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# Understanding the Use of Video Analysis Tools to Facilitate Reflection among Preservice Teachers

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UNDERSTANDING THE USE OF VIDEO ANALYSIS TOOLS TO FACILITATE  
REFLECTION AMONG PRE-SERVICE TEACHERS

by

Tonya R. Tripp

A thesis submitted to the faculty of  
Brigham Young University  
in partial fulfillment of the requirements for the degree of

Master of Science

Department of Instructional Psychology & Technology  
Brigham Young University

April 2009

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BRIGHAM YOUNG UNIVERSITY

GRADUATE COMMITTEE APPROVAL

of a thesis submitted by

Tonya R. Tripp

This thesis has been read by each member of the following graduate committee and by majority vote has been found to be satisfactory.

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As chair of the candidate's graduate committee, I have read the dissertation of Tonya R. Tripp in its final form and have found that (1) its format, citations, and bibliographical style are consistent and acceptable and fulfill university and department style requirements; (2) its illustrative materials including figures, tables, and charts are in place; and (3) the final manuscript is satisfactory to the graduate committee and is ready for submission to the university library.

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## ABSTRACT

UNDERSTANDING THE USE OF VIDEO ANALYSIS TOOLS TO FACILITATE  
REFLECTION AMONG PRE-SERVICE TEACHERS

Tonya R. Tripp

Department of Instructional Psychology

Master of Science

Research states that reflection is the foundation for improved teaching (Dewey, 1933). As a result, educators have used many methods to facilitate teacher reflections. Some of these methods include keeping reflective journals, conducting peer teaching sessions, providing written feedback, giving lesson critiques, conducting action research projects, and using reflective conferences (Cook, Young & Evenson, 2001). As video has become more accessible, educators have also become interested in using video analysis tools to facilitate teacher reflections. However, very little has been published on how the use of video analysis tools influences teacher reflections. If reflection is the foundation for improved teaching, it is important for educators and researchers to understand how the use of these tools impacts teacher reflections. Therefore, the focus of this study was to understand the experience of a supervisor and student teacher as they used a video analysis tool to reflect on teaching. The researcher included thick descriptions of participants' experiences, so researchers and educators interested in using video analysis tools to facilitate reflection will be able to transfer the findings to their individual circumstances.

This study compared a student teacher's experience reflecting with a video analysis tool to her experience participating in her department's traditional reflection method, which was a post-lesson conference with her supervisor. The researcher investigated how these reflection methods influenced the student teacher's ability to collect data about her teaching, make judgments about her teaching, design intervention plans for future teaching situations, and evaluate her intervention plans. The participants indicated that both video analysis and the traditional reflection method were beneficial for reflection. Although both methods were beneficial, the student teacher felt that using video analysis to reflect was more useful than the department's traditional reflection method for helping her understand the changes she wanted to make in her teaching. The student teacher felt that video analysis was more useful than the traditional reflection method because it allowed her to notice things that she did not remember or attend to during her lesson, it helped her focus her reflections on specific aspects of her teaching, and the video clips provided evidence to support her discussions with her supervisor.

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## CHAPTER 1: INTRODUCTION

### Background

As video has become more accessible, its use for reflection in teacher education has increased. Recently, several universities have developed video analysis tools that make it easier for teachers to analyze and share their teaching videos. However, few studies have been published about how the use of these tools influences teacher reflections. This study addresses this issue by comparing a student teacher's experience reflecting with and without the use of a video analysis tool.

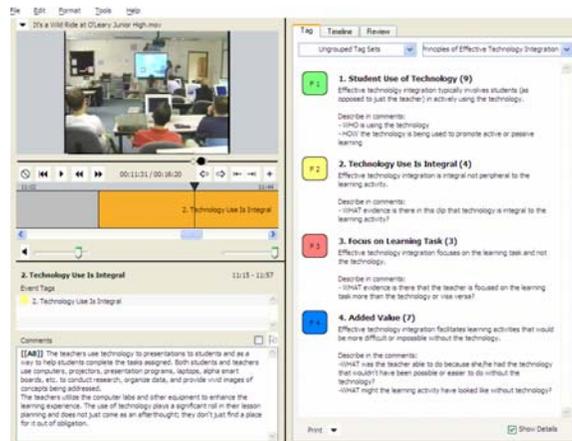
There are six chapters in this thesis. Chapter one explains the problem and purpose for this study. Chapter two includes a literature review about the use of video for teacher reflection, provides suggestions for future research, and states the research questions for this study. Chapter three provides a detailed description of the research design. Chapter four reports the findings to each of the research questions. Chapter five discusses how the findings of this study relate to past research. Chapter 6 is an article that will be submitted to a journal for publication.

### Problem

Past studies have claimed that reflection is necessary for instructors to improve their teaching (Dewey, 1933). One method that has been used increasingly to improve teacher reflections is for instructors to video themselves teaching and then analyze their teaching experience as they view the video. Recently several universities have developed video analysis tools that make the process of viewing, analyzing, and sharing videos easier for instructors. For example, Stanford University developed a tool called DIVER which allows users to zoom in on specific subjects or events in the video, capture a clip,



Media Notes was initially designed by the Center for Teaching and Learning at Brigham Young University and was later outsourced to a software company called BlueMango Learning Group. Media Notes was conceptualized by faculty in BYU Law School who wanted to find a way to help students reflect on and improve their interviewing skills. Figure 2 shows a screenshot of Media Notes with a video clip of a master teacher using technology in her teaching.



*Figure 2.* Media Notes being used by students to code and annotate video examples of master teachers teaching with technology.

Although teachers at many universities have used video analysis tools to reflect on their teaching, there has been very little published on how the use of these tools influences teacher reflections. If improved teaching can result from improved reflection, then it is essential for educators and researchers to understand how the use of video analysis tools influences teacher reflections.

### Purpose

The purpose of this study was to understand how the use of a video analysis tool affects teacher reflections. The researcher compared the experience of a student teacher as she reflected both with and without a video analysis tool. Throughout the study, the

researcher tried to understand how the student teacher's use of the video analysis tool, Media Notes, influenced her ability to collect data about her teaching, make judgments about her teaching, develop intervention plans for future teaching situations, and evaluate the interventions. Listed below is the primary research question followed by four sub-questions that were investigated.

#### Research Questions

1. How does the use of video analysis tools influence student teachers' reflections?
  - a. How does the traditional method for collecting data about student teaching compare to using video analysis to collect data about teaching?
  - b. How does the use of video analysis influence the judgments that are made about the student teacher's performance?
  - c. How does the use of video analysis influence the intervention plans that are designed for future teaching situations?
  - d. How does the use of video analysis influence the evaluations of the intervention plans?

The results of this study have the potential to help researchers and educators understand how video analysis tools can be used to help instructors improve their reflections and consequently their teaching.

## CHAPTER 2: LITERATURE REVIEW

As video has become more accessible, its use for promoting reflection among teachers has increased. Consequently, there has been an increase in research studies focused on the impact of video on teachers' abilities to reflect on their teaching. Therefore, it is important for researchers and educators in this field to understand the findings and issues that were raised in past studies that examined the effects of teachers using video to facilitate reflection, as well as relevant issues that have not been addressed by previous studies. The following section analyzes characteristics that varied across past research studies, summarizes the findings and unaddressed issues in the studies, and provides suggestions for future research.

### Analysis of Past Studies

There are many characteristics that varied across past research studies, such as the type of reflection tasks, the length of the videos used for reflection, the number of times the teachers reflected on their teaching, how the reflection was facilitated, and whether the teachers reflected individually or collaboratively.

#### *Video Reflection Tasks*

Teachers were asked to participate in several tasks during or after viewing their teaching on video. These tasks included completing codes or checklists, participating in interviews or conferences, writing reflections, and video editing. This section explains how these tasks were used in the studies and summarizes the outcomes.

*Code/checklist.* Struyk and McCoy (1993) and Schmidt and McCutcheon (as cited in Wang & Hartley, 2003) used codes or checklists to help facilitate the teachers' video reflections. In Struyk and McCoy, teachers coded the number of times certain behaviors

occurred as they watched their video. In Schmidt and McCutcheon, pre-service teachers used a classroom procedures evaluation form and an adjective checklist to assess their teaching.

Struyk and McCoy concluded that using the self evaluation instrument with video reflections helped the teachers improve their weaknesses and build their strengths. However, these studies did not examine why coding sheets and checklists helped the teachers improve their teaching, what the teachers and mentors perceived to be beneficial about using coding sheets and checklists, or what teachers and mentors felt was the optimal number of categories to code during a video reflection.

*Interviews/conferences.* Many of the studies provided an opportunity for teachers to discuss their video in an interview or conference session. For example, participants in the studies conducted by Byra (1996), Grainger (2004), Miyata (2002), Deasy, Heitzenroder, Wienkee, and Bloom (as cited in Wang & Hartley, 2003), Kpanja (2001), and Thomson (1992) had a conference with their supervisors. Although Byra did not comment about the effects of the video discussions with supervisors, Grainger and Miyata concluded that optimal learning occurred when teachers were given the opportunity to watch and discuss their teaching with their supervisors, and the teachers in Deasy et al. reported that video based feedback was more helpful than evaluations without video feedback. Additionally, Kpanja and Thomson concluded that teachers who received video feedback on their teaching performed equally or better than those who received feedback without video.

Participants in the studies by Meade and McMeniman (1992) and Powell (2005) met with the researchers to talk about their teaching videos. Both studies concluded that

using video stimulated discussions helped reveal teachers' implicit knowledge and assumptions about teaching

Collins, Cook-Cottone, Robinson, and Sullivan's participants selected three other students to view their video and offer suggestions (2004). The study did not comment on the effects of discussing the video cases with peers.

Participants in Storeygard and Fox (1995), Sherin and van Es (2002), and Griswold (2004) met with colleagues to view and reflect on their videos. Although Storeygard (1995) did not discuss the effects of conferencing with colleagues, Sherin and van Es (2002) analyzed the teachers' discussions and discovered that the focus of the teachers' comments shifted from the teacher to student thinking. They also noticed that teachers focused more on interpreting what occurred in the class rather than evaluating it. Griswold (2004) concluded that sharing in groups was an important aspect of professional development because participants rated the group study sessions as more valuable than the other variables (peer review, self-assessment, self-assessment questionnaire) that were included in the study, and as a result of the group discussions, several teachers made changes in their practice.

Pailliotet (1995) and Schmidt and McCutcheon (as cited in Wang & Hartley, 2003) assigned a class of pre-service teachers to assist the participants in analyzing their performance. Pailliotet commented that pre-service teachers noticed things about their teaching that they had never noticed before. Schmidt and McCutcheon reported that the video feedback was effective at helping the pre-service teachers evaluate their teaching.

Participants in Sharpe et al. (2003) met with their supervisors and peers over the internet to watch and discuss their lessons. The feedback questionnaires revealed that the teachers valued being able to discuss their videos with their peers and supervisors.

Almost all of the studies seemed to indicate that using interviews or conferences to reflect on teaching videos was beneficial for the teachers. However, there were very few studies that investigated why the teachers felt that it was beneficial to discuss their videos. Additional research is needed to understand how teachers can use video analysis tools to share and discuss their teaching. Researchers should consider investigating what teachers perceive to be the benefits of discussing their videos with others and how frequently the teachers would like to discuss their teaching videos.

*Written reflections.* Many of the studies asked teachers to complete written reflections during or after viewing their videos. The written reflections included reflection notes, essays, questionnaires, and journal writings.

Participants in Collins et al. (2004) reviewed their video and made notes for improvement, and Jensen (1994) asked participants to complete sentence stems to describe their performance. Overall, the participants in Collins et al. had a favorable response to the activity. Jensen did not state whether the written video reflection was effective, but the participants reported that they had a difficult time consistently recognizing their strengths and weaknesses. Jensen also concluded that the teachers were more reflective and realistic about their teaching skills when the reflection was focused.

Participants in the studies by Halter (2006), Sherin and van Es (2002), and Stradler (2003) wrote reflective essays after viewing their performance on video. Halter concluded that there was not a significant difference in the type of reflective writing

between the teachers that used video to write their reflective essays and the teachers that wrote their essays without watching their teaching on video. However, Sherin and van Es compared the quality of essays throughout their study, and the results revealed that the teachers' focus shifted from evaluating their performance to interpreting their performance, and they became better at basing their interpretations on specific video clips. Stradler did not discuss the usefulness of writing essays, but stated that the quality of the teachers' reflective papers improved.

Griswold (2004) asked participants to record their thoughts, ideas, or plans in a journal, and participants in Storeygard and Fox (1995) also documented their experiences in a journal. Neither study examined or discussed the effectiveness of using a journal for reflection.

