (Tochon, in press).

As indicated, the editing process was a form of self-reflection, which was the main reason the editing sessions were a part of the research. Furthermore, the comments of the Team Gray members indicated this claim was valid. Comments such as: “You’re listening to what you’re saying and you’re picking out strengths and weaknesses, you’re being critical of yourself,” were noted. Another comment was: “I think that during the editing session is when I was most critical or engaged in watching my own video…” I also believe that the elements of videotaping, editing, writing reflections, and peer review sessions can be considered assessment.

The apprehension due to anxiety and nervousness is also a valid concern. It is reasonable to assume that some people do not like to exhibit their work, especially if there are potentially embarrassing segments. In addition, students showing themselves to others on video can be stressful. This is consistent with the construct of emotional arousal in Bandura’s (1977) perceived self-efficacy model. This subject came up in the peer
review sessions and the post interviews. The members of Team Gray indicated that because they had gone through the undergrad technology education program together, they were comfortable with each other and had become friends; therefore, there was no problem showing their videos to each other.

It is suggested that people who want to become teachers must be able to collaborate with peers, take constructive criticism from peers, and be open to new ideas and processes such as the collaborative video assessment process that was investigated in this research. The process of receiving positive reinforcement in terms of verbal persuasion and vicarious experiences could alleviate some of this anxiety. The instructors of the course should explain that a certain amount of anxiety is understandable and more than likely will occur; however, group members should be as supportive as possible with their feedback without forsaking quality.

The notion of being in a group comprised of people who are unfamiliar is also a singular problem. One possible solution is to let the students pick their groups. Additionally, the students could be grouped within the discipline that they are teaching. In any case, it is reasonable to assume that not all students will be satisfied with the group in which they are assigned. Again, educators must collaborate as part of their profession. Preservice teachers must get used to the fact that they could possibly be in situations where they may have to be in agreement or get along with other educators. Explanations of these types of situations should be a part of the course curriculum and as previously stated, group members should be a supportive as possible.

I recommend that the students pick their own groups. They would already have an idea of their fellow students’ characteristics. Many develop friendships. It appeared that
the members of Team Gray benefited because they were friends; therefore, having the students pick their own groups could be beneficial as well. There will be situations where the instructors might have to realign groups if students simply cannot work together. It would also be beneficial for the instructor to conduct a survey among the students to determine who (if any) have any experience with video editing. The students who have experience could be asked not to be in the same groups together.

Further, the notion of bias in terms of editing only positive vignettes is always going to be a problem. The instructors of the course, as previously stated, must communicate with the supervisor and mentor teachers if bias is suspected. This could eliminate the “classroom fiction” Tochon (in press) refers to within the review of literature. As stated in Chapter 2, classroom fiction refers to the organization of video clips in such a manner that an actual lesson or methodology may not be represented in the manner in which it was intended. Additionally, they must be able to recognize that if a student is presenting a video with excessive “strengths” and few “weaknesses,” a problem with bias may exist. I recommend that the students be required to have a certain number of strengths and weaknesses, for example at least four strengths and four weaknesses.

The prospect of when this course should be taught within the five-quarter process of the MSaT program is a legitimate concern. There are at least two genuine but opposite thoughts. The first is that preservice teachers should assess themselves through this process as soon as possible because the process could be beneficial to future teaching experiences. The second is that students should wait until their second quarter of student teaching to become comfortable teaching before this process is initiated. I recommend
that they should do it in their first quarter of student teaching. It appeared that the
members of Team Gray benefited from this process in their initial quarter of student
teaching. Therefore, an “optimized” system or process could be beneficial to all of the
students in the MSaT program in their initial teaching experience.

Another recommendation is that this be an ongoing process throughout the
students’ teaching experiences. A structured class, such as the one previously outlined,
should be required in the students’ initial quarter of student teaching. Additionally,
collaborative video assessment could be conducted during subsequent quarters as a part
of the students’ field experience seminars. The seminars are described in the
Mathematics, Science, and Technology Education Syllabus for Field Experience -
Expectations and Activities Handbook, which can be seen in Appendix I.

Implication: Value

The data analysis implied that value was achieved through the collaborative video
assessment process. However, the NCATE representative raised an interesting question in
his comments in the faculty survey. He wanted to know: “Is it video assessment that
makes “video assessment” valuable or the dialogue of/in the video assessment process
that makes the strategy valuable and useful?” Although this question is somewhat
awkward, my interpretation is: Are the peer review sessions and the dialogue within them
more valuable than the process as a whole?

This line of reasoning raised an additional question. Would just taping a video of
a lesson and then collaboratively assessing it unedited be as valuable as going through the
editing process, finding strengths and weaknesses, and then undertaking the collaborative assessment process? Furthermore, how will the teachers know that each student attained value?

**Recommendation Regarding Value**

It has been established in the data analysis that the editing sessions had potential value. They were a form of self-reflection. The analysis suggests that the entirety of the collaborative video assessment process had potential value and each part had its own merit. With that recognized, the question still remains regarding how the instructor would know if student value was attained. I recommend that some type of reflective questions regarding the value of a particular topic be asked as a criterion within the student’s written reflections. By asking questions regarding value, the instructors could estimate whether or not the students were benefiting from the process.

A possible guideline and questions could be:

**Guideline:** Integrated lesson that includes components of Math, Science, and Technology.

**Questions:**

1. What do you already know?
2. What do you need to know
3. What did you learn?
4. What positive and negative aspects did you have regarding this experience?

This is possible a scenario for guidelines and questions. The guidelines should come from the preservice teacher handbook and be aligned with the different lessons the students are required to produce; i.e., an integrated lesson.
Finally, based on my experiences conducting this research, several implications materialized as described above. It is suggested that several more unknown implications could potentially develop. Therefore, I recommend that this process be evaluated in a formative or ongoing and continuous manner.

Further Research

Further research could be conducted to ascertain insight into topics such as gender roles, demographics and social economics of different school districts, as well as other teacher education programs other than mathematics, science and technology. Other teacher education programs could also include many four-year technology education teacher licensure programs.

In regard to gender roles, Zuga (1998) asserts that technology education is a male dominated field. Research using a collaborative video process could be helpful to discover if there are any differences between male and female preservice technology education teachers in their teaching styles and preparation. For example, do students react differently in regard to gender? Do males and females prepare lessons differently? Do they have diverse delivery approaches?

The demographics and school district societal economics would be interesting characteristics to investigate using this research process. The number of aspects that surround this topic are immense. These aspects could include diversity in the classroom as well as students who are considered “at risk.” For example, what differences are there between urban settings and suburban settings? How do the students in these setting react
to the teaching methods of the preservice teacher? What strategies does the preservice teacher use when working with student with special needs; i.e., hearing impaired or learning disorders?

Finally, other teacher education programs and disciplines could benefit from this research. Tochon (in press) used the constructs of teaching skills, classroom management, child development, and technology skills similar to the concepts within the study by Ingersoll and Kinman (2002). Tochon used these constructs with language arts preservice teachers. Further research using these constructs and the process used for this research may be beneficial to explore with any discipline within a teacher education program. For example, sports and leisure education students may benefit from videotaping themselves practicing or competing in a sports event or instructing students in some type of physical activity.

Self-reflecting through editing could be very beneficial as could getting feedback from peers. All of the efficacy information could be a part of this type of undertaking; for example, looking at different techniques used by other sports and leisure educators in different contexts.