Byra (1996), Miyata (2002), and Griswold (2004) asked teachers to respond to a series of questions. In Griswold's study, 95 percent of the participants discovered one new thing about their teaching during the reflection process. Though, it was not clear if this was a result of the written video reflections or other reflection tasks. Teachers in Miyata's study indicated that watching and discussing their teaching with their supervisors was more beneficial than the written reflections.

Although some of the studies indicated that the written video reflections were useful, a couple of studies revealed that the teachers valued reflecting with their supervisors more than the written reflections. This might indicate that written reflection cannot replace opportunities for discussion.

Future research should investigate what the teachers and mentors perceive to be beneficial about written video reflections, the type of comments teachers write about their

teaching, and how teachers and mentors use the written comments during their conferences or discussions.

*Video editing.* Cunningham and Benedetto (2002), Collins et al. (2004), Nicol and Crespo (2004), Spurgeon and Bowen (2002), Warden (2004) and Preston, Campbell, Ginsburg, Sommer, and Moretti (2005) asked their participants to use digital editing during their reflections. Cunningham and Benedetto's participants used digital editing to reflect and show their growth. The teachers felt that video editing helped them pay attention to the details in their teaching. However, the results showed that the teachers spent more time selecting clips than reflecting on the clips. The researchers commented that the process was time consuming and that the teachers needed additional training in reflection and evaluation because they were still in the process of developing their critical reflection skills.

Participants in Collins et al. (2004) and Nicol and Crespo (2004) created case studies of their teaching. Nicol and Crespo felt that video editing allowed their participant to sensitize herself to what she wanted to attend to.

Participants in Spurgeon and Bowen (2002), Warden (2004), and Preston et al. (2005) clipped segments of their video to serve as evidence in their written reflections. Spurgeon & Bowen concluded that there was not a significant difference in the reflections that were written by teachers who used video to reflect and teachers who wrote their reflections without video. Spurgeon & Bowen still believed that pre-service teachers will become more critical by watching and including video in their essays and that over a longer period of time the teachers will become better at clipping videos to show their teaching abilities. Spurgeon and Bowen attributed the lack of significant

difference to the varying amount of reflection training that teachers received from their instructors. Warden analyzed teachers' perceptions of their ability to reflect and concluded that there was no significant difference between the teachers that participated in video editing and the teachers that reflected without video. Warden concluded that even a small amount of time teaching in a classroom and reflecting on practice can affect teachers' perceptions of their ability to reflect.

The studies did not conclude that there was a significant difference in teachers' written reflection comments or perceptions of their ability to reflect when they used video editing to support their reflections. Several studies also raised the issue about the amount of time that it took the teachers to learn how to edit their videos.

To summarize, teachers have been asked to do a variety of tasks related to their teaching videos. Many of the studies indicated that these tasks were beneficial, yet very few studies examined what teachers and mentors perceived to be beneficial about the tasks.

### *Length of Videos*

The length of the videos used for reflection varied among the studies. Participants in Sharpe et al. (2003) used a 3 minute video segment to reflect with a group over the internet. Other studies (Sherin & van Es, 2002; Powell, 2005; Griswold, 2004; and Collins et al., 2004) asked participants to clip video segments between 3 and 15 minutes to share with supervisors, colleagues, or peers. Some studies (Grainger, 2004; Kapanja, 2001; Koorland et al., 1992; Halter, 2006; and Pailliotet, 1995) asked participants to watch their whole lesson individually or with a supervisor.

None of the studies investigated how the length of the video influenced reflection. However, seventy five percent of the participants in Sharpe's study thought that the length of the video that was used for reflection should have been longer. Pailliotet (1995) felt that the process of viewing an entire video was time consuming and stated that it was impossible to complete a deep viewing session with each student. Additional research is still needed to determine how the length of the video influences teachers' reflections.

### *Number of Reflections*

The number of times teachers reflected on their performance varied among the studies. Participants in Collins et al. (2004), Koorland et al. (1985), Nicol and Crespo (2004), Pailliotet (1995), Powell (2005), Preston et al. (2005), Sharpe et al. (2003), Thomson (1992), and Warden (2004) viewed their video once. Byra (1996), Griswold (2004), Halter (2006), Jensen (1994), and Miyata (2002) asked participants to view their performance two or three times. Participants in Storeygard and Fox (1995) and Sherin and van Es (2002) asked their participants view their videos more than 3 times.

Although the studies did not compare the number of times that the teachers reflected, some of the studies indicated that viewing a video multiple times was helpful. Half the participants in Sharpe et al. (2003) felt that viewing the same video before and after the conference would have been valuable. The participant in Storeygard and Fox (1995) reported that she gained new insights every time she viewed her video.

### *Reflection Facilitation*

*Personal choice.* Several researchers allowed the participants to choose the focus of their reflection. Teachers in Nicol and Crespo (2004) chose the questions they wanted to explore, and participants in Sharpe et al. (2003) were allowed to choose what points

they wanted to talk about at the end of their reflection. Teachers in Spurgeon & Bowen (2002) selected the competency that they wanted to evaluate, and the teachers in Storeygard and Fox (1995) chose the topic they wanted the group to help them examine. Nicol and Crespo felt that allowing the participants to choose their own focus facilitated the participants' abilities to investigate their teaching. Sharpe et al., on the other hand, felt that teachers should be given something to focus their attention.

*Supervisor guided.* The majority of researchers (Byra, 1996; Grainger, 2004; Griswold, 2004; Halter, 2006; Jensen, 1994; Meade & McMeniman, 1992; Miyata, 2002; Pailliotet, 1995; Powell, 2005; Preston et al., 2005; Sharpe et al., 2005, Sherin & van Es, 2002; Struyk et al., 1993; Thomson, 1992; Warden 2006) guided the teachers' reflections by providing questions or comments for the teachers to respond to or by providing reflection instruments, such as checklists, coding sheets, rating scales, etc. See Appendix A for a complete list of reflection guidelines.

Collins et al. (2004) and Miyata (2002) concluded that teachers need to be trained in the process of reflection and need to be provided with a systematic set of procedures to guide their reflection. The studies did not discuss how much guidance should be given to the teachers or whether the amount of guidance depends on the purpose of the reflection. Future research may consider investigating how much guidance teachers want to be given as they participate in video reflections.

### *Types of reflection*

*Individual reflection.* Participants in Preston et al. (2005), Halter (2006), Spurgeon and Bowen (2002), and Struyk and McCoy (1993) individually reflected on their teaching by writing reflective essays, coding, or clipping segments and attaching

reflection comments. While most of the studies did not indicate whether the participants or researchers felt that reflecting alone was beneficial, the participants in Halter's study preferred feedback from their mentors or supervisors to reflecting on their own. They perceived that their mentors and supervisors were more qualified to give feedback, and they trusted their supervisors' opinions more than their own.

*Collaborative reflection.* Several studies (Grainger, 2004; Kapanja, 2001; Koorland et al., 1985; Meade & McMeniman, 1992; Sharpe et al., 2003; Storeygard & Fox, 1995; Thomson, 1992; and Wang & Hartley, 2003) asked participants to reflect collaboratively with supervisors, researchers, colleagues, and/or peers. Most of the studies did not comment about the effect of using collaborative video reflections, but the teachers in Sharpe et al. indicated that it was beneficial for them to be able to discuss their videos with their peers. Similarly, the teachers in Thomson (1992) felt that viewing and discussing their videos with a supervisor resulted in optimum learning. Grainger concluded that allowing teachers to view and discuss their teaching was the best way to access knowledge about what was influencing the teachers' actions.

*Combined individual and collaborative reflection.* Some of the studies included both collaborative and individual reflections. Participants in Griswold (2004), Collins et al. (2004), Sherin and van Es (2002), and Powell (2005) reviewed their videos and chose segments to reflect on with others, and teachers in Nicol and Crespo (2004) reviewed their videos and created a video case to share and discuss with their peers. Warden (2004) asked the teachers to clip segments of their video that reflected how they met specific teaching criteria, and then mid-way through the semester, the teachers met with their supervisors to discuss their teaching. In Byra (1996), participants had a conference

with their supervisor after each of their lessons. Following the conference, the teachers watched their lesson on video and wrote a summary and critique of their lesson. None of the studies commented on the benefits of using both individual and collaborative reflection.

Most of the studies concluded that it was beneficial for teachers to discuss their reflection with others, and some of the pre-service teachers indicated that they preferred to reflect with their supervisors because they trust their opinions more than their own. The studies did not investigate whether it was more beneficial to use both individual and collaborative reflection.

To summarize, there have been many research studies conducted which examined the impact of using video to support teacher reflection. The studies applied different strategies for having teachers reflect on their teaching videos, and most of the studies reported that the strategies were beneficial for facilitating reflection. However, few studies actually focused on understanding what the teachers and mentors perceived as beneficial.

#### *Impact of Video Analysis Tools on Reflection Characteristics*

Video analysis tools will influence how the characteristics that varied across past studies can be used in future studies.

*Coding sheets.* Coding sheets and checklists are easy to use with video analysis tools. Users can insert the categories from checklists or coding sheets into the software program as coding tags. Then users can drag these tags over their video to code specific segments in their teaching, and the program will save the coded segments.

*Conferences/Interviews.* Although the studies recognized several benefits of discussing teaching videos with others, some of the mentors indicated that it was time consuming to review entire videos with their students. One of the affordances of video analysis tools is that they allow users to clip segments of their video and package and export the clips. Rather than requiring someone else to watch the whole video, teachers can share the pertinent segments of their teaching videos.

*Written comments.* Video analysis tools allow users to attach written comments to video clips. Users can tag a segment in the video and immediately add written comments that can be saved and exported with the clip.

*Video Editing.* Several studies raised the issue about the amount of time that it took the teachers to learn how to edit their videos. However, teachers do not need to possess video editing skills to use video analysis tools. The user simply marks a segment of video, and the program packages and exports the clips without any editing on the part of the user.

*Number of reflections.* Several teachers indicated that it would be beneficial to review their teaching video multiple times. Video analysis tools make it easy for teachers to view their video multiple times in order to focus on different aspects of their teaching. Teachers can reset the coding tags to identify and mark different principles in the same video.

*Types of reflection.* Video analysis tools make it easier to reflect both individually and collaboratively. Teachers can reflect on their own and then export clips and comments to share and discuss with others.

Video analysis tools will impact how the characteristics that varied across past studies can be used in future studies. Although several universities are starting to use video analysis tools to help teachers reflect on their teaching, most research findings have been presented at educational conferences rather than published in journals. This makes it difficult for educators to access the findings of research that is focused on video analysis.

### Summary of Literature

The following section summarizes the results of research studies that used video to help teachers reflect:

1. Some studies indicated that teachers can strengthen their teaching skills by coding videos of their teaching. None of the studies investigated why coding videos helped teachers improve their teaching skills.
2. Teachers valued opportunities to discuss their videos with others. Pre-service teachers especially appreciated feedback from their supervisors because they trusted their supervisor's opinions more than their own. Past studies did not examine why teachers valued opportunities to discuss their videos.
3. Even though the teachers valued reflecting with their supervisors more than using written reflections, the teachers still felt that written reflections were useful for helping them reflect on their teaching. The studies did not investigate why the teachers or mentors felt that written reflections were useful or how written comments can be used to facilitate reflection.
4. The studies reported mixed conclusions about whether teachers should choose their own focus for video reflections or whether mentors should help focus the

- teachers' reflections. None of the studies discussed how much guidance teachers wanted from their mentors or whether the amount of guidance depends on the purpose of the reflection.
5. Video analysis tools are gaining popularity at many universities, but very few studies have been published about how the use of these tools influence teachers' abilities to reflect.

### Research Suggestions From Literature

A review of past research reveals two major holes that future research should investigate:

1. Why do teachers consider reflection tasks, such as coding, discussing, and writing about teaching videos to be beneficial?
2. How does the use of video analysis tools influence teachers' abilities to reflect on their teaching?

### Thesis Project

The primary focus of this study was to address recommendation number 2 from the list of suggestions for future research: understand how the use of video analysis tools influences teachers' abilities to reflect.

Research states that reflection is the foundation for improved teaching (Dewey, 1933). As a result, educators have used many methods to facilitate teacher reflections. Some of these methods include keeping reflective journals, conducting peer teaching sessions, providing written feedback, giving lesson critiques, conducting action research projects, and using reflective conferences (Cook, Young & Evenson, 2001). As video has become more accessible, educators have also become interested in using video

analysis tools to facilitate teacher reflections. However, very little has been published on how the use of video analysis tools influences teacher reflections. If reflection is the foundation for improved teaching, it is important for educators and researchers to understand how the use of video analysis tools influences teacher reflections. Therefore, the focus of this study was to understand the experience of a supervisor and student teacher as they used a video analysis tool to reflect on teaching. The researcher included thick descriptions of participants' the experiences, so researchers and educators interested in using video analysis tools to facilitate reflection will be able to transfer the findings to their individual circumstances.

In order for readers to understand the impact of using video analysis on the student teacher's ability to reflect, it is important to clarify how reflection was defined in this study. John Dewey (1933) was first to define teacher reflection. He described it as "active, persistent, and careful consideration of belief or supposed form of knowledge in the light of the grounds that support it and the further conclusions to which it ends" (p. 9). Since Dewey many educators and researchers developed their own definitions of reflection. The following list of additional prominent definitions was constructed by Taggart and Wilson (1998, p. 18):

1. Reflective learning is problem raising and problem solving. Fact gathering is combined with deductive processes to construct, elaborate and test hypothesis (Bigge & Shermis, 1992).
2. [Reflective thinking is] our attempts to understand and make sense of the world (Brubacher, Case, & Reagan, 1994, p. 9).

3. Reflection...refers to the capacity of a teacher to think creatively, imaginatively and at times, self critically about classroom practice (Lasley, 1992).
4. [Reflective thinking is] a disciplined inquiry into the motives, methods, materials, and consequences of educational practice. It enables practitioners to thoughtfully examine conditions and attitudes which impede or enhance student achievement (Norton, 1994, p. 139).
5. [Reflective thinking is] a way of thinking about educational matters that involves the ability to make rational choices and to assume responsibility for those choices (Ross, 1989, p. 22).
6. [Reflective thinking is] a process involving decision-making in a socio-political context, identification of problems, a search for satisfactory answers, and investigation of social problems realized in living (Ross & Hannay, 1986)
7. Reflection includes framing the problem of the situation, determining the features that will be attended to, deciding the order that will be imposed on the situation, and deciding how to change the situation (Schön, 1983, p. 151).

Based on these varying definitions of reflection, Taggart and Wilson (1998) developed their own model for promoting teacher reflection. The basic steps include (1) observing and gathering data about teaching, (2) making judgments about teaching, (3) designing an intervention plan, and (4) evaluating the intervention.

This study used these steps to investigate how the use of the video analysis tool, Media Notes, influenced teacher reflections. During the study the researcher examined the experience of a faculty member from the Teaching and Technology department at

Brigham Young University and his student teacher as they used a video analysis tool to reflect on teaching. The researcher tried to understand how the teacher's use of Media Notes influenced her ability to collect data about her teaching, make judgments about her teaching, develop intervention plans for future teaching situations, and evaluate the interventions. Listed below is the primary research question followed by four sub-questions that were investigated.

1. How does the use of video analysis tools influence student teachers' reflections?
  - a. How does the traditional method for collecting data about student teaching compare to using video analysis to collect data about teaching?
  - b. How does the use of video analysis influence the judgments that are made about the student teacher's performance?
  - c. How does the use of video analysis influence the intervention plans that are designed for future teaching situations?
  - d. How does the use of video analysis influence the evaluations of the intervention plans?

## CHAPTER 3: METHOD

### Rationale

The researcher used a case study approach for this project. Stake (1995) described case studies as “the study of the particularity and complexity of a single case, coming to understand its activity within important circumstances” (p. xi). This research focused on understanding the experience of a student teacher and a faculty member who used a video analysis tool to reflect on teaching.

A case study approach was appropriate for this research project because it allowed the researcher to focus her efforts on understanding the depth of a single case where a student teacher and supervisor used a video analysis tool to reflect on teaching. The researcher included rich descriptions of the participants’ experiences using the video analysis tool to reflect, so educators, researchers, and others who are interested in this topic can make connections from this case to the general issues they are interested in. Van Manen (1990) indicated that rich descriptions of lived experiences increase our understanding of the meaning of pedagogy. He stated, “When someone has related valuable experience to me then I have indeed gained something even though the ‘thing’ gained is not a quantifiable entity” (Van Manen, 1990, p. 53).

### Assumptions Underlying the Project

Van Manen (1990) suggests that researchers reveal their assumptions about the phenomenon they are studying. The paragraphs on the following pages describe the researcher’s assumptions about the study and teacher reflection.

### *The Study Design*

*Transferability.* Although the results are not generalizable to all situations where faculty and student teachers use video analysis tools to reflect, the researcher assumed the results would be transferable to situations where video is used for reflection.

Transferability will depend on the reader's ability to make connections between the researcher's descriptions in this study and their own experiences.

*Technical difficulties.* The researcher assumed that the participants would encounter some technical difficulties either setting up the program, using the program, or with the video equipment that may influence their feelings about Media Notes.

*Faculty support.* The faculty member who used Media Notes with his student teacher was excited about the tool and believed that it would be beneficial for his student teachers. The researcher assumed that the faculty member's excitement for the tool may have influenced the student teacher's feelings about Media Notes or her willingness to share her honest feelings.

### *Teacher Reflection*

*Knowledge of what to attend to.* The researcher believes that teachers' reflections are influenced by their knowledge of what things they should attend to in their teaching. Therefore, pre-service teachers should receive guidance from their mentors on basic principles of teaching that are considered important to reflect on.

*Ability to attend to multiple things.* The researcher assumes that many pre-service teachers have a difficult time attending to multiple things in their lessons and that it is difficult for teachers to reflect on events that they did not attend to. Because video

provides the opportunity to revisit certain aspects of a lesson, it may help pre-service teachers to notice things that they had not attended to before.

*Ability to remember the teaching event.* The researcher assumes that teachers' abilities to reflect on their lessons are influenced by their ability to remember the lesson. Video may improve teachers' abilities to reflect by helping them remember specific events in the lesson.

### Context and Participants

There were 2 participants in this study: a faculty member and a student teacher from the department of Teaching and Technology at Brigham Young University. The participants were chosen because they were the only mentor and student teacher at BYU who were exploring the use of Media Notes at the time.

The student teacher in this study was an undergraduate student who was finished with coursework and was student teaching in a junior high and a high school classroom during the semester. The student teacher spent the first six weeks of her student teaching experience at a junior high teaching a career, technology, and education class. Then she spent the remaining six weeks at a high school teaching non-linear video editing.

The student teaching supervisors in the Teaching and Technology department are required to visit their student teachers' classrooms three times during the semester. The supervisors typically find a time that fits into their schedule and drop by the classrooms of the student teachers they supervise. Their visits are usually unannounced, and it is not uncommon for the supervisors to miss the instructional part of the student teachers' lessons.

The reflection process for the student teachers in the Teaching and Technology department traditionally involves the supervisor visiting the student teacher's classroom and taking written notes during the observation. Then the student teacher and supervisor meet to reflect on and discuss the lesson. The student teachers are not required to do any type of formal reflection before meeting with their supervisor. The new reflection method that was implemented by the faculty member this semester required the student teacher to video her lesson, analyze the lesson using a video analysis tool, share the analysis with her supervisor, and discuss ways to improve future teaching situations.

At the beginning of the semester, the supervisor explained the video analysis tool, Media Notes, to the student teacher and asked if she would be willing to use the tool to reflect on her teaching. The student teacher agreed to use it. When she was asked to describe her initial feelings about using the video analysis tool, she responded, "I'm excited about it because I think it is a really cool tool that will help me to become a better teacher. I can watch myself." The student teacher also said, "The fact that I'm video taping myself, makes me a little nervous because it's there permanently, but I still think it is good." Although the student teacher indicated that she was a little nervous to video herself, she commented that she would be more intimidated to have a faculty supervisor come and observe her.

Before the study began, the supervisor commented that he was biased towards reflecting with Media Notes. He said

I [am] biased because I believe the process should be teacher centered. I feel that if I run the observation/evaluation experiences, it won't be as meaningful for the teachers because the feedback would come from my perspective and be filtered by

my beliefs. In contrast if the teachers are responsible for the evaluation, they will get more out of it because they will be forced to reflect on their own teaching, causing them to deeply scrutinize and analyze their actions, performance, and beliefs. I also believe video to be a powerful tool – hence my biases towards video usage. I believe it will show and detail a performance more accurately because of its objective affordance.

### Data Collection

The data collection took place over Fall semester 2007. During this time the researcher conducted observations and interviews and collected artifacts.

#### *Observations*

The researcher observed the faculty member and student teacher from the department of Teaching and Technology as they participated in post lesson conferences using Media Notes and using traditional methods. The supervisor and the student teacher originally planned to participate in three traditional conferences and three conferences with the video analysis. However, due to scheduling issues, the participants actually participated in one traditional conference and two video analysis conferences. The conferences lasted between 30 and 45 minutes. During the conferences the researcher looked at how using video analysis influenced the student teacher's ability to collect data about her teaching, make judgments about her teaching, develop an intervention plan for future teaching situations, and evaluate the intervention plans. The conversations during the observations were recorded and transcribed. Written notes were also used to answer the observation questions listed in Appendixes B and C. The participants were asked

follow up questions after the observations in order to clarify some of the researcher's observations.

### *Interviews*

After the student teacher and faculty member had the opportunity to use Media Notes, the researcher interviewed each participant separately. Then each of the participants was interviewed again at the end of the study. The interviews lasted between 15-20 minutes. The purpose of the interview questions were to understand how using video analysis influenced student teacher's ability to collect data about her teaching, make judgments about her teaching, develop an intervention plan for future teaching situations, and evaluate the intervention plans. The interview questions were flexible to allow the participants to discuss additional points of interest. Examples of the questions are listed in Appendixes E and F.

The observations and interviews were recorded on a Sony digital audio recorder and transcribed for analysis. Follow up questions were used with the observations and interviews to gain further understanding.

### *Artifacts*

Although most of the data that was used for the analysis came from the interviews and observations, the researcher also looked at the written comments that the student teacher made about her video segments. The purpose of reviewing the comments was to gain a better understanding of how the student teacher used the video analysis tool to code her teaching videos and the type of reflection comments the student teacher made about the videos. The researcher also reviewed the comments to see how they influenced the discussions that took place during the conferences.

## Data Analysis

The researcher used domain and taxonomic analysis as recommended by Spradley (1980) for analyzing case studies. There were four domains in this study: collecting data, making judgments, designing interventions, and evaluating interventions. These domains came from the four research questions that focused on how the use of video analysis influences pre-service teachers' abilities to collect data about their teaching, make judgments about their teaching, design interventions plans for future teaching situations, and evaluate intervention plans.

The researcher coded the observations and interview notes using NVIVO according to the domains listed above. Then the researcher re-coded the data to identify themes under each of the domains. The researcher looked for issues that were consistently raised by the participants or appeared to be important to the participants. These issues became the sub domains. After examining the sub domains, the researcher realized that they seemed to fit into strength and weakness categories. The researcher divided the sub domains into strengths and weaknesses of each reflection method and sent the list to the participants to check for accuracy. The student teacher said that she felt the list was accurate, and the supervisor added two sub domains to the list. When a final list of domains and sub domains was created, the researcher re-coded the data. To view the final list of domains and sub domains, see Appendix F.

## Data Reporting

For each research question, two contrasting vignettes are presented to describe the traditional reflection approach and the new reflection approach using video analysis. The purpose of the vignettes is to present the reader with rich description about each of the

reflection methods. Following the contrasting vignettes, a table is presented to show the themes that the participants identified as strengths and weaknesses of each reflection method as they relate to the research questions. Then evidence to support each of the themes that the participants identified is presented. The researcher used direct quotes from the participants to describe each of the themes. The participants were given the opportunity to review the findings. However, only the supervisor responded, and he indicated that no changes were needed.

#### Standards Followed

To ensure the trustworthiness of the study, the researcher used the following standards recommended by Lincoln and Guba (1985):

*Credibility.* The researcher increased the credibility of the study by doing the following tasks:

1. *Persistent observation.* The researcher tried to use persistent observations by spending the semester observing the post lesson conferences between the student teacher and the supervisor and spending time interviewing the participants. However, the participants only had one traditional conference, so it was difficult to know if it was typical of all traditional conferences. The researcher also missed a couple of the spontaneous visits that the supervisor conducted at the student teacher's school.

The researcher already had a relationship of trust with the supervisor and felt that he was willing to share his honest opinions about the experience, but the researcher wasn't certain if the student teacher felt comfortable enough to share her honest opinions. The student teacher almost always made positive comments

about her experience. The student teacher may have felt more comfortable sharing her opinions if an outside interviewer were used.

2. Triangulation: The researcher used multiple interviews with the student teacher and supervisor, observation notes, and literature on video analysis tools for information sources. The conclusions of this study were based on common themes found in the data collected.

It may have been beneficial to compare the student teacher's written section of her video analysis with her written reflections without video. However, the supervisor did not have the student teacher participate in any type of formal reflection without video.