The amount of research that could be conducted using the process implemented for this study is potentially immeasurable. Research using video in education is being conducted constantly (Goldman, 2004). It is suggested that this research has great potential to contribute to those who wish to research video in education.

My final recommendation is the CVAP process. This process is a result of my findings and interpretations regarding this research and the literature.
The Collaborative Video Assessment Process (CVAP)

The result of the review of literature, theoretical backdrop, the data collection, and the data analysis is the Collaborative Video Assessment Process (CVAP). The rationale of CVAP is as follows:

“Teaching is evidently and inevitably uncertain. No teacher can be sure how a lesson will go or what a student will learn. No one can be sure which teaching approach will be most successful with a particular group of students” (Floden and Clark, 1988, p. 1).

The intention of CVAP is to assist in bridging the gap between theory and practice and alleviating the uncertainties that accompany them. It has been my observation as a student and educator, specifically in the past five years within the MSaT program at The Ohio State University, that technology education preservice teachers are caught between two different worlds; those being the theory learned in coursework and the practice of student teaching. CVAP places these preservice teachers in both worlds at the same time through the use of videotape. The individual technology education preservice teacher is able to assess the effectiveness of his or her own, as well as the other’s in the CVAP collaborative group, implementation of lesson plans and delivery style while being in a higher education classroom setting.

Within peer review sessions, through performance accomplishments, vicarious experiences and verbal persuasion, preservice teachers have the opportunity to gain insight and possibly a higher sense of self-efficacy that can lead to confidence in their
planning and delivery of lesson plans. They are also able to see how their emotions and the others’ in their group play a part in their teaching experiences.

It is not the intention of the CVAP model to be the single method to produce perfect teachers that have stellar delivery methods and lesson plans. The intention of this research in regard to CVAP and technology education preservice teachers is assisting them in their initial teaching experiences. The key word in this statement is “initial.” It has been my experience both as a student and educator within the MSaT program that technology education preservice teachers are given the opportunity to pursue their own teaching styles in terms of teaching methods and instructional design. For example, the preservice teachers within the MSaT program are not given a “concrete” set of rules to follow in terms of delivery and the planning of lessons. They are given general guidelines, examples, and resources. The MSaT Syllabus for Field Experiences Expectations and Activities Handbook stresses the use of a variety of resources for teaching experiences and directly cites securing “lesson plan ideas” from as many resources as possible. Through these constructs, they are formally asked to extract ideas that fit their personal style of teaching and learning and then, metaphorically, “thrown out of the nest to see if and how well they fly.”

Therefore, the intention of CVAP, in terms of planning lessons and delivery, is to give technology education preservice teachers another resource to draw ideas from. Based on the literature surrounding perceived self-efficacy, it is anticipated that by seeing themselves as well as others in their initial experiences through video vignettes showing their perceived strengths and weaknesses and discussing their observations, CVAP will assist them in shaping their teaching styles and methods. It is also presumed that a more
fully developed teaching style will lead to a higher sense of perceived self-efficacy and increased self-confidence of the individuals within the CVAP group.

The breakdown of the CVAP model as it pertains to this research is as follows:

Collaborative: The utilization of two or more individuals (group) working together to perform tasks or set goals.

Video: The primary media used in the process.

Assessment: An evaluation by a collaborative group or an individual of a performance or task.

Process: The method by which the collaborative group performs tasks or obtains goals and then evaluates the performance or goals.

The CVAP model is based on the technological system model as described by Hutchinson and Karsnitz (1994). This model is also known as the “Universal Systems Model” and has become a standard in the technology education field to establish how different technologies work and the impacts they have on society (Technology for All Americans Project, 1996). This system involves four criteria: Input, Process, Output, and Feedback. The Basic model is shown in figure 5.1.

Figure 5.1. The technological system model, Hutchinson and Karsnitz (1994)
This system uses inputs that Hutchinson and Karsnitz (1994) describe as resources. These resources in the CVAP include people and information. People process information for a specific output or outcome. Hutchinson and Karsnitz point out the output is the reason a technological system is created. The CVAP technological system can be seen in Figure 5.2.

![Diagram](image)

*Figure 5.2. The CVAP technological system*

The system is continuous; thus, the more times a collaborative group goes through CVAP, the better the final outcome may be. In the case of CVAP, the final outcome is improved levels of self-confidence in preservice technology education teachers. Because it is anticipated that improvements will be made, all of the inputs have the potential to improve as well. For example, the time it takes to edit the videos may decrease due to repeated editing sessions. Another example is the possibility of increased self-confidence
in the performance of delivering a lesson due to repetitively viewing individual and others’ video vignettes and the constructs of Bandura’s (1977) perceived self-efficacy model.

The CVAP system shows that the inputs are twofold. There are both internal and internal/external inputs that are based on people and information. “Individuals use external and internal comparisons to determine their self-worth” (Pajares, 2000, p.1). Internal inputs can be defined as events and motivating forces individuals feel are important in terms of their own thoughts and beliefs (Pajares, 2000). External inputs are environmental factors (external vicarious experiences, verbal persuasion) that can influence an individual’s values, beliefs and ultimately their behavior (Bandura, 1977).

In the case of CVAP, the internal inputs are individual values of the participants regarding efficacy beliefs, prior experiences, emotional states and perceived strengths and weaknesses within the performance. The internal/external inputs are collaboration, instructional design, lesson plans, performance, lesson delivery, and time.

Although it could be argued that above constructs are considered internal inputs, external forces may influence them in several ways. For example, when planning many external forces play a part in the final lesson plan. In the case of the participants in this study, they are given general guidelines that can be included in their plan.

These guidelines include stating the lesson objectives, the instructional methods, materials needed, and some form of assessment. They are also given several resources (lesson plan templates, web resources, etc.) to help guide them. These are all external
forces that are influential to the final outcome of a lesson plan. However, because lesson plans are created individually by the technology education preservice teacher, they can be considered internal as well.

The delivery of a lesson can be considered external because it is conducted in an educational environment. At the same time, the delivery of a lesson is a performance and can be regarded as internal as well. Time is considered external due to the procedures that happen within an environmental setting. For example, time is a factor in setting up cameras and other equipment in a classroom. Conversely, time is a factor in the internal vicarious experiences of the participants.

Both internal and external factors are relative to Bandura’s (1977) social learning theory and the notion of reciprocal determinism. That is internal and external factors influence behavior. Figure 5.3 depicts Bandura’s reciprocal determinism model.

![Figure 5.3. Bandura’s (1977) reciprocal determinism model (Pajares, 2002)](image)

“Students' behavioral performance is assumed to influence their perceptions of self-efficacy, as well as the reverse” (Zimmerman, 1989, p. 331). Tschannen-Moran, et al., (1998), indicate that it is informative to investigate the relationships between internal
and external factors. Additionally, they report a number of complementary studies have been conducted to look at the context of internal and external factors and how they relate to self-efficacy.

The breakdown and potential improvement of the CVAP system constructs are as follows:

*Inputs*

Efficacy Beliefs: Pajares (2002) indicates that an individual’s self-beliefs are important indicators of their academic achievement. This construct can influence "beliefs in one's capabilities to organize and execute the courses of action required to manage prospective situations" (Bandura, 1986, p. 389). In addition, an individual’s self-efficacy beliefs are normally evaluated and can be changed through self-reflection such as internal vicarious experiences and performance accomplishments (Pajares, 2002; Bandura, 1977).

However, external forces can play a part in self-efficacy beliefs; those being vicarious experiences and verbal persuasion (Pajares, 2002). It is projected that CVAP may improve or enhance efficacy beliefs that can lead to a higher sense of perceived self-efficacy.