3. Negative case analysis: During data collection and analysis, the researcher looked for cases, or reflection instances, which were exceptions to the trends. There were not any negative cases identified during this study. This is probably due to the fact that it was a short study and there were very few cases. The credibility of the study would improve if the duration of the study was increased and if more reflection instances were added.
4. Progressive subjectivity checks: Throughout the study, the researcher periodically recorded her perspective of what she was learning and feeling in her field notes. The dependability of the study would have increased if the researcher was more consistent at recording her feelings.
5. Member Checks: The participants were asked to confirm or disconfirm the notes from the observations and interviews, the sub domains that were identified and

the final findings section. The researcher and the participants continued to work on identifying the sub domains until they both agreed that they were accurate.

*Dependability.* The researcher increased the dependability of the study by including detailed descriptions about the sampling, data collection, and analysis procedures that were used to conduct the study. The descriptions were included in the final report. This will allow readers to judge the trustworthiness of the study.

*Confirmability.* The researcher increased the confirmability of the study by tying the findings to literature. The researcher also supported the interpretations with direct quotes from the participants. The researcher kept an audit trail that includes the observations, interviews, coding files, and researcher notes. The confirmability of the study would be improved if outside reviewers had confirmed the coding that was used to analyze the data.

*Transferability.* The researcher included thick descriptions about the experience of the participants by using their own words and stories. The researcher also provided a detailed description of the context of the case. Although thick description will not ensure transferability of the findings because the readers ultimately make the decision about whether the findings transfer to their own situations, Williams (2006) stated that thick description “is the most powerful technique for facilitating transferability.”

*Ethical Treatment.* Participants were treated ethically and allowed to withdraw from the study at anytime. The participants remained anonymous. The researcher respected the time of participants and tried to refrain from intruding on their normal schedules.

### Limitations

This study had a few limitations that should be made aware to the readers. First, the supervisor had originally planned to have three traditional and three video analysis conferences with his student teacher. However, he actually had one traditional conference and two video analysis conferences with the student teacher. This limited the study because the researcher could only compare the video analysis conferences to one traditional conference, and it is possible that the traditional conference was not typical. To address this limitation, the researcher asked the supervisor to compare video analysis conferences with conferences that are typically conducted by the department, and the student teacher was asked to compare the video analysis conferences to other traditional conferences she had participated in while completing her program.

Another limitation of the study was that the supervisor was biased toward video analysis from the beginning of the study. He commented that he thought video analysis would be better than using the department's traditional methods for reflection. The supervisor's excitement and preference for video analysis may have influenced the student teacher's feelings about using it. The researcher tried to address this issue by talking with the student teacher without the supervisor present and asking the student teacher to be specific about why she felt video analysis was more beneficial than the traditional reflections. Although the researcher tried to address this limitation, neither of these methods guarantee that the student teacher's responses were not influenced by the supervisor's biases toward video analysis.

The student teacher's comments about using video analysis to reflect were very positive. However, the student teacher in this study was from the Technology and

Education department and had a lot of experience working with video. It is possible that the student teacher's excitement for technology influenced her feelings about video analysis and that student teachers from other fields would not have as favorable views of using video analysis tools. If the researcher had conducted this study over a longer period of time, it is possible that the novelty and excitement for using video to reflect would have diminished and the results may have been stronger.

## CHAPTER 4: FINDINGS

The following section reports the findings to the four research questions that were investigated in this study: (1) How does the traditional method for collecting data about student teaching compare to using video analysis to collect data about teaching? (2) How does the use of video analysis influence the judgments that are made about the student teacher's performance? (3) How does the use of video analysis influence the design of intervention plans for future teaching situations? and (4) How does the use of video analysis influence the evaluations of the intervention plans? For each research question, two contrasting vignettes are presented to describe the traditional reflection approach and the new approach using video analysis. The purpose of the vignettes is to present the reader with rich description about each of the reflection methods. Following the contrasting vignettes, a table is presented to show the themes that the participants identified as strengths and weaknesses of each reflection method as they relate to the research questions. Then evidence to support each of the themes that the participants identified is presented.

### Research Question 1

The first question in this study was, "How does the traditional method for collecting data about student teaching compare to using video analysis to collect data about teaching?" The following two vignettes contrast the supervisor and student teacher's experiences collecting data about teaching using the traditional method and the new approach with video analysis.

*Vignettes*

*Traditional data collection.* The student teacher entered her supervisor's office and sat down in a chair facing him. She appeared to be nervous, and it seemed like she was anticipating what her supervisor would say about her teaching. "Okay this is the form that I used," the supervisor explained as he pulled out his notes. The supervisor had visited the student teacher's classroom and took written notes as he observed her teach a lesson. It was a week after his observation, and the student teacher and supervisor were meeting in the supervisor's office on campus to discuss the student teacher's performance.

As the supervisor began to review his notes with the student teacher, he sensed her nervousness, so he put his notes down and began to ask her questions unrelated to his observation. The supervisor asked, "Are you happy today? What did you do this weekend?" They discussed the student teacher's weekend for a little while. Then the supervisor picked up his notes again, so he could review them with the student teacher. Before he started he said,

I'm going to tell you that I think your lesson went pretty good. It was interesting and your approach to it was very good. You gave some history, had a good group activity, and all the kids were involved right away.

Throughout the conference, the supervisor looked down at his notes and brought up the issues that he thought were most important to discuss with the student teacher. He usually described a specific episode from the teaching situation to help the student teacher remember the specific instance. For example, one time he brought up the issue of the student teacher's proximity to the students. The supervisor said, "I thought this was

really interesting. Mr. Hunter [the mentor teacher] did the same thing. When he was doing the recap, did you notice where he stayed?”

“He always stays in the very front,” the student teacher responded.

“Yeah. He was there the whole time, and it can be difficult for the kids in the back. You did a little better. You went like this, the supervisor said.” The supervisor drew the student teacher’s movement patterns during the lesson. “This is your traffic pattern.” The supervisor pointed out how she had only moved across the front of the classroom and down one of the sides. “Are you scared of these kids over here?” He pointed to the area where the student teacher never walked.

“No,” the student teacher chuckled.

The supervisor continued to go through the notes he took during his observation of the student teacher’s lesson. Since the supervisor was the only one who had taken notes, his thoughts about the lesson were used to guide the post-lesson discussions. Although the student teacher may have mentally reflected, she did not write down any of her reflections or share them during the conference.

*Video analysis.* The student teacher placed a video camera in the back of her classroom, so most of the students and the classroom were in view. The student teacher recorded her lesson and digitized the video, so she could upload it into a software program called Media Notes.

Media Notes is a video analysis tool that allows users to tag specific clips in their video and attach comments to each of the clips. The users can save the clips and corresponding comments to review at a later time. (For more information about Media Notes, see page 3.)

A few days after the lesson, the student teacher imported her video into Media Notes and began to analyze her teaching. As the student teacher watched her video she tagged specific clips that she thought were important. For example, as she watched the beginning of her lesson, she tagged a clip of the students messing around as they were entering her classroom. She attached a written comment to the clip, which said, “Be nice, but ensure that when the students come into your classroom there is no rough housing!” The student teacher continued to tag clips and attach written comments as she watched the video of her teaching.

A week later, the student teacher brought her video and analysis to her supervisor’s office to discuss her reflections on her teaching. The supervisor imported the student teacher’s video file with the corresponding comments onto the computer in his office. He turned the screen so they could both view the video and the written comments. The supervisor typically read her comments, asked for clarification, watched the corresponding video clip, validated the student teacher’s analysis, and provided additional suggestions. For example, the supervisor read the comment, “Where’s the management?” “Good question,” he responded. “Look these kids are going insane. They are jumping around all over the place,” the student teacher commented as she pointed to the screen. The supervisor continued to read, “Be nice, but ensure that when the students come into your classroom there is no rough housing!” The supervisor sought further clarification by asking, “So the bell has already rung, and they should be in their seats?” The student teacher replied,

No the bell rang from the last class, so they're in the halls coming to class. A bunch of kids were messing around, and I didn't really say anything to them. Some kids are piggy backing each other and jumping off the desks.

The supervisor and student teacher watched the video together. Then the supervisor said, "You're picking up on everything. Look what you just did."

The supervisor suggested additional strategies that worked for him when he was a high school teacher. He said, "So one thing that I liked to do, in California especially, because they are rough kids. They would come in and destroy everything. Have a routine. The same routine at the beginning of every class period."

The student teacher and supervisor continued to review and discuss the student teacher's comments and corresponding video clips. At the end of the conference the supervisor said,

So let's go back to your overall impressions about your video. A couple of things you said you noticed were, one you were worried about your voice. Two, sounds like you had a little bit of classroom management. The kids were going a little crazy that day.

Then the student teacher and supervisor reviewed the strategies they had discussed for addressing these issues.

During the Media Notes conferences the student teacher brought in her own data and reflections about her teaching. Her video and comments served as a springboard for the conversations during the conference.

### *Thematic Analysis*

The following section outlines the themes that the participants identified as strengths and weaknesses of using each method for collecting data about teaching. This section begins by presenting the strengths and weaknesses of each approach in Table 1. Then the remainder of the section provides evidence to support each of the themes that were identified by the participants.

*Traditional method strengths.* The supervisor felt that the strengths of using the traditional method to collect data about teaching were the ability to “get a feel for the atmosphere of the classroom” and “establishing a relationship with the mentor teacher.” The supervisor said,

I like to see how the students are interacting with the student teacher and get a feel for the classroom: a qualitative, atmospheric understanding. You can walk in and say, ‘Okay this classroom is calm and relaxed, and there is a certain ere in the classroom.’ You can see some management things that you might not see on the video.

The supervisor also felt that the traditional method was better for establishing a relationship with the mentor teacher and receiving feedback from the mentor about the student teacher. He said,

I know the mentor teachers have said that they like seeing university supervisors [in their classroom] every now and then. So if nothing else, I know my presence is important to the mentor teachers. They want to give us feedback on the [student] teacher, and they don’t feel that a phone call will be enough. They want to do a little face to face reporting to you.

Table 1

*The Strengths and Weaknesses of Using the Traditional and Video Analysis Methods to Collect Data About Teaching*

Data Collection Method	Strengths	Weaknesses
Traditional	The supervisor was able to get a feel for the atmosphere of the classroom.	It took a lot of time to travel to the school to observe the student teacher.
	The supervisor was able to establish a relationship with the mentor teacher.	Sometimes the supervisor missed the instructional part of the student teacher's lesson.
Video Analysis	The data collection was less biased than just the supervisor collecting the data.	Using Media Notes required more work for the student teacher.
	The student teacher felt less pressure than having data collected during a formal visit.	The student teacher was initially nervous to video herself teaching.
	It was logistically easier for the supervisor to collect data with Media Notes instead of using formal visits.	The student teacher struggled with technical issues.
	The student teacher was able to notice things that she did not remember about her teaching.	
	The student teacher was more prepared for the conference because she was able to participate in the data collection.	

*Traditional method weaknesses.* The supervisor felt the biggest weaknesses of the traditional method were the travel time to get to the schools and missing the instructional

part of the student teacher's lesson. The supervisor commented that some schools are far away and, "Who knows when you'll show up and if you're going to see some instruction?" He said that during one of his observations, the student teacher "wasn't doing the instructional part of her teaching, so I just kind of watched her interact with the students." Since the supervisor missed the instructional part of the lesson, he felt that the only feedback he could give the student teacher was on her interactions with the students as she walked around and helped them. In this situation the supervisor did not feel that he could offer the student teacher valuable feedback on her instruction.

*Video analysis strengths.* The supervisor and student teacher felt that the strengths of using video analysis to reflect were that the data collection was less biased, there was less pressure on the student teacher, it was logistically easier for the supervisor, the student teacher was able to notice things that she didn't remember about her teaching, and the student teacher was more prepared for the conference.

The student teacher and supervisor agreed that the data collection with a video analysis tool was less biased than just the supervisor collecting data with his written notes. The supervisor specifically commented on the contrast between the traditional method for collecting data and using video analysis. He said, referring to the traditional method,

Sure I would go and take notes, and the notes that I had were valid to me and maybe they were helpful to her, but they weren't as unbiased, where as with the video, the student teacher comes in having already looked at things. Then you can both collaborate, and you can give focused detailed feedback. I think she

could understand what I was talking about a lot more because of us both looking at the video.

The supervisor continued to contrast the two methods and stated,

The observational one you get a feel for the classroom, sometimes a nice qualitative feel. You can come up with some ideas and questions, but it's pretty biased. So you sit down and talk with them and say, "I observed this." Where with the video you can say, "We are observing this together."

The supervisor and student teacher also commented that the student teacher felt less pressure videoing herself than having a supervisor collect data during a formal visit. The student teacher commented that she felt fine with her supervisor coming and observing because they had a good relationship, but she said that she would rather video herself than have other faculty members from the department observe her. The supervisor felt that the video was less pressure for the student teacher:

As [teachers] get used to video, it is just something in their classroom. They know it is for them. Then it has little to do with proving themselves to someone, except for themselves. So [the video] is more about growth, I think.

The supervisor felt that it was logistically easier to collect data with video analysis than with formal visits. The supervisor commented,

Logistically [video analysis] would be a lot easier because some of the schools are up in Salt Lake. It takes a lot of time to get up to those schools, and if you get up there and just miss [the beginning of the lesson] by 15 minutes, then you won't get to observe their instruction because in a technology class they might not instruct for very long.

The supervisor also said,

So I think the video was a lot more effective [than the traditional method] because [the student teacher] could say, “I’m going to be teaching on this day. I know I’m going to be videoing, and as soon as I am, I’m going to pull up that video and capture something because I want to see how I am doing.” So I think it was more effective to collect data, and then when we would look at it, it was nice because we could both come in and talk about the performance.

The student teacher commented that the video allowed her to notice things that she did not remember about her teaching. She said, “It allows you to see your performance [compared] to what you think was happening.” She shared some examples of times when she noticed new things about her teaching while watching her video. Once she said,

When I was at the junior high, when I was talking about something that I really liked, and I thought I was exciting because I was excited to teach it, but I didn’t sound excited at all. And I was like, “Wow! How can that be?” Because I really like this subject, so using [video] that way I realized that I need to really try and think about improving my voice inflection and being excited about things.

The student teacher said that the video was beneficial:

Because I can notice it myself so much more. When I’m up there teaching, it’s really hard for me to be self-reflective at the same time. So if I get to watch it, then it will help me be better than someone telling me. I’ll think about it a little bit more, even better than if someone tells me that I need to do it.

After one of the Media Notes conferences she said, “I think without [Media Notes], I wouldn’t have realized all those things that we just talked about for forty-five minutes. I don’t think I would have realized half of them or three fourths of them.”

Both the student teacher and the supervisor felt that the student teacher was more prepared for the conferences when the student teacher had the opportunity to collect data about her teaching using Media Notes. The supervisor said that the Media Notes conferences were more helpful for the student teacher because “the student teacher comes in having already looked at things.” The supervisor also said the student teacher was empowered “because she brought in the evidence. She brought it in. She critiqued it, so she understood that it was for her.”

*Video analysis weaknesses.* The student teacher and supervisor felt that the weaknesses of the new method of data collection were that it required more time on the student teacher’s part and technical difficulties.

The supervisor said that using Media Notes to reflect required more time for the student teacher. He commented,

Logistically the paper [reflection] is easier than the video one. I mean I can sit down with her right after and talk with her. That’s quick and easy. Where now, the video one she has to import, digitize it, code it, and then meet with me. So it is more work for her.

The student teacher felt that it would be logistically impossible to use Media Notes to reflect every day. She said, “I’m sad because it would be so good to do this every day. I’d like to have the time, but you can’t.”

The student teacher felt that the biggest weakness of using Media Notes was technical issues that she experienced. She said that importing the video, “was probably one of the biggest pains in the world.” The student teacher had a difficult time converting the video into a QuickTime movie. She said, “For me, I have to import it into iMovie, and then export it into QuickTime to get it into Media Notes.” She had two videos that were over two hours, and she said that it took her almost 10 hours to convert the video into a QuickTime movie. The student teacher suggested developing a different way to get the video into the program. The student teacher and supervisor also had difficulty getting the movie to open on the computer during their first Media Notes conference. The student teacher wasn’t sure if she had packaged the video correctly, but they finally got the video and tags to work.

#### Research Question 2

The second question in this study was, “How does the use of video analysis influence the judgments that are made about the student teacher’s performance?” The following two vignettes contrast how judgments about the student teacher’s performance were made during the traditional reflection method and video analysis.

#### *Vignettes*

*Traditional reflection method.* The supervisor and student teacher met in the supervisor’s office to discuss the supervisor’s observation of the student teacher’s lesson. The supervisor pulled out a sheet of paper that he had taken notes on during his observation the previous week. As he pulled out his notes, the student teacher appeared to be nervous. She sat stiffly, with her hands clasped between her legs, and it seemed like

she was looking at her supervisor in anticipation of what he was going to say. The supervisor sensed her nervousness and said,

Don't look so stressed. This is all for you. I'm not going to tell you that you're a good teacher or a bad teacher. We're just going to talk about what you are doing and then you're going to say, 'Hmm, is that good or is that bad?' You will have to decide.

Although the supervisor wanted the student teacher to make her own judgments about her teaching, she did not bring up any issues on her own. The student teacher continued to sit with her hands clasped between her legs and appeared nervous. Throughout the conference the supervisor sensed that she was still nervous and would ask her, "Are you nervous? You seem nervous." The student teacher always responded that she wasn't nervous, but her quiet demeanor and body language made her appear nervous.

During the conference, the supervisor typically discussed a situation that he observed and then asked, "What do you think about this?" After the student teacher responded, he usually shared his own ideas to help her understand his judgments. Then he asked the student teacher what she thought about the ideas he shared. The student teacher always agreed with the supervisor. Once the supervisor said, "You always agree. You're too nice. Anything I say that you don't agree with, you can argue."

It seemed like the student teacher was waiting for the supervisor to make the judgments about her teaching, and then she would agree. She appeared a little nervous about each new topic that was discussed, and she usually looked at the supervisor waiting to hear his response. At the end of the conference, the student teacher commented, "I

think I am at a point where I have been teaching, and I have no idea if I am a bad teacher or a good teacher or if [the students] are learning anything.”

This comment along with the student teacher’s nervousness made me think that she was not very confident in her ability to evaluate her own teaching. Overall, it seemed like the student teacher waited for the supervisor to make judgments about her teaching, and she always agreed with his judgments.

*Video analysis.* The supervisor and student teacher met in the supervisor’s office to discuss the video reflection that the student teacher had completed using Media Notes. As the student teacher entered the room, she seemed more relaxed than she was during the traditional conference. The student teacher quickly handed her hard drive with her video analysis file to her supervisor. As the supervisor pulled up the video on his computer, the student teacher commented, “So watching the video and looking at myself, I always sound like I’m bored.” She voluntarily made this judgment without waiting to hear the supervisor’s comments about her teaching. The supervisor told the student teacher that she could show him some video clips to validate her comment. As the supervisor continued pulling up the video he asked, “After watching, how are you doing, as a teacher, from your perspective? What are some of your strengths and weaknesses?” The student teacher responded,

I think that I am really strong in preparing and getting things ready. There is never a problem like I don’t know what to do now. I always know what is going to come next and what I want the students to be learning. But I think my real struggle is kind of...after watching the video...connecting...I don’t know...If I was a student, I don’t think I would like me as a teacher.

Both the student teacher and supervisor laughed. Then the student teacher concluded, “Which is not good.”

The supervisor asked a follow up question to try and understand her comment. He said, “So you said connections. What do you mean?”

“I think mostly I just talk about the information. Sometimes I bring in examples and talk about how this is what happens in real life, but very rarely. Mostly I just talk about the stuff,” she responded.

“So when you watched the video, you noticed some of the kids not listening?”

“Uh hum.”

“That’s good. These are good findings here,” the supervisor commented.

The student teacher continued to explain her analysis. She said,

Before I watched the video, I thought I was okay, but I thought I was more interesting than that. I could keep them connected more with what I was saying. See this one. (Pointing to the video) I actually like the stuff, but I look bored all the time.

She continued to describe the video clip:

So we just did PowerPoint, and they were very bored because I’m not interested in it. So it was just like, “Oh, I have to teach this.” So I mean I was trying, but I don’t know what was up, but they were being very noisy that day, and then the material was boring.

The supervisor complimented her analysis. He said, “That’s good though. That’s awesome that you notice that because now you can look at control, pitch, [and] projection. I don’t know who said it, but usually we are our harshest critics.”

The student teacher and supervisor looked at each of the clips and comments that were marked by the student teacher. Then they discussed the student teacher's judgments about her teaching. When they were finished going through each of the clips and corresponding comments, the supervisor asked, "What strengths and weaknesses did you discover?" Then he summarized by saying, "Tell me if I am wrong. The main thing you are interested in working on is captivating their interest." The student teacher agreed, and they discussed ways to address the issue.

The judgments that were made during the new reflection method were made by the student teacher in her written comments and the verbal comments that she used to explain the video clips. The supervisor usually asked follow up questions about the student teacher's judgments about her teaching and then supported the judgments that she had made.

### *Thematic Analysis*

The following section outlines the themes that the participants identified as strengths and weaknesses of using each approach for making judgments about teaching. This section begins by presenting the strengths and weaknesses of each method in Table 2. Then the remainder of the section provides evidence to support each of the themes that were identified.

*Traditional method strengths.* The supervisor indicated that the traditional method allowed him to make better judgments about the atmosphere of the classroom. When asked to compare the two reflection methods, he said, "The observational one you get a feel for the classroom." He said, "I walk in and look around a little bit. [I] might ask the question, 'What percentage of the kids are working?'" The supervisor "likes to see how

Table 2

*The Strengths and Weaknesses of Using the Traditional and Video Analysis Methods to Make Judgments About Teaching*

Reflection Method	Strengths	Weaknesses
Traditional	The supervisor felt like he was able to make better judgments about the atmosphere of the classroom.	<p>The judgments were primarily made by the supervisor.</p> <p>It was difficult for the student teacher to remember all the situations that the supervisor made judgments about.</p> <p>The supervisor did not have a rich feel for the context of the lesson.</p>
Video Analysis	<p>The video provided evidence to support the judgments that were made.</p> <p>There was more collaborative discussion about the judgments about her teaching.</p> <p>The student teacher had more opportunities to make judgments about her teaching.</p> <p>The student teacher had more buy-in with the judgments that were made.</p>	<p>It was difficult for the supervisor to get a feel for the ambiance and flow of the classroom.</p>

the students are interacting with the student teacher.” He felt that this was a little more difficult to do through watching short video clips.

*Traditional method weaknesses.* The student teacher and supervisor agreed that most of the judgments in the traditional method were made by the supervisor. The student teacher almost always agreed with the supervisors judgments. Once the supervisor said, “You always agree. You’re too nice. Anything I say that you don’t agree with, you can argue.” In the traditional method it seemed like the student teacher waited for the supervisor to make the judgments about her teaching. The supervisor commented that without video analysis, “My perception is that she wouldn’t really have had the opportunity to talk about her judgments.”

The supervisor and student teacher felt that it was often difficult for the student teacher to remember all the situations that the supervisor made judgments about. The supervisor said,

The feedback you get with traditional conference is a week later or a week an a half later, and then we have to try and remember everything that went on during that specific day. So if you are given comments about specific things, maybe you’ll remember it, but maybe you won’t. So with the video, you can look and see that this specifically happened.

The student teacher commented,

[Video analysis] helps you reevaluate and reassess your own performance in a way that just remembering the lesson you can’t. When I was at the junior high, when I was talking about something that I really liked, and I thought I was exciting because I was excited to teach it, but I didn’t sound excited at all. And I was like, “Wow! How can that be?” because I really like this subject. So using it

that way I realized that I need to really try and think about improving my voice inflection and being excited about things.

*Video analysis strengths.* The supervisor and student teacher felt that the strengths of using the new reflection method to make judgments about teaching were that it provided evidence to support the judgments that were made, the discussion about the judgments was more collaborative, the student teacher had more opportunities to make judgments about her teaching, and the student teacher had more buy-in with the judgments that were made.

Both the supervisor and the student teacher commented that one of the strengths of the new reflection method was that it provided evidence to support the judgments that were made about teaching. The supervisor compared the influence of the two reflection methods on the judgments that were made. He said, “The advantage [of video analysis] was having a point of reference and evidence that we could talk about that she had already selected.” Then he said,

Without video analysis we wouldn’t have had any evidence to inform our discussion. We would have just had opinion, so the judgments that I made [with video analysis] I feel were more valid because there was actual evidence, not just my perspective of what I thought was going on.

The student teacher felt that video analysis allowed her to validate or dispute her supervisor’s judgments about her teaching. She said, “I can say, ‘Yeah. I was actually watching this, and I see the same thing too,’ or ‘No. I disagree. This is what I was thinking about at that moment.’”

During the video analysis conferences the student teacher talked twice as much as she did in the traditional conference, and she mentioned that using Media Notes during the conference created a more collaborative discussion. She commented, “It totally changes the way that you discuss because I had much more to contribute, which I think is good.” Rather than sitting quietly and agreeing with everything that the supervisor said, she brought up issues that concerned her, clarified misconceptions the supervisor had about her lesson, and discussed ideas for how she could improve her teaching in future lessons. She commented,

If the [traditional conference] were with one of the other professors, it would have been like, “Oh, okay. You said that. I’ll take your word for it.” But with [video analysis] I could see that those [conferences] would have been more collaborative.