Prior experiences: The individuals within the collaborative group have prior experiences, either through microteaching or formal training regarding teaching experiences. The desired output is that each time the collaborative group goes through CVAP, they will gain more experience and a higher sense of perceived self-efficacy through performance accomplishments, vicarious experiences and verbal persuasion.
Emotional States: Feelings of stress, anxiety, and fatigue are but a few emotional states that can lead to negative perceptions of self-efficacy (Pajares, 2002; Tschannen-Moran, et al., 1998; Bandura, 1977). Conversely, perceived self-efficacy could be enhanced when emotions are identified and discussed through CVAP.

Perceived Strengths and Weaknesses: The strengths could include classroom management; i.e., knowledge of the content, engaging the students, effective demonstrations, and asking open ended questions. The weaknesses could include instructional deficiencies; i.e., poor demonstrations, not engaging students, not fully expressing the learning outcomes to the students, asking closed ended questions, and getting distracted. It is expected that repeated experiences with the CVAP model would shift weaknesses to strengths and show an increase in perceived self-efficacy leading to improved self-confidence.

Collaboration: The individuals within CVAP could gain valuable experience working with other individuals for a common cause. It is anticipated that the collaboration experiences will foster collaborative learning through problem solving, achieving goals, and giving critical feedback.

Instructional Design/Lesson Planning: In the course of repeated interactions and the exchange of ideas through performance accomplishments, vicarious experiences (both internal and external), verbal persuasion, and emotional arousal it is possible that CVAP will develop self-confidence by means of perceived self-efficacy in the development process of lesson planning.

Performance/Delivery of Lessons: In the course of repeated interactions and the exchange of ideas through performance accomplishments, vicarious experiences (both
internal and external), verbal persuasion, and emotional arousal it is conceivable that CVAP has the potential to develop self-confidence by means of perceived self-efficacy in the delivery of lessons.

Time: It takes time to set up cameras and equipment within a classroom for the raw video recordings. In addition, it takes time to self-reflect and edit the videos for strengths and weaknesses. It is feasible that the more times the collaborative group goes through CVAP, the less time it will take to achieve the previously mentioned goals.

Processes

The process involves the vicarious experiences through self-reflection while editing the raw videos for perceived strengths and weaknesses and producing representative video vignettes that illustrate those strengths and weaknesses. Additionally, peer review sessions, in which the collaborative group will assess and critique each other’s vignettes, will provide feedback that can be measured through Bandura’s (1977) perceived self-efficacy model. For example, a participant in CVAP could be perceived by the other participants in the group or through individual self-reflection (internal and external vicarious experiences), to be talking too fast in their lesson delivery (performance accomplishments). The fast-talking could be due to anxiety and/or stress (emotional arousal).

It is conceivable that several events could take place. First, the individual could see through internal vicarious experience in the editing session that they are talking too fast. Second, the participants could see and identify this occurrence as well through external vicarious experiences in the peer review session. Once this problem is identified
it could or could not be discussed in the peer review session. If it is discussed, verbal persuasion by the other CVAP participants could help alleviate the anxiety and/or stress. The results or outputs would be seen in the next CVAP.

**Outputs**

The desired outputs are improved perceived self-efficacy leading to higher levels of self-confidence and can be seen through the outcomes of Bandura’s self-efficacy model. For example, in the scenario described above, fast-talking by a participant was hypothetically identified either through internal or external vicarious experiences. It is expected that the individual would take this information and approach the problem and be persistent in adjusting the performance the next time they deliver a lesson.

**Feedback**

The final construct of the CVAP technological system is feedback. Because the system is a looping entity, it is expected that the individual system will build upon itself for a more effective outcome (Hutchinson and Karsnitz, 1994) through internal and external feedback from Bandura’s (1977) perceived self-efficacy model (either positive or negative). In the case of the CVAP, the desired goals are perceived self-efficacy that will lead to increased self-confidence in the delivery and planning of lessons. The feedback is a constant element throughout CVAP. It is present throughout the inputs, processes, and outcomes and should play a prominent role regarding these constructs. For example, feedback from the peer review sessions could be expected to influence the outcome of perceived self-efficacy leading to improved self-confidence and thus internal feedback could influence individual self-efficacy beliefs inputs.
Chapter Summary

This research appeared to be beneficial to the three members of Team Gray in terms of increasing their perceived self-efficacy and confidence while reducing their uncertainties when planning and delivering lessons. It would be hard to predict how the collaborative video assessment process would work with the approximately seventy students that are part of a typical yearly MSaT program. However, the findings indicate that it has the potential to be successful on a larger scale than what was presented within this research. Total agreement to this claim is not expected. It is also not expected that everyone would like the process; that includes faculty and students. However, those who participated (Team Gray) and took surveys indicated that this type of process had potential. I outlined my recommendations from these opinions and insightful data.

It was emphasized that this research has many aspects that should be furthered. This chapter gave specific examples of what aspects were considered to be the most important attributes for additional research. Those include the proposal of CVAP.
REFERENCES


APPENDIX A

FRAMEWORK P-12 INITIAL PREPERATION PROGRAMS:

INSTITUTIONAL STANDARDS / CANDIDATE PROFECENCIES OF THE UNIT
Field Experience Competencies – Fall 2004 QUARTER

Intern: ____________________________

Date:____________________________

Mentor:___________________________          Supervisor:__________________________

Field Site:________________________

Directions: This rubric contains competencies organized into 5 categories. Within each category, there are competency statements followed by a continuum or a range of descriptors that relate to each competency statement. The left box contains statements that suggest improvement is needed. This is considered a rating of “1.” Moving towards the right, the level of competency increases, with the box at the far right representing a level of competency expected in experienced teachers. The far right box is considered a rating of “4.” You should carefully reflect on each of the descriptors under the competency statements. The intern’s current status is rated by placing an X along the continuum where the intern’s practice presently falls. An X placed inside a box indicates that the intern is satisfactorily performing at that level. An X may be placed closer to the right or left edge of a box to indicate more or less satisfactory achievement. An X may also be placed on the line between boxes indicating that the performance is higher than a level but not yet at the next level.

THE INTERN’S RESPONSIBILITIES

Beginning of quarter

1. Work with your mentor and supervisor to establish 4-6 goals for this quarter along with action plans for how you will accomplish the goals. State the goals and provide an action plan for each goal in the space provided on the last page of this document.

Throughout the quarter

1. Focus on established goals and frequently discuss the goals with your supervisor and mentor. These goals may be revised at any point in the quarter as long as you, your mentor, and your supervisor agree.

2. Gather evidence of progress on your goals, and for other items on the Competencies form.

End of quarter

1. For each of the competencies, rate yourself by placing an X in the appropriate spot along the continuum. Provide typewritten evidence to support your rating. This evidence might include direct quotes from observation notes or journal entries, written explanations, drawings, or comments made during observation conferences. If a specific lesson plan or activity is referenced, attach a copy of that lesson plan or activity.

2. An electronic copy of this document containing your typewritten ratings and evidence should be sent to your supervisor BEFORE the final conference. THE
FINAL CONFERENCE WILL BE POSTPONED UNTIL THIS STEP IS COMPLETED.

3. You, your mentor, and your supervisor will agree on a rating for each item during the final conference. Record the agreed upon rating for each competency on your completed form using a different color or marking. Give your mentor and supervisor for SPRING a copy of your completed document from SPRING showing your original ratings, the agreed upon ratings, your evidence, and the suggestions for future goals.