The supervisor felt that the new reflection method provided the student teacher more opportunities to make judgments about her teaching. He said, “[video analysis] places the burden of responsibility on [the student teacher] and forces her to take ownership of what she is doing.” He also said,

We could talk about what she had already selected [from her lesson]. I think it empowers the teacher because she brought in the evidence. It wasn’t something that I said, “Let’s look for this one thing.” She brought it in. She critiqued it. So she came in saying, “I kind of looked at my teaching and these are some good things I am doing and some bad things.” So she understood that it was for her, and it wasn’t me coming down on her as a supervisor, but it was her coming and saying, “What do you think about my teaching?” rather than, “Tell me how I am doing.” So I think there is a pretty significant difference. I think it puts the ball in

the teacher's court and gives her the responsibility and gives her some autonomy concerning her performance. You don't want to be telling the teacher how to improve. You would rather have them think about how they feel they should improve.

The supervisor said, "Media Notes gives the teacher more buy-in, and it is a better tool to help them do self assessment." He felt that the teacher came in ready to discuss her teaching and strategies for improving. He said,

I think she came in more thirsting. If I just do the paper observation, and when she comes in I say, "Okay, these are the things that I observed," the student teacher doesn't have the buy-in and interest and intrinsic motivation. With Media Notes, she came in wanting to set some goals and improve. She came in with questions because she analyzed it. She came and said, "These are some things I saw. What do you think?"

*Video analysis weaknesses.* The supervisor felt that the weaknesses of the video analysis were that it was difficult for him "to get a rich feel for the context of the lesson," and "it was difficult to get a feel for the ambiance and flow of the classroom." Since the supervisor was not present for the lessons that were videotaped, the student teacher had to spend time explaining the context of her lessons at the beginning of the video analysis conferences. Even with her explanations, the supervisor sometimes felt that he did not have a rich feel for the context of the lesson or ambiance of the classroom.

### Research Question 3

The third question in this study was, "How does the use of video analysis influence the design of intervention plans for future teaching situations?" The following

two vignettes contrast how intervention plans for future teaching situations were designed during the traditional reflection method and video analysis.

### *Vignettes*

*Traditional reflection method.* The supervisor and student teacher met in the supervisor's office to discuss the supervisor's observations of the student teacher's lesson the previous week. As the supervisor reviewed the things that he noticed during his observation, he gave suggestions for how the student teacher could address the issues that he raised. For example, during one of his observations, the supervisor noticed that some of the girls did not seem very interested in the student teacher's lesson about cars. He mentioned this to the student teacher and then asked,

Would this help? In the beginning we talk about some women in the field. You put their picture up and say, "This woman makes 500 thousand dollars a year designing this part of the car." Maybe she does interior design. And you say, "You know there [are] not a lot of women in this field. Don't you think that's weird when women have a better sense of design? Do you think women have a better sense of design?" And all the boys will say, "No way." The girls will say, "Yes they do." I don't know. I think it is good because sometimes we have the tendency to focus on what we're interested in and forget about the kids who could care less.

As the supervisor explained his idea, the student teacher smiled and agreed that it was a good suggestion. Throughout the conference, the supervisor brought up issues that he had noticed during his observation, and then he gave suggestions for addressing the issues.

At the end of this conference the supervisor asked, “If you set a goal for next time, what do you want to work on?” The student teacher said that she would like to work on noticing all the students in her class. The supervisor said, “Good. If I could choose a goal for you it would also be monitoring student progress.” This goal was based on the issues that the supervisor brought up about the student teacher’s lesson.

The student teacher and supervisor did not make formal intervention plans during their conferences, but the supervisor gave suggestions for how the student teacher could address the issues that he noticed in her teaching. Most of the suggestions were made by the supervisor, and the student teacher listened to his suggestions and agreed that they were good ideas.

*Video analysis.* The supervisor and student teacher met in the supervisor’s office to review the student teacher’s video analysis of her teaching. Before the supervisor watched the video clips, he read the comment that corresponded to the clip they were about to view. One of the student teacher’s comments was, “This was the first time I raised my voice during class. It was effective, but I don’t think I prefer to use this type of management.” “Agreed,” the supervisor responded. Then they watched a short video clip where the student teacher became upset with the students and yelled, “Guys!” After watching the clip both the student teacher and supervisor laughed. The student teacher said, “I was so mad, and the students were shocked. I had never been loud or anything. I didn’t like it. I don’t want to have to yell. I don’t like how I sound when I yell.” The supervisor said, “Yeah. Some teachers like it. I don’t. I’ll tell you why. It raises your intensity. You get flustered. It doesn’t do so much for them, but it’s detrimental to

you.” The student teacher agreed. “Yeah, that’s what I felt like. I felt bad that I yelled. I mean that wasn’t huge and awful, but still for me, that was bad.”

The supervisor said, “You know it’s hard because sometimes you just get frustrated, and you’re tired and not feeling good. I agree with you. So what could you have done?” The student teacher responded, “Um...I don’t know...Flip the lights or stand there and wait would probably have been better.” The supervisor commented,

Yeah. I like the stand and wait. The lights are a good tactic, but better for junior high. I think the best for me is to continue talking, but go up to the student who is talking. Put your hand on them. Oh boy, that is always awkward for them.

The supervisor and student teacher did not make formal intervention plans, but they used the student teacher’s judgments about her teaching to talk about ways that she could improve. They typically read the student teacher’s comments, watched the corresponding clip, and then the student teacher suggested alternatives to try in her future lessons. The supervisor validated her suggestions and offered additional ideas that worked for him when he was a public school teacher. The student teacher commented that [video analysis] conferences helped her “get a checklist of things that [she] needs to improve on, which is always good to have as a teacher.” She said that she wrote down things to work on and then tried to improve those things as she continued to teach.

### *Thematic Analysis*

The following section outlines the themes that the participants identified as strengths and weaknesses of using each approach for creating intervention plans for future teaching situations. This section begins by presenting the strengths and

weaknesses of each method in Table 3. Then the remainder of the section provides evidence to support each of the themes that were identified.

Table 3

*The Strengths and Weaknesses of using the Traditional and Video Analysis Methods to Create Intervention Plans for Future Teaching Situations*

Reflection Method	Strengths	Weaknesses
Traditional	The supervisor has experience helping student teachers to make intervention plans and will usually follow through with the intervention.	The student teacher did not have much input on the intervention plan.
Video Analysis	<p>Designing the interventions was more of a collaborative effort.</p> <p>The student teacher had more “buy-in” with the interventions.</p> <p>The student teacher was able to design more specific interventions.</p>	

*Traditional strengths.* The supervisor felt that a strength of the traditional method was that supervisors have experience doing classroom observations and helping student teachers make intervention plans. He also commented that supervisors will usually follow through with the interventions that are designed. However, the supervisor did not follow up on the interventions that were discussed during traditional or new reflection methods.

*Traditional weaknesses.* The student teacher did not have much input on the intervention plan during the traditional reflection method. The supervisor typically gave

the suggestions for improvement, and the student teacher agreed with his ideas. The student teacher was so agreeable that the supervisor had to remind her that it was okay for her to disagree with any of his ideas. When the student teacher vocalized her ideas for improving her teaching, they were usually a reflection of what the supervisor had previously stated.

*Video analysis strengths.* The supervisor and student teacher felt that the strengths of using video analysis to design intervention plans were the interventions were more of a collaborative effort, the student teacher had more buy-in with the interventions, and the interventions were more specific.

The supervisor and student teacher felt that using the new reflection method to design intervention plans was more of a collaborative effort. The supervisor said, “She came in with questions because she analyzed it. She said, ‘These are some things I saw. What do you think?’” The supervisor also commented, “You don’t want to be telling the teacher how to improve, you would rather have them think about how they feel they should improve.” The student teacher said, “I think the conferences are better because there is so much more to talk about and you can look at it.” When asked to compare her experiences using the two methods to reflect on her teaching, the student teacher said,

I think [video analysis] puts it on a whole different level that I think is excellent because it’s more of a collaborative effort rather than just a student-supervisor thing. I am the student teacher, but having more of a collaboration with my supervising professor makes it a whole lot better.

The supervisor felt that the student teacher had more buy-in with the interventions that were made during the new reflection method. He said,

I think she came in more thirsting. If I just do the paper observation and when she comes in, I say, “Okay these are the things that I observed,” the student teacher doesn’t have the buy-in and interest and intrinsic motivation. With Media Notes she came in wanting to set some goals and improve.

He also said, “I think it was easier to come up with agreed upon ideas because I could sit and watch and come up with ideas, but not necessarily ideas that she believed in.” The student teacher agreed, and she commented,

If I get to watch it, then it will help me be better than someone telling me, “Oh you need to do this,” or “you need to do this.” Because if I see it, then I’ll be like, “Oh, I need to do that.” I’ll think about it a little bit more, even better, than if someone tells me that I need to do it.

The student teacher felt that the new reflection method allowed her to make more specific judgments about her teaching. She said,

I think [video analysis] is good because it helps me become a better teacher in my subject area and not just a better teacher. Because when you reflect on things without it, I think you’re just thinking about your general teaching, but with this, it kind of made me focus on more specific things that I need to be doing for my subject area, which is good.

The student teacher also said that her reflections were “so much more detailed.” She mentioned that she was able to focus on specifics like, “Oh, I need to talk louder. Oh, it would be good to have a worksheet here.” She said, “I can identify specific things for that lesson rather than just your whole teaching method.”

*New method weaknesses.* The supervisor and student teacher said that they could not think of any weaknesses of using video analysis to design intervention plans.

#### Research Question 4

The last question in this study was, “How does the use of video analysis tools influence the evaluations of the intervention plans?” The supervisor and student teacher did not evaluate the intervention plans, so this question could not be answered based on this study. Both the supervisor and student teacher acknowledged that it would have been beneficial to evaluate their intervention plans. The supervisor said,

It would have been nice if I had kept a little bit of a paper trail myself and said, “Alright. In visit one this was the goal,” then when she came in for her second [visit] say, “Okay. This was the goal last time. Would it be okay this time if I keep an eye on this?” I think I should have done that. It’s something I should have done, so we could see if there was growth in those areas.

The student teacher commented that video analysis would have been better at facilitating the process of evaluating intervention plans because it allows users “to see if you are actually meeting your goals.” The she said, “If you are making goals and not meeting them, then what’s the point?” The student teacher also mentioned that she wished she had had more opportunities to use Media Notes to evaluate her intervention plans.

The student teacher offered suggestions for evaluating intervention plans in the future. She said,

I think that having a journal to go along with Media Notes that says this is the day that I filmed, this is the day that I actually watched, these are the things that I

noticed, and these are the goals that I want to set for the next time I watch myself.

So you have an actual timeline of improvements and events that are happening.

## CHAPTER 5: DISCUSSION

### Active Participation In the Reflection Process

The purpose of this thesis was to understand how the use of a video analysis tool influenced a student teacher's reflections. The researcher was interested in this topic because research indicates that improved reflections can lead to improved teaching (Dewey, 1933). Therefore, the researcher compared a student teacher's experience using video analysis to reflect with the traditional reflection method used by her department. The results of this study can inform researchers and educators about the value of using video analysis tools to reflect.

Overall, it appeared that video analysis helped the student teacher to have a more active role in the reflection process. The student teacher was actively involved in collecting and analyzing the data about her teaching, making judgments about her teaching, and designing intervention plans for future teaching situations. Many educators advocate teachers playing an active role in the reflection process (Brinko, 1993). Researchers have found that when teachers are actively involved in the reflection process they have more positive feelings toward the feedback they receive, they develop an understanding of professional practices and skills, and the reflection process is more effective (Brinko, 1993; Collins et al., 2004).

The participants in this study noticed three major benefits of having the student teacher actively involved in the reflection process: (1) The student teacher was more prepared for the conferences with her supervisor, (2) The conferences with the supervisor were more collaborative, and (3) The student teacher felt more ownership over the reflection process.

### *Preparation*

The student teacher was more prepared for the video analysis conferences because she had invested time watching her teaching video, marking specific things that she noticed, making judgments about her teaching, and thinking about additional ways she could have addressed specific situations in her lessons. The student teacher said that video analysis “completely changed the conferences.” Her preparation allowed her to come to the conferences “thirsting” and motivated to contribute to the discussion and to improve her teaching.

### *Collaboration*

Most pre-service teachers rely on their supervisors to give them feedback about their teaching (Miyata, 2002). The traditional conference seemed to fit this typical pattern. The student teacher sat in a chair with her hands clasped between her legs the entire conference as she listened to her supervisor share his observations of her teaching. The student teacher rarely made comments, even when the supervisor invited her feedback. Although it may be typical for pre-service teachers to rely on their supervisor’s feedback, Penny & Coe (2004) stated that teachers need opportunities to articulate their feelings about their teaching.