The mentor’s and supervisor’s responsibilities (see next page)

THE MENTOR’S AND SUPERVISOR’S RESPONSIBILITIES

Beginning of quarter
1. Help the intern establish 4-6 goals for the quarter. These goals should help the intern progress along the continuum for the items on which the intern will be evaluated. Help the intern make an action plan for how each goal will be accomplished.

Throughout the quarter
1. Assist the intern in making progress on their goals by providing specific feedback connected to the goals established for the quarter.
2. Goals may be revised at any point along the quarter as long as the intern, mentor, and supervisor agree on the change.

End of quarter
1. Before the final conference, thoughtfully rate the student’s current status on each of the indicated items by placing an X in the appropriate spot along the continuum. If there is an area you cannot rate, write NA. Please complete this based on your knowledge and not in collaboration with the intern.
2. If an intern has successfully mastered a competency, resulting in an X being marked in the box to the far right of the continuum, or if you have serious concerns regarding a particular competency, resulting in an X being placed in the far left box, please provide brief written comments to be used as feedback during the final conference. You may provide written comments for other competencies, but are not required to do so.
3. At the final conference, discuss how the intern, mentor, and supervisor rated the intern on each item. Reach group agreement on the intern’s status for each item. The intern is responsible for recording the agreed upon rating.
4. Supervisors only- Place copies of the intern’s, mentor’s, and supervisor’s completed forms in the intern’s folder. The intern should keep all originals.

Content and Instruction

C&I 1. Explains concepts and principles of content in a manner that is comprehensible to students.
| Substantial errors evident in content presentation | Minor content errors evident and/or content is incomprehensible to students | Content is accurate and comprehensible to most students | Content is correct, comprehensible, and presented in a manner which engages students of multiple learning styles and abilities |

Evidence/Comments:

| C&I 2. Communicates lesson objectives and procedures in a manner that is clear to students. |
| Lesson objectives and procedures are absent | Lesson objectives OR lesson procedures are clear, but not both | Lesson objectives AND procedures are clear | Lesson objectives AND procedures are clear and creative |

Evidence/Comments:

| Does not connect new content to previously taught lessons | Occasionally connects new content to previously taught lessons | Regularly connects new content to previously taught lessons and occasionally connects new content to future content | Consistently makes connections to past and future content, and places learning in real-life context involving other disciplines |

Evidence/Comments:

| C&I 4. Demonstrates and applies knowledge of national, state, and local standards in classroom practice. |
| Demonstrates a lack of knowledge about national, state, and local standards. | Follows the local or district curriculum regarding the content to teach, but fails to encourage students to extend their thinking in ways consistent with national standards. | Follows the local or district curriculum regarding the content to teach and occasionally encourages students to extend their thinking in ways consistent with national standards. | Follows the local or district curriculum regarding the content to teach and consistently encourages students to extend their thinking in ways consistent with national standards. |

**Evidence/Comments:**

| C&I 5. Uses technology and current technological developments to teach concepts. | Does not use technology to teach concepts, even when expectations to do so are made clear | Occasionally uses basic technology to teach concepts | Frequently meets district expectations for the implementation of technology | Exceeds district expectations for the implementation of technology |

**Evidence/Comments:**

| C&I 6. Paces lessons appropriately for students. | Rarely is the amount of time spent on activities appropriate for the given content and to the students; digressions do NOT serve a clear educational purpose | The amount of time spent on activities is occasionally appropriate; when digressions from the lesson occur, there is no clear educational purpose | The amount of time spent on activities is usually appropriate; digressions from the lesson occasionally serve a clear educational purpose | The amount of time spent on activities is appropriate for the given content and to the students; digressions serve a clear educational purpose |

**Evidence/Comments:**

**Planning and Preparation**

<p>| P&amp;P 1. Plans and creates coherent and meaningful lessons. |</p>
<table>
<thead>
<tr>
<th>Lessons are disorganized and show lack of thoughtful consideration</th>
<th>Lessons are planned OR organized, but not both</th>
<th>Lessons are well planned AND organized</th>
<th>Lessons are consistently well planned, organized, and anticipate student needs</th>
</tr>
</thead>
</table>

Evidence/Comments:

| P&P 2. Varies instructional resources and materials through the use of district curriculum, state and national standards, reliable websites and other types of resources. |
|---|---|---|---|
| Uses only the textbook and textbook supplementary materials when planning | Uses textbook and textbook supplementary materials when planning, and infrequently incorporates non-textbook resources | Uses textbook and textbook supplementary materials when planning, and regularly incorporates non-textbook resources | Consistently incorporates textbook materials, and non-textbook resources |

Evidence/Comments:

| P&P 3. Varies instructional methods to engage all learners. |
|---|---|---|---|
| No variation in instructional methods | Occasionally varies methods to accommodate struggling students, but usually follows an established pattern with regard to teaching methods | Regularly varies instructional methods to meet the learning goals and the needs of the students, paying special attention to struggling students | Consistently varies instructional methods to meet the learning goals and needs of all students and creates enthusiasm for learning |

Evidence/Comments:

Classroom Social Context and Environment

| CSC&E 1. Builds and maintains appropriate rapport with students. |
|---|---|---|---|
| Does not interact with students or makes inappropriate efforts | Interacts with students but maintains a distance and does not get to know the students, or has not established a respectful rapport | Establishes appropriate rapport with students that maintains a professional balance between authoritarian demeanor and friendship | Establishes appropriate rapport with students in and out of class and uses that rapport to benefit students’ school and life experiences |

Evidence/Comments:

| CSC&E 2. Creates and maintains a student-centered environment through the use of positive reinforcement, incorporation of students’ past experiences in the content area, and students’ personal interests. | Instruction is directed to one particular set of students without consideration of diverse learning needs | Instruction infrequently facilitates/encourages student engagement and participation of all students | Instruction regularly facilitates/encourages student engagement and participation of all students | Instruction consistently conveys that all students are important and their experiences and ideas are valuable and important throughout the learning process |

Evidence/Comments:

<p>| CSC&amp;E 3. Manages classroom discipline with respect and dignity. |</p>
<table>
<thead>
<tr>
<th>Does not anticipate potentially disruptive behavior and/or unable to resolve disruptive situations in ways that allow students to maintain their dignity</th>
<th>Unable to anticipate potentially disruptive situations, but can resolve situations when they occur in ways that allow students to maintain their dignity</th>
<th>Regularly recognizes potentially disruptive situations before they occur and quickly responds in ways that prevent disruptions, allowing students to maintain their dignity</th>
<th>Consistently recognizes and responds to potentially disruptive situations before they occur and is able to modify discipline measures to recognize individual needs of students</th>
</tr>
</thead>
</table>

Evidence/Comments

### CSC&E 4. Uses classroom rules effectively to maintain classroom discipline.

<table>
<thead>
<tr>
<th>Does not have established classroom rules, or does not follow rules established by mentor teacher</th>
<th>Has established rules (or has selected to use the mentor teacher’s established rules) but does not regularly enforce them</th>
<th>Has established rules (or has selected to use the mentor teacher’s established rules) and regularly enforces them</th>
<th>Has established rules (or has selected to use the mentor teacher’s established rules) that are regularly enforce but is able to make modifications as required in individual situations</th>
</tr>
</thead>
</table>

Evidence/Comments:

**Assessment and Evaluation**

### A&E 1. Provides timely and well-constructed feedback to students about progress.

<table>
<thead>
<tr>
<th>Does not provide timely feedback and the verbal or written feedback provided is not constructive to students</th>
<th>Provides timely feedback, but the verbal and written comments lack useful information for improvement</th>
<th>Provides timely feedback which often includes constructive comments</th>
<th>Provides timely feedback which allows the students to understand what they did well and how to improve in the future</th>
</tr>
</thead>
</table>

Evidence/Comments:

### A&E 2. Uses a variety of formal and informal assessments appropriate to the content.
| Uses only formal assessments or assessments that are not aligned with classroom instruction | Uses some formal and informal assessment techniques, but always uses the same methods | Uses a variety of formal and informal assessments and regularly varies the method of assessment to reflect the method of instruction | Consistently varies the method of assessment and is able to modify assessments to meet a variety of student needs |

Evidence/Comments:

| A&E 3. Communicates with parents or guardians about progress and student learning. | Demonstrates no awareness of the need to communicate with parents or guardians | Demonstrates an awareness of the need to communicate with parents or guardians but did not assist in or participate with the mentor in communicating about positive or negative progress | Occasionally assisted in or participated with the mentor in communicating with parents or guardians about negative or positive progress | Consistently uses a variety of methods to communicate with parents or guardians about student progress, both positive and negative |

Evidence/Comments:

| A&E 4. Maintains accurate records, attendance and grades. | Cannot immediately produce records of attendance or grades | Has a system for maintaining accurate records, but does not maintain updated records | Has a system for maintaining accurate records and does maintain updated records | Maintains updated records and regularly shares information with students and families |

Evidence/Comments:

| A&E 5. Utilizes a variety of sources to develop assessments. |
| Uses textbook publisher prepared assessments without modification | Uses textbook publisher prepared assessments but makes appropriate modifications | Develops original assessments using a variety of sources | Develops original assessments targeted to the needs of individual students |

Evidence/Comments:

**Reflection and Professionalism**

<table>
<thead>
<tr>
<th>R&amp;P 1. Reflects on personal classroom practice as evidenced in thoughtful journal writings, discussions with other professionals, changes in ways of thinking, and lesson modifications.</th>
</tr>
</thead>
<tbody>
<tr>
<td>Reflection results in no adjustments before, during, or after lessons</td>
</tr>
</tbody>
</table>

Evidence/Comments:

<table>
<thead>
<tr>
<th>R&amp;P 2. Builds relationships with peers, other teaching professionals and supervisors.</th>
</tr>
</thead>
<tbody>
<tr>
<td>Makes no effort to build professional relationships</td>
</tr>
</tbody>
</table>

Evidence/Comments:

| R&P 3. Uses classroom time effectively regarding non-instructional activities, such as taking attendance, collecting and returning work, distributing materials, and making announcements. |

273
| Spends large amounts of class time on activities that have little or no educational value | Occasionally minimizes the use of class time on non-instructional activities by using established routines and procedures | Regularly minimizes the use of class time on non-instructional activities by using established routines and procedures | Has efficient routines that are implemented effectively and are easily understood and used by the students |

Evidence/Comments:

R&P 4. Exhibits professional behaviors as defined by the following criteria:
- a) wears professional attire,
- b) is punctual in arrival,
- c) follows district and OSU requirements for absences,
- d) reflects on classroom practice through communication with mentor and supervisor

| Fulfills only one of the listed criteria | Fulfills two of the listed criteria | Fulfills three of the listed criteria | Fulfills all four of the listed criteria |

Evidence/Comments:

Goals for the current spring quarter

Additional written responses or comments

Suggestions for goals in the first year of teaching

Signatures

___________________________
Intern

___________________________
Mentor

___________________________
Supervisor
APPENDIX B

INTERNATIONAL TECHNOLOGY EDUCATION STANDARDS
Listing of STL Content Standards

The Nature of Technology
Standard 1. Students will develop an understanding of the characteristics and scope of technology.
Standard 2. Students will develop an understanding of the core concepts of technology.
Standard 3. Students will develop an understanding of the relationships among technologies and the connections between technology and other fields of study.

Technology and Society
Standard 4. Students will develop an understanding of the cultural, social, economic, and political effects of technology.
Standard 5. Students will develop an understanding of the effects of technology on the environment.
Standard 6. Students will develop an understanding of the role of society in the development and use of technology.
Standard 7. Students will develop an understanding of the influence of technology on history.

Design
Standard 8. Students will develop an understanding of the attributes of design.
Standard 9. Students will develop an understanding of engineering design.
Standard 10. Students will develop an understanding of the role of troubleshooting, research and development, invention and innovation, and experimentation in problem solving.

Abilities for a Technological World
Standard 11. Students will develop abilities to apply the design process.
Standard 12. Students will develop abilities to use and maintain technological products and systems.
Standard 13. Students will develop abilities to assess the impact of products and systems.

The Designed World
Standard 14. Students will develop an understanding of and be able to select and use medical technologies.
Standard 15. Students will develop an understanding of and be able to select and use agricultural and related biotechnologies.
Standard 16. Students will develop an understanding of and be able to select and use energy and power technologies.
Standard 17. Students will develop an understanding of and be able to select and use information and communication technologies.
Standard 18. Students will develop an understanding of and be able to select and use transportation technologies.
Standard 19. Students will develop an understanding of and be able to select and use manufacturing technologies.
Standard 20. Students will develop an understanding of and be able to select and use construction technologies.

* ITEA Standards Used By Permission
APPENDIX C

RESEARCH PARTICIPANT CONSENT FORM
Participant Participation Form

You have been selected to participate in a dissertation research project conducted by Dr. Paul E. Post and David W. White. You have been contacted in person by David W. White and a description was given regarding the research and how it will be conducted, in addition to your responsibilities and the research timeline.

By signing this document you agree to the following:

A) You will be as objective as possible when being interviewed or writing reflective documents.

B) You understand that extra work will be involved in addition to your normal coursework.

C) You understand that if and when you complete your part in the study you will be compensated in the form of less coursework or research credits.

D) You may drop out of the study at any time. If you drop out before the fifth week of the quarter, you will receive no credit. After the fifth week, you will receive partial credit to be determined by your advisor.

__________________________________
Participant                                      Date
APPENDIX D

HIGH SCHOOL CONSENT FORM
Dear Parent or Guardian,

Your child has been chosen to participate in a research project conducted by the Technology Education Program at The Ohio State University. The principal investigators for the research are Dr. Paul E. Post and David W. White, Graduate Teaching Associate.

The research involves videotape assessment of technology education student teachers. The student teacher is XXXXXXXXX, who is working with XXXXXXX in your child’s technology education class this year. The student teacher will be videotaping various lessons he will teach throughout a ten-week period. In addition, he will also be videotaping student reactions. The student reactions are necessary to assist the student teacher in the process of assessing their lessons.

Please be advised that this study has been approved by the Office of Responsible Research Practices at The Ohio State University, and approval can be confirmed by calling (614) 688-4792, and asking for: Research Protocol - 2004B0330 - The Influence of Collaborative Videotape Assessment on Pre-Service Technology Education Teachers. In addition, your school principal has approved this research.

The video will be used for academic purposes only and will become the property of the principal investigators and The Ohio State University and may be used for future academic publications. Your child’s name will not be disclosed in any form in this or future research concerning this study.

If you choose to decline this request, please be assured that your child will not be penalized in any way.

Thank you for your consideration.

Sincerely,

Paul E. Post                        David W. White

____ Yes I will allow my child to participate in this research.

Parent/Guardian Signature               Date

____ No I do not wish to have my child participate in this research
APPENDIX E

INITIAL AND FINAL REFLECTIVE QUESTIONNAIRES
Initial Reflective Paper

Instructions: Please write a reflective paper that includes your thoughts and feelings concerning the following four questions regarding your upcoming student teaching. Please explain your answers in detail, but do not spend more than two hours completing this paper.

1) Explain how confident you are in regard to preparing a lesson plan to be used in the school to which you are assigned.

2) Explain how confident you are in regard to being prepared to conduct a lesson to students in the school to which you are assigned.

3) Explain how confident you are that your prior quarter training was helpful in answering questions 1 and 2.

4) Explain how videotaping yourself teaching a lesson might be helpful in your student teaching experience.
Final Reflective Paper

Instructions: Please write a reflective paper that includes your thoughts and feelings concerning the following four questions regarding your student teaching. Please explain your answers in detail, but do not spend more than two hours completing this paper.

1) Explain how confident you are in regard to preparing a lesson plan(s) to be used in future student teaching.

2) Explain how confident you are in regard to being prepared to conduct a lesson to students in future student teaching.

3) Explain how confident you are regarding this quarter’s training in answering questions 1 and 2.

4) Explain how confident you are that videotaping yourself teaching a lesson will be helpful in your future student teaching.
APPENDIX F

TEAM GRAY PEER REVIEW POST INTERVIEW QUESTIONS
Team Gray Video Interview Questions

1 - How hard was it to videotape your lesson?

2 - What are your thoughts regarding the editing session?

3 - Do you feel the editing session will be beneficial to you for your next teaching experience?

4 - How hard was the editing session? Was it too time consuming?

5 - What are your thoughts about working in a group to edit your videos?

6 - What are your thoughts regarding the peer assessment session?

7 - Did your group partners experiences’ help you in any way?

8 - Do you have any other comments to make about this process?
Historically, video has been used as an assessment tool in the teaching and learning process of pre-service teachers in education. No research has been conducted to determine if video is being used to assist in the process of assessment of pre-service technology education teachers. Additionally, no research has been conducted in regard to videotaping a classroom setting in assisting the teaching and learning process of pre-service teachers in technology education. Furthermore, there is no research to explain the potential effectiveness that videotaping in a classroom setting may or may not have in a collaborative effort of pre-service technology education teachers to improve their teaching skills.

The purpose of this research is to determine if videotaping lessons within a collaborative group setting will help pre-service technology education teachers in their initial quarter of student teaching in terms of confidence with their teaching and the preparation and planning of lesson plans. In addition, the research explores the differentiation between the perceptions of the groups with regard to teaching strategies and the use of video. Finally, this research looks at the notion of the data assisting future pre-service technology education teachers.

Six pre-service technology education teachers agreed to participate in the research. Three pre-service technology education teachers were asked to form a collaborative group and three pre-service technology education teachers were asked to go through the program normally. Both groups wrote initial and final reflections in addition to forming a teaching strategy or strategies that might help future pre-service technology education teachers in their initial quarter of student teaching.

The collaborative group was asked to videotape themselves three times throughout the quarter in addition to participating in three editing sessions, three peer review sessions and three post peer review session interviews. In the editing sessions, the students were asked to find strengths and weaknesses within their individual taped lessons and produce short vignettes to be used in peer review sessions. During the peer review sessions the students watched each other’s videos and were allowed to stop the videos at any time to ask questions or give feedback.

The purpose of this survey is to determine the views of other students within the MSaT Program. The main focus is to obtain data from the Mathematics and Science cohorts.
Instructions:
Please watch the video provided. The video contains excerpts from three Peer Review Sessions and three Peer Review Session Post Interviews. The excerpts selected from the peer review sessions are typical representations of the full sessions. The excerpts from the post interviews are representative of the participant’s opinions throughout the project. After viewing the video, please fill out the survey attached. The video is approximately 35 minutes long.

Thank you for your participation in this research.

What is your program of study?  Mathematics  Science  Technology  (please circle)

After viewing the video do you feel being in a collaborative video group:

1) is something that you would have wanted to participate in your initial teaching?
   Yes  No  Not Sure

2) would have been beneficial to your initial teaching?
   Yes  No  Not Sure

3) would better prepare you for your initial teaching?
   Yes  No  Not Sure

4) would help build upon your future teaching?
   Yes  No  Not Sure

5) would bolster your confidence in regard to your initial teaching?
   Yes  No  Not Sure

6) would help you in the preparation of future lesson plans?
   Yes  No  Not Sure

Please print any comments you may have regarding this research and the video you viewed below.
APPENDIX H

FACULTY SURVEY
Historically, video has been used as an assessment tool in the teaching and learning process of pre-service teachers in education. However, no research has been conducted to determine if video is being used to assist in the process of assessment of pre-service technology education teachers. Additionally, there is no research to explain the potential effectiveness that videotaping in a classroom setting may or may not have in a collaborative effort of pre-service teachers to improve their teaching skills.

The purpose of this research is to determine if videotaping lessons within a collaborative or group setting will help pre-service teachers in their initial quarter of student teaching in terms of confidence with their teaching and the preparation and planning of lesson plans. In addition, the research explores the differentiation between the perceptions of two groups with regard to teaching strategies and the use of video. Finally, this research looks at the notion of the data assisting future pre-service technology education teachers.

Six pre-service technology education teachers agreed to participate in the research. Three pre-service technology education teachers were asked to form a collaborative group and three pre-service technology education teachers were asked to go through the MSaT M.Ed. program normally. Both groups wrote initial and final reflections in addition to forming a teaching strategy or strategies that might help future pre-service technology education teachers in their initial quarter of student teaching.

The collaborative group was asked to videotape themselves three times throughout the quarter in addition to participating in three editing sessions, three peer review sessions and three post peer review session interviews. In the editing sessions, the participants were asked to find what they perceived as strengths and weaknesses within their individual taped lessons and produce short vignettes to be used in peer review sessions. During the peer review sessions the students watched each other’s videos and were allowed to stop the videos at any time to ask questions or give feedback.

The purpose of this survey is to determine the views of faculty within the MSaT Program regarding this research in terms of their feelings regarding the concept of collaborative or Team assessment within the realm of videotaping lessons, participating in editing session to find strengths and weaknesses, and finally participating in peer review sessions.

It is assumed by the researcher that you as MSaT Faculty members have been exposed to video as an assessment tool. It is important that you remain as objective
as possible regarding the concept of this research and the dynamic of the collaborative and team concepts.

Instructions:
Please watch the video provided. The video contains excerpts from three Peer Review Sessions and three Peer Review Session Post Interviews. The excerpts selected from the peer review sessions are typical representations of the full sessions. The excerpts from the post interviews are representative of the participant’s opinions throughout the project. After viewing the video, please fill out the survey attached. The video is approximately 35 minutes long.

Thank you for your participation in this research.

What is your program of teaching? Mathematics  Science  Technology  (please circle)

Please rate your feelings regarding the following statements. Circle the number that best describes your feelings. 1 = strongly agree - 5 = strongly disagree.

Please base your responses only on the video you watched.

1) Collaborative video assessment would help improve field experiences.

<table>
<thead>
<tr>
<th>Strongly Agree</th>
<th>Agree</th>
<th>Neutral</th>
<th>Disagree</th>
<th>Strongly Disagree</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
<td>5</td>
</tr>
</tbody>
</table>

2) MSaT students would benefit from editing their videos to find strengths and weaknesses.