Video reflections can help pre-service teachers to improve their ability to recognize and vocalize their feelings about their teaching (Grainger, 2004; Powell, 2005). During the video conferences, the student teacher was less reliant on her supervisor to provide feedback on her teaching. The conferences became more collaborative, and the student teacher initiated many of the topics that were discussed. The student teacher

commented that she enjoyed the video analysis conferences more than the traditional conferences because she was able to participate more.

Sharpe et al. (2002) noticed that as pre-service teachers continued to participate in video reflections, their “confidence and willingness” (p. 538) to contribute to the discussions increased. This seemed to be apparent in this study. As the student teacher had more opportunities to analyze her video and discuss it with her supervisor, she seemed more confident discussing her teaching. She did not seem nervous to identify or discuss the challenges that she encountered as she was teaching. For example, she laughed when her supervisor and she watched a clip of her struggling to manage her class. Rather than being nervous to talk about something she did wrong, the student teacher appeared confident talking about her interpretation of the situation and her plans for addressing similar issues in the future.

### *Ownership*

Another benefit of the student teacher being actively involved in the reflection process was that she felt ownership over the reflection. The supervisor felt that the student teacher was “empowered” when she was given the opportunity to analyze videos of her teaching. Nicol and Crespo (2003) agreed that marking and naming specific things in teaching experiences is an important aspect of helping teachers to own the learning process. The student teacher felt more ownership because she had put more effort into thinking about how she wanted to improve, instead of just listening to how her supervisor thought she could improve.

According to Brinko (1993), “feedback from oneself is more valued, better recalled, and more credible than feedback from other sources” (p. 577). The student

teacher was able to bring her own feedback to the conferences because she had the opportunity to analyze her videos prior to meeting with her supervisor. As a result, she had more control over the discussions, and she understood that the reflection process was for her benefit. The process became more about personal growth and less about proving herself to someone.

### Video Analysis Benefits

Prior to the traditional conference the student teacher did not do any formal reflection. Sometimes she thought about her lesson after she finished teaching it, but she never wrote down her thoughts. The student teacher may have been more prepared for the traditional conferences and experienced some of the benefits previously mentioned if the supervisor had asked her to do a written reflection on her teaching prior to meeting with him.

The supervisor recognized that it would have been beneficial to have the student teacher complete some type of written reflection prior to their traditional conferences. However, both the supervisor and the student teacher felt that the video analysis still provided several benefits that would not have been experienced with written reflections. The participants felt that the video analysis allowed the student teacher to notice things in her teaching that she had not remembered, helped the student teacher focus on specific areas of her teaching, and provided evidence to support their discussions.

### *Noticing and Remembering*

The student teacher commented that the video analysis helped her to attend to things that she did not remember or notice about her teaching. The video allowed the student teacher to compare her perception of what she thought happened during her

lesson to what the video captured. Sometimes she was surprised to notice that certain aspects of her teaching were different than she had remembered. For example, she thought she was very excited to be teaching a lesson, but after watching herself on the video she realized that her excitement was not demonstrated in her mannerisms. After watching the video she commented, “Wow! How can that be.”

Teachers’ understandings of their performance can be limited by what they attend to during their teaching and what they can remember from their lesson (Dye, 2006; Struyk, 1993). The student teacher commented that she liked using video to reflect because it was difficult for her to be self-reflective at the same time she was teaching. Video has the affordance of capturing the lesson, so teachers are not completely reliant on their memory. Video also enables teachers to gain a new perspective on their teaching and to realize things about their lesson that they may not have attended to. (Halter, 2006). At the end of one conference the student teacher said, “I think without [video analysis] I wouldn’t have realized all those things that we just talked about for forty-five minutes. I don’t think I would have realized half of them.” The student teacher felt that watching the video was more beneficial than having someone tell her how she needed to improve because the video allowed her to see it herself.

#### *Focusing on Specific Teaching Areas*

Most supervisor evaluations are designed to give student teachers summarized feedback about their teaching (Struyk, 1993). However, when the feedback is summarized, it may lose the specificity needed to help teachers improve on specific aspects of their teaching (Dye, 2006). Researchers have found that pre-service teachers are more likely to modify their teaching practices when feedback is more precise (Miyata,

2002; Eley & Hess, 1992, as cited in Wang, 2003). Video reflections can help teachers to focus on specific areas of their teaching practices because the video provides more precise information about their teaching (Powell, 2005; Wang, 2003). As the student teacher used video analysis to reflect, she noticed that her reflections shifted from her general teaching practices to specific aspects of her teaching. She said that the video helped her create a list of specific ways she wanted to improve in future lessons.

### *Supporting Discussions With Evidence*

When teachers and supervisors reflect on a lesson, they often have different perceptions of the actual teaching experience. Although both the pre-service teacher and the supervisor witnessed the teaching performance, their perceptions are influenced by the things they attended to, as well as their memory, expectations, prior teaching experience, values, and interests. The differences between the supervisor's and pre-service teacher's perception of a teaching event can limit effective communication during post lesson conferences. When the pre-service teacher and the supervisor discuss the teaching experience, they interpret each other's messages in terms of their own perception of the teaching event. If the supervisor and the pre-service teacher discuss something that they perceive similarly, then a meaningful conversation is possible. However, if the mentor and pre-service teacher try to discuss an event that they perceived differently or did not attend to, it is difficult to have a meaningful discussion (Dye, 2006).

The participants in this study felt that they could understand each other's comments better during the video conferences because they were able to view the video clips together. The supervisor felt that video made their judgments more valid because they were able to base their comments on actual video clips rather than the supervisor's

interpretation of what happened during the lesson. Brinko (1993) found that feedback is more effective when it is based on “irrefutable evidence” (p. 579). In this case, video provided the evidence to improve the communication between the pre-service teacher and the supervisor. The supervisor said, “The video allows you to say, ‘We are observing this together.’” The student teacher felt that having video evidence in their conferences allowed her to challenge her supervisor’s comments and explain what she was thinking and her reasoning behind her actions, so they could have a meaningful discussion about why something happened and what they felt were most appropriate ways to address the issue.

### Video Analysis Challenges

Although video analysis helped the student teacher to be more active in the reflection process and provided several benefits that the traditional method did not provide, the participants experienced several challenges as they used video analysis. The biggest challenges for the student teacher were the technical issues that she encountered and the amount of time required to analyze her videos. The supervisor’s biggest challenges were getting a feel for the atmosphere in the student teacher’s classroom, understanding the context of the student teacher’s lesson, and establishing a relationship with the student teacher’s mentor teacher. Another challenge that both the supervisor and the student teacher experienced was having enough time during their conferences to discuss each of the clips that the student teacher marked and commented on.

#### *Technical Issues*

The student teacher described the process of digitizing her video as “one of the biggest pains in the world.” She said that it took her over 10 hours to digitize her video.

Educators and researchers who are considering using video analysis tools should be aware that teachers may encounter technical issues. Teachers' perceptions of the value of the tool may be affected by the amount of time they spend trying to solve technical issues. If possible, researchers may consider trouble shooting some of the technical issues so teachers can spend more of their effort on the analysis of their teaching.

#### *Time to Complete the Process*

Using video analysis required more time from the student teacher than the traditional reflection method required. During the traditional reflection, the student teacher was not required to prepare anything prior to meeting with her supervisor to reflect. However, the new reflection method required the student teacher to spend time recording her teaching, digitizing her video, watching her video, coding the video, and discussing it with her supervisor. The student teacher commented that video analysis was very helpful, and she would like to be able to use it everyday, but logistically it would be impossible because of the time commitment.

#### *Atmosphere in the Classroom*

The supervisor in this study likes to get a feel for the atmosphere in his student teachers' classrooms. This allows him to develop a better understanding of the relationship between the student teachers and their students. Observing student teachers' classrooms allows the supervisor to see how the student teachers and the students are interacting with each other and how the students are responding to the instruction and assignments given by the student teachers. Watching short video clips made it difficult for the instructor to get a feel for these things.

### *Context of the Lesson*

Watching short video clips also made it difficult for the supervisor to understand the context of the student teacher's lesson. Since the supervisor was not present for the lessons that were videotaped, the student teacher had to spend time explaining the context of her lessons during the conferences. Even with the explanations, it was often difficult for the supervisor to have a rich understanding of the context of the lessons.

### *Relationship with Mentor Teacher*

The supervisor felt that it was important to establish a relationship with the student teacher's mentor teacher. This allows the supervisor to show his support and receive the mentor teacher's feedback on how the student teacher is doing. It would be difficult for the supervisor to establish a relationship with the mentor teacher if he only watched the student teacher's videos and never visited the classroom.

### *Time to Discuss Analysis*

The supervisor and student teacher did not have enough time during their conferences to discuss each of the video clips that the student teacher marked and commented on. The student teacher typically marked about 10 clips, and it was impossible to have an in depth conversation about each of the clips during the time allotted for the conference. During the conference the supervisor usually reviewed the clips and comments in sequential order, but the conference time always ran out before they were able to get through each of the clips. During the video analysis conferences the supervisor and student teacher faced the challenge of choosing which clips were most valuable for the student teacher to discuss.

Although the participants experienced several challenges when they used the video analysis tool to reflect, they both indicated that they plan to use it in the future. The student teacher said the time commitment would keep her from using it as often as she would like, and the supervisor said that he planned to use a combination of the traditional department reflection and video analysis reflections with the student teachers he supervises in the future.

### Conclusions and Future Research

After comparing the student teacher's experiences using video analysis to reflect with her department's traditional reflection method, which included a classroom observation and post-lesson conference, it appeared that both video analysis and the traditional reflection method were beneficial for reflection. However, the student teacher felt that using video analysis to reflect was more useful than the department's traditional reflection method for helping her understand the changes she wanted to make in her teaching. The student teacher felt that video analysis was more useful than the traditional reflection method because it allowed her to notice things that she did not remember or attend to during her lesson, it helped her focus her reflections on specific aspects of her teaching, and the video clips provided evidence to support her discussions with her supervisor. Overall, the participants felt that video analysis was a powerful tool for helping the student teacher develop a plan to improve her teaching.

The participants also felt that the traditional reflection method provided benefits that were difficult to achieve with when the teacher only used video analysis to reflect. For example, traditional reflection method was useful for helping the supervisor to get a

feel for the atmosphere of the student teacher's classroom, understand the context of the student teacher's lessons, and establish a relationship with the student teacher's mentor.

Since both methods offered benefits for reflection, the participants felt that the combination of the traditional reflection method and video analysis were optimal for helping student teachers. This supports Thomson's (1992) finding that the combination of the conventional supervision and using video was more effective than either method by itself.

Researchers have found that it is beneficial for teachers to receive feedback from several sources (Brinko, 1993; Penny & Coe, 2004). Using multiple sources, such as classroom observations, video recording, self-reflections, etc., can help teachers gain a more accurate picture of their teaching performance (Penny & Coe, 2004). It is important for educators to remember that video is only one source of feedback that can be used to help teachers reflect. Future research should investigate how other sources of feedback can be used along with video analysis to obtain optimal benefits. Researchers may consider investigating when video analysis tools are more advantageous than other feedback methods and how video analysis can be used most effectively during supervisory conferences.

The supervisor in this study recommended what he felt was the best strategy for combining the traditional and video analysis reflection methods. He suggested that the university supervisor visit the student teacher at the beginning and end of their classroom experience. Visiting at the beginning of the student teaching experience would allow the supervisor to meet the student teacher's mentor teacher and get a feel for the ambience of the classroom. A visit at the end of the student teaching experience would allow the

supervisor to talk with the mentor teacher about how the student teacher improved, what the student teacher did during the experience, and the mentor teacher's overall impressions of the experience. In between the traditional classroom observations, the supervisor recommended doing video reflections. He felt that this would make the logistics of getting to the schools easier, and the supervisor felt that it was better than the traditional method for helping student teachers to do self-assessment. Researchers and educators may consider investigating the benefits and challenges of using this process. This would allow researchers to continue to refine the process of using video analysis tools to reflect on teaching.

Future research should also investigate how using video analysis tools to reflect impacts student learning. The literature states that improved reflections can lead to improved teaching (Dewey, 1993), and the goal of improved teaching is to improve student learning. The student teacher in this study said that using video analysis to reflect was more beneficial than the department's traditional reflection method for helping her understand the changes that she wanted to make in her teaching. However, the supervisor and student teacher never examined the impact of the changes on student learning. Therefore, future research should examine how using video analysis to reflect impacts student learning.