<table>
<thead>
<tr>
<th>Strongly Agree</th>
<th>Agree</th>
<th>Neutral</th>
<th>Disagree</th>
<th>Strongly Disagree</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
<td>5</td>
</tr>
</tbody>
</table>

3) MSaT students benefit more from written reflections based on memory than oral or written reflections on video in regard to their initial field experiences.

<table>
<thead>
<tr>
<th>Strongly Agree</th>
<th>Agree</th>
<th>Neutral</th>
<th>Disagree</th>
<th>Strongly Disagree</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>2</td>
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4) MSaT students would benefit more from self-assessment than collaborative assessment regarding video.

<table>
<thead>
<tr>
<th>Strongly Agree</th>
<th>Agree</th>
<th>Neutral</th>
<th>Disagree</th>
<th>Strongly Disagree</th>
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5) Collaborative video assessment would promote confidence in regard to initial student teaching.

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<tr>
<th>Strongly Agree</th>
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<th>Neutral</th>
<th>Disagree</th>
<th>Strongly Disagree</th>
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6) Collaborative video assessment would help in the preparation of future lesson plans.

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<tr>
<th>Strongly Agree</th>
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<th>Disagree</th>
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7) MSaT students should participate in collaborative video assessment in their initial quarter of field experience.

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<tr>
<th>Strongly Agree</th>
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<th>Disagree</th>
<th>Strongly Disagree</th>
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</table>
8) Collaborative video assessment is something a possible class should be dedicated to in the future.

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<tr>
<th>Strongly Agree</th>
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<th>Disagree</th>
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</table>

Your comments regarding this research are invaluable. Please provide any comments you feel are appropriate on this page. Again, thank you for your participation in this process.

Comments:
MATHEMATICS, SCIENCE, AND TECHNOLOGY EDUCATION
Syllabus for Field Experience
Expectations and Activities Handbook

I. RATIONALE FOR FIELD EXPERIENCE IN THE SCHOOLS

This is intended to be a summary of field experience responsibilities and expectations in preparation for student teaching. In this experience, it is expected that each student will develop in greater depth their beliefs and philosophy about teaching and learning, and will become familiar with the fundamental teaching skills. Each intern will have practical experience with various current teaching approaches, with their students using modern technology in the classroom, and with different assessment methods. The development of these skills will be monitored through self-evaluation, supervisor and mentor teacher evaluations. Interns will have opportunities to develop lesson plans, demonstrate professionalism, and show adaptability. Participation in a weekly seminar class will aid interns in their professional growth.

II. PROFESSIONALISM

While professionalism is a broad category, the intern should demonstrate it by: being on time and present every day of the field placement; acting in a professional manner in and out of the classroom (e.g. being professional when speaking to students about people, especially students, teachers, and administrators); responding appropriately to students, teachers, staff, and others; dressing appropriately in all schools (business casual attire); maintaining respect of students and teachers; respecting confidential records; and calling the supervisor and mentor teacher ASAP if it is absolutely necessary that a day be missed. The latest notification should be by 7:00 a.m.

III. FALL QUARTER FIELD EXPERIENCE

You will teach between five and ten full-class lessons during this experience. All of these do not have to be whole-class lessons, but they should last a full class period. Coordinate and plan them with your mentor teacher. You may include some team teaching experiences. Your experiences this quarter should include small-group instruction, tutoring, team teaching, lab instruction, and other instructional methods.

IV. WINTER QUARTER FIELD EXPERIENCE

You will teach on class five days a week for six weeks. Coordinate this time frame with your mentor teacher and supervisor. This teaching should include lessons you have
developed with technology and at least three different types of instruction (i.e. cooperative learning, group work, labs, demonstrations, etc. Lessons should be planned and conducted in agreement with the recommendations of NCTM Standards, Ohio's Academic Content Standards: K-12 Mathematics, Science: Ohio's Model Competency-Based Program, Standards for Technological Literacy and the course of study for the district of your field placement. Interns should demonstrate in their plans and their teaching an increasing awareness of and responsiveness to students' prior views, naïve preconceptions, and misconceptions. Instructional design should include an understanding of major concepts, ideas, processes, and relationships to other subjects. The involvement of inquiry, hands-on techniques, the use of technology, and the relationships to the students' life experiences are expected to be included in lessons. List the key points, examples, questions difficult parts, etc. of the lesson. Faculty, supervisors, and mentor teachers will also look for a variety of ways to engage different students and various assessment methods in the lessons.

Remember that you are involved in an integrated program. Whenever possible, plan lessons that integrate mathematics, science, and technology education concepts, skills, themes, etc. Minimum requirements are:

• **ALL INTERNS** need to teach **two lessons using technology** such as computers, Internet, graphing calculators, CBLs, or other instruments at the school or available through MSAT.

• **MATHEMATICS INTERNS** need to teach **at least one lesson** for the mathematics class they are teaching in which the major concepts, skills or topics are from or about science or technology education.

• **SCIENCE INTERNS** need to teach **at least one lesson** for the science class they are teaching in which the major concepts, skills or topics are from or about mathematics or technology education.

• **TECHNOLOGY EDUCATION INTERNS** need to teach **at least one lesson** for the technology education class they are teaching in which the major concepts, skills or topics are from or about mathematics or science.

V. SPRING QUARTER STUDENT TEACHING

You will **teach the mentor teacher's full daily schedule (including duties) for a minimum of six weeks**. Beginning the second week of the quarter phase in two classes, teach full load by week four, and phase out by week nine or ten. Special note: interns must be in schools for student teaching for ten full weeks. If the field school has a spring break which does not coincide with OSU's spring break, then student must begin student teaching during the OSU spring break. **Interns take off the week of the field school's spring break.** If science interns plan to take one the field geology courses during the
OSU break, they must request a field school having a break that coincides with OSU. Remember that the schedule of the field school is always followed, not that of OSU.

VI. ACTIVITIES, EXPERIENCES, AND EXPECTATIONS

Many of the experiences you will have during your field work will depend upon your interests. You are encouraged to get the most from your placements by learning as much as possible about the instructional techniques used by the teachers at the school; the formal and informal ways students are taught, advised, supported, viewed, and treated; available resources; administration of policies; the involvement of students, parents, and community members; the interactions of teachers with colleagues and others; the professional development and issues; and other factors in the daily lives of the teachers, students, parents, and staff that influence the teaching and learning at that school. Please see the appended checklists for specific activities and expectations for autumn, winter, and spring quarters.

VII. NOTEBOOK

Your notebook is a place to keep your "stuff." It should be organized so that your supervisor and mentor teacher can find things easily, and it should be up-to-date at all times. The notebook will be helpful during our first years of teaching, and will always be a record of your earliest teaching experiences. The binder minimally should include:

A. Lesson Plans

Any and all lesson plans are to be included in your notebook. Complete lesson plans are to be submitted to your supervisor and mentor teacher at least three school days before teaching. The initial plans most likely will change as you discuss them with your mentor teacher and supervisor. You may not teach without written lesson plans having been submitted to your mentor teacher and supervisor.

Please write the lesson plans in an acceptable format developed during the autumn quarter clinical seminar and include some form of assessment of what the students learned. The level of detail should be such that a substitute teacher or another intern with general knowledge about the content could teach the lesson. Be sure to include all handouts, visuals, etc. that are integral to the lesson.

After the lesson you should append to the plans notes about what happened, how you thought the lesson went, student misconceptions, and what you might do differently. These are critical to have for the next time you teach this lesson. Your notes also help mentor teachers and supervisors know that you are actually learning from the experiences of your practice teaching. Your evaluation will also be very helpful to colleagues with whom you share the lesson. By sharing lesson plans with your fellow interns, you will
help each intern to have a larger repertoire of lessons and useful resources for future use as teachers.

B. Lesson Feedback

You should include all written feedback from your mentor teacher and supervisor. Your supervisor will observe your teaching at least once per week for a full class period and leave a copy of the observation notes with you. The observation notes will contain positive comments, constructive criticisms, and thoughtful questions. Typically you will meet with your supervisor immediately after your teaching. If you can not meet with your supervisor after your lesson, your supervisor will arrange for feedback and discussion later the same day or the next day.

C. Resources

You should secure a variety of resources for your teaching such as other lesson plan ideas, articles, web sites, ENC, ERIC/CSMEE, or ORC materials, names of resource people, etc. This is for future references and may help you in your first year of teaching. Be sure to cite all references, resources and people who contributed to any lesson you create using APA style.

D. Intern Observation Notes

Within any professional setting, participants have differing views of conditions and of what are the best approaches for handling situations. Learn how to record, understand, reflect on, and discuss such differences. One way is briefly to note what you observed, to remark on how actions differed from your thinking, reading, classes, etc. and then to list alternatives, questions and points you would like to discuss.

Discuss with your supervisor how and when to note potentially sensitive matters. Remember that you and your supervisor can choose to talk privately about some issues.

E. Journal Responses

Writing about what you are learning will enhance your professional growth. The given journal prompts for each quarter are designed to help you transition from thinking about the classroom as a student, to thinking like a teacher.
Submit your week's journal response to your supervisor on a schedule agreed upon by you and your supervisor, probably by e-mail. You should expect your supervisor to respond to your submissions in a timely manner through e-mail or personal conversations. Journals will constitute a portion of your grade for your field experience.

They will be assessed by your supervisor using the following rubric:

**RUBRIC FOR JOURNAL RESPONSES**

**Excellent**

- written and submitted regularly in a timely manner
- evidences in-depth reflection and analysis
- represents growth throughout the quarter
- reveals extensive evidence of teaching philosophy in reflections
- completely addresses the given prompts

**Fair**

- usually done in a timely manner
- evidences some reflective thought
- records data and has limited reflections
- represents some growth
- mostly addresses the given prompts

**Poor**

- few entries are handed in
- no evidence of reflection
- contains mostly data recording
- professional growth not evident
- did not address the given prompts

**F. Professional Portfolio**

This topic will be discussed during the seminar class at the beginning of winter quarter. You should begin to collect items for your portfolio during your autumn quarter field experience. Items appropriate for the portfolio include photographs, videos, lessons, etc.

**VIII. INTERN-MENTOR TEACHER CONFERENCES**

You should meet with your mentor teacher for at least 10-15 minutes per day. Before school might be a good time for this. You should discuss plans for the day, observations from the day before, your lesson plans, and goals for the quarter, etc.
IX. WEEKLY SEMINAR

All interns are expected to attend and participate actively in the weekly seminar classes. These are held on Friday mornings during the autumn and on Friday in the early afternoons during winter quarter. Seminars are typically scheduled for late afternoons during the spring quarter. A major part of the seminars will be meetings between supervisors and their interns. Sometimes these group meetings will be arranged for alternative times and locations.

X. REQUIRED AND SUGGESTED READINGS

These materials will be distributed at various points during each quarter.

XI. EVALUATION FOR 884K23 FIELD EXPERIENCE FALL QUARTER

Course grades will be based on (listed in order of importance):

• progress in your teaching skills, knowledge, and responsibility (evidenced in observations, journals, and interactions) (approx. 30%)
• supervisor and mentor teacher evaluations (approx. 20%)
• journal responses (approx. 20%)
• lesson plans and other contents of your notebook (approx. 10%)
• engagement and satisfactory participation in placement-related activities (approx. 5%)
• fulfillment of other responsibilities, professionalism, and accomplishments of your internship (approx. 5%)
• participation in weekly supervisor group meeting (approx. 10%)

RUBRIC FOR EVIDENCING PROGRESS IN TEACHING

Excellent

• has shown marked progress in their selection and use of a variety of instructional strategies
• effectively communicated with students in an instructional setting
• demonstrated responsibility in working with students, having prepared lessons, grading, etc.
• has integrated technology, mathematics and science concepts into lessons

Satisfactory

• demonstrated effort and has shown some progress using a variety of instructional
strategies
• generally communicated effectively with students in instructional settings
  has shown responsibility in most work with students, usually having prepared lessons, etc.
• demonstrated some progress integrating technology, mathematics, and science concepts in lessons

Poor

• needs improvement in selecting and using a variety of instructional strategies
• needs to demonstrate effective communication with students in instructional settings
• continues to develop an acceptable level of responsibility in completing teacher tasks
• needs to integrate technology, mathematics, and science concepts in to lessons

RUBRIC FOR SUPERVISOR AND MENTOR TEACHER EVALUATIONS

Excellent

• is prompt with completion of required assignments
• received excellent remarks on relevant evaluations

Satisfactory

• is often prompt with completion of required assignments
• has generally received excellent remarks on relevant evaluations

Poor

• is remiss in the completion of required assignments
  • evaluations show many areas in need of improvement/attention
APPENDIX J

RESEARCH TIMELINE
RESEARCH TIMELINE

September 2004
• Initial Dissertation Proposal Committee Meeting
• Proposal Approval – Office of Responsible Research Practices (ORRP) Approval
• Data Collection

February 2005
• Data Analysis
• Start of Dissertation Draft

June 2005
• Full Dissertation draft due to advisor
• Application to graduate due to Graduate School
• First draft to Dissertation Committee Members

July 2005
• Second draft to Dissertation Committee Members

March 2006
• Dissertation defense/oral examination
• Oral examination form due to the Graduate School

May 2006
• Completed Dissertation due to Graduate School
• Final grades due to Graduate School

June 2006
• Graduation
APPENDIX K

INSTITUTIONAL REVIEW BOARD APPROVAL FORM
RESEARCH INVOLVING HUMAN SUBJECTS
THE OHIO STATE UNIVERSITY

ACTION OF THE REVIEW BOARD

Research Protocol:

200430030 THE INFLUENCE OF COLLABORATIVE VIDEOTAPE ASSESSMENT ON PRE-
SERVICE TECHNOLOGY EDUCATION TEACHERS, Paul E. Post, David W.
White, School of Teaching and Learning

presented for review by the Behavioral/Social Sciences Institutional Review Board to ensure the
proper protection of rights and welfare of the individuals involved with consideration of the
methods used to obtain informed consent and the justification of risks in terms of potential benefits
to be gained.

The protocol was APPROVED.

Approval for proposed research includes all materials submitted by the investigator unless
otherwise noted.

It is the responsibility of the principal investigator to retain a copy of each signed
consent form for at least three (3) years beyond the termination of the subject's
participation in the proposed activity. Should the principal investigator leave the
University, signed consent forms are to be transferred to the Behavioral and Social
Sciences Institutional Review Board for the required retention period. This
application has been approved for a period of not more than one year. You are
reminded that you must promptly report any problems to the Review Board, and that
no procedural changes may be made without prior review and approval. You are
also reminded that the identity of the research participants must be kept confidential.

Date:   October 1, 2004    Signed   ________________________
Chairperson