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## Appendix A

## Guidelines/Criteria/Questions for Reflecting

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Study	Guidelines/Criteria/Questions
Byra, Sherin and vanEs, Preston et. al	<b>Guiding questions</b>
Griswold	<b>List of teaching competencies:</b> identified in Charlotte Danielson's <i>A Framework for Teaching</i>
Halter	<b>Reflective writing guide:</b> sequence of events, highlights of one or two notable events, interpretation of what happened
Jensen	<b>Preservice Teacher Reflection and Self-Analysis instrument:</b> rated performance numerically, rated overall teaching competencies by responding to a series of statements
Miyata	<b>Reflection instrument:</b> rated themselves and responded to open-ended questions relating to classroom environment, communication skills, and teaching procedures.
Pailliotet	<b>Category codes:</b> Action/Sequence, Semes/Forms, Sound/Discourse, Proximity/Movement, Culture/Context, Effects/Process) <b>Levels of analysis:</b> (1) literal observation, (2) interpretation, and (3) evaluation and application
Powell	<b>Reflection instrument:</b> reflective questions about purposes, intentions, practical and technical reflection, perceptual awareness, and critical reflection.
Sharpe et al.	<b>Conference agendas:</b> based on teaching competencies

*Guidelines for reflecting (Continued).*

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Study	Guidelines/Criteria/Questions
Spurgeon et al.	<b>Standards:</b> Find clips to meet standards
Struyk et al.	<b>Recoding sheet:</b> code specific behaviors
Thomson	<b>Reflection Instrument:</b> modeled after North Carolina teacher Performance Appraisal
Warden	<b>Reflection Instrument:</b> Identify each indicator of the Oklahoma Criteria

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## Appendix B

### Observation Sheet: Traditional Post Lesson Conferences

1. How was the data about the teaching situation collected?
2. How is the data used during the conference?
3. What judgments are made regarding teaching?
4. Who makes the judgments about the teaching?
5. Do they design an intervention plan address the judgments?
6. How is the intervention plan designed?
7. Who does the majority of the talking during the conference?
8. What does the mentor choose to talk about during the conference?
9. Does the student teacher talk during the conference? If so, what are the student teacher's comments focused on?
10. What appears to be the student teacher's role in conference?
11. What emotions does the student teacher express during the conference?
12. What are the actions of the student teacher and mentor during the conference?
13. How long was the conference?
14. Are there any contrasts between this conference and the conferences using Media Notes that stand out?

#### Possible Follow up Questions for Participants

- Is this a typical post lesson conference?
- When was the student teacher observed?
- How long was the observation of the student teacher?
- Did the supervisor take notes during the observation? If so, what kind of notes and how did they influence the conference?
- Did the student teacher write any reflection notes after the observation? If so, what kind of notes and how did they influence the conference?
- How did the mentor and student teacher decide on what to focus on during the conference?
- What did you like about this conference?

## Appendix C

### Observation Sheet: Conferences with Video Analysis

1. How was the data about the teaching situation collected?
2. How is the data used during the conference?
3. What judgments are made regarding teaching?
4. Who makes the judgments about the teaching?
5. Do they design an intervention plan to address the judgments?
6. How is the intervention plan designed?
7. How is Media Notes used during the conference?
8. How many clips are discussed?
9. Who does the majority of the talking during the conference?
10. Who initiates the topics for discussion during the conference?
11. What does the mentor choose to talk about during the conference?
12. Does the student teacher talk during the conference? If so, what are the student teacher's comments focused on?
13. What appears to be the student teacher's role in conference?
14. What emotions does the student teacher express during the post conference?
15. What are the actions of the student teacher and mentor during the conference?
16. How long was the conference?
17. Are there any contrasts between this conference and traditional post lesson conferences that stand out?

#### Possible Follow up Questions for Participants

- Is this typical of your post lesson conferences with Media Notes?
- What did you like about this conference?
- Is there anything you did not like about this conference?
- Is there something you wish you could change about conferences with Media Notes?

## Appendix D

### Faculty Interview Questions

1. Tell me about your experience using Media Notes to collect data about teaching.  
How did the student teacher use Media Notes to collect data on their teaching?  
How was the data used?
2. Tell me about your experience using Media Notes to make judgments about teaching.  
How was Media Notes used to make judgments?  
Does Media Notes influence the student teacher's ability to make judgments about their teaching? (If so, how and why?)
3. Tell me about your experience using Media Notes to develop intervention plans for future teaching situations.  
How was Media Notes used to develop an intervention plan?  
Does Media Notes influence the intervention plan that the student teacher develops for future teaching situations? (If so, how and why?)
4. Tell me about your experience using Media Notes to evaluate your intervention.  
How was Media Notes used to evaluate the plan of action?
5. How would you compare the student teacher's reflection using Media Notes to her reflection without Media Notes?
6. What do you perceive to be the strengths and weaknesses of using Media Notes to reflect on teaching?  
What do you perceive as the strengths and weaknesses (if any) of using Media Notes to reflect?  
What do you perceive to be the strengths and weaknesses (if any) of using the coding feature in Media Notes?  
What do you perceive to be the strengths and weaknesses (if any) of using the written reflection feature in Media Notes?  
What do you perceive to be the strengths and weaknesses (if any) of using Media Notes to facilitate discussion?  
What do you perceive to be the strengths and weaknesses (if any) of using Media Notes to make a plan of action for future teaching situations
8. How would you compare the strengths and weaknesses of using Media Notes in post lesson conferences compare with the strengths and weaknesses of traditional methods for post lesson conferences?

## Appendix E

## Student Teacher Interview Questions

1. Tell me about your experience using Media Notes to collect data about teaching.  
How did you use Media Notes to collect data on your teaching?  
How was the data used?
2. Tell me about your experience using Media Notes to make judgments about teaching.  
How was Media Notes used to make judgments?  
Does Media Notes influence your ability to make judgments about your teaching? (If so, how and why?)
3. Tell me about your experience using Media Notes to develop an intervention plan.  
How was Media Notes used to develop an intervention plan?  
Did Media Notes influence the intervention plan that you developed for future teaching situations? (If so, how and why?)
4. Tell me about your experience using Media Notes to evaluate the intervention.  
How was Media Notes used to evaluate the intervention?
5. How would you compare your reflections using Media Notes to your reflections without Media Notes?
6. What do you perceive to be the strengths and weaknesses of using Media Notes to reflect on teaching?  
What do you perceive as the strengths and weaknesses (if any) of using Media Notes to reflect?  
What do you perceive to be the strengths and weaknesses (if any) of using the coding feature in Media Notes?  
What do you perceive to be the strengths and weaknesses (if any) of using the written reflection feature in Media Notes?  
What do you perceive to be the strengths and weaknesses (if any) of using Media Notes to facilitate discussion?  
What do you perceive to be the strengths and weaknesses (if any) of using Media Notes to make a plan of action for future teaching situations
7. How would you compare the strengths and weaknesses of using Media Notes in post lesson conferences compare with the strengths and weaknesses of traditional methods for post lesson conferences?

## Appendix F

Table 5

*List of Domains and Sub Domains*

Reflection Phases	Traditional Method	New Method
Data Collection		
Strengths	<p>The supervisor was able to get a feel for the atmosphere of the classroom.</p> <p>The supervisor was able to establish a relationship with the mentor teacher.</p>	<p>The data collection was less biased than just the supervisor collecting the data.</p> <p>The student teacher felt less pressure than having data collected during a formal visit.</p> <p>It was logistically easier for the supervisor to collect data with Media Notes instead of using formal visits.</p> <p>The student teacher was able to notice things that she did not remember about her teaching.</p> <p>The student teacher was more prepared for the conference because she was able to participate in the data collection.</p>
Weaknesses	<p>It took a lot of time to travel to the school to observe the student teacher.</p> <p>Sometimes the supervisor missed the instructional part of the student teacher's lesson.</p>	<p>Using Media Notes required more work for the student teacher.</p> <p>The student teacher was initially nervous to video herself teaching.</p> <p>The student teacher struggled with technical issues.</p>

Table 5 (continued)

*List of Domains and Sub Domains*

Reflection Phases	Traditional Method	New Method
Judgments		
Strengths	The supervisor felt like he was able to make better judgments about the atmosphere of the classroom.	<p>The video provided evidence to support the judgments that were made</p> <p>There was more collaborative discussion about the judgments.</p> <p>The student teacher had more opportunities to make judgments about her teaching.</p> <p>The student teacher had more “buy-in” with with the judgments that were made.</p>
Weaknesses	<p>The judgments were primarily made by the supervisor.</p> <p>It was difficult for the student teacher to remember all the situations that the supervisor made judgments about.</p>	<p>The supervisor did not have a rich feel for for the context of the lesson.</p> <p>It was difficult for the supervisor to get a feel for the ambiance and flow of the classroom.</p>
Intervention Plans		
Strengths	The supervisor has experience helping student teachers to make intervention plans and will usually follow through with the intervention.	<p>Designing the interventions was more of a collaborative effort.</p> <p>The student teacher had more “buy-in” with the interventions.</p>

Table 5 (continued)

*List of Domains and Sub Domains*

Reflection Phases	Traditional Method	New Method
Intervention Plans		
Strengths		The student teacher was able to design more specific interventions.
Weaknesses	The student teacher did not have much input on the intervention plan.	

Appendix G: Journal Article

Running head: VIDEO ANALYSIS REFLECTIONS

Understanding the Use of Video Analysis Tools to  
Facilitate Reflection Among Pre-service Teachers

Tonya R. Tripp and Charles Graham

Brigham Young University

### Abstract

A case study approach was used to understand the experience of a supervisor and student teacher as they used a video analysis tool to reflect on teaching. This study compared how video analysis influenced the student teacher's ability to collect data about her teaching, make judgments about her teaching, design intervention plans for future teaching situations, and evaluate the intervention plans. The study concluded that video analysis allowed the student teacher to notice things in her teaching that she had not remembered, helped the student teacher focus on specific areas of her teaching, and provided evidence to support the discussions between the supervisor and the student teacher. Using video analysis also posed several challenges for the participants. The biggest challenge for the student teacher was the technical issues that she encountered. The supervisor's biggest challenges were getting a feel for the atmosphere in the student teacher's classroom, understanding the context of the student teacher's lesson, and establishing a relationship with the student teacher's mentor teacher.

## Understanding the Use of Video Analysis Tools to Facilitate Reflection Among Pre-service Teachers

Research states that reflection is the foundation for improved teaching (Dewey, 1933). As a result, educators have used many methods to facilitate teacher reflections. Some of these methods include keeping reflective journals, conducting peer teaching sessions, providing written feedback, giving lesson critiques, conducting action research projects, or using reflective conferences (Cook, Young, & Evenson, 2001).

As video has become more accessible, several universities have developed video analysis tools that make it easier for teachers to document and share the analysis of their teaching. For example, Stanford University developed a tool called DIVER which allows users to zoom in on specific subjects or events in the video, capture a clip, and add personal comments (Pea, 2004). Michigan State University's Interactive Video Analysis Neighborhood (IVAN) and Northwestern University's Video Analysis Support Tool (VAST) allow users to click on specific segments of a video and add personal comments (Phillips, Koehler, Zhang, Yadav, Rosaen, 2005; Sherin & van Es, 2002). The video segments and corresponding comments are stored in the program so the users can easily retrieve them to share with supervisors and/or peers. Brigham Young University is currently pilot testing two video analysis tools called Studio Code and Media Notes, which perform functions similar to IVAN and VAST.

### *Studio Code*

Studio Code allows users to save snippets of video and attach rich text formatted notes and descriptions. The program has traditionally been used by professional sports teams to analyze athletic performance. The athletic department at BYU is currently using

Studio Code to help pre-service, physical education teachers identify and explain examples of effective and ineffective teaching practices in teaching videos. Figure 1 is a screen shot of the Studio Code.

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Insert Figure 1 here  
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Media Notes was initially designed by the Center for Teaching and Learning at Brigham Young University and was later outsourced to a software company called BlueMango Learning Group. Media Notes was conceptualized by faculty in BYU Law School who wanted to find a way to help students reflect on and improve their interviewing skills. Figure 2 shows a screenshot of Media Notes with a video clip of a master teacher using technology in her teaching.

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Insert Figure 2 here  
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Although several universities are starting to use video analysis tools to help teachers reflect on their teaching, very little has been published on how the use of video analysis tools influences teacher reflections. If reflection is the foundation for improved teaching, then it is important for educators and researchers to understand how the use of these tools impacts teacher reflections. Therefore, the purpose of this study was to understand the experience of a supervisor and student teacher as they used a video analysis tool to reflect on teaching.

In order for readers to understand the impact of video analysis on the participant's ability to reflect, it is important to clarify how reflection was defined in this study. John Dewey (1933) was first to define teacher reflection. He described it as "active, persistent, and careful consideration of belief or supposed form of knowledge in the light of the grounds that support it and the further conclusions to which it ends" (p. 9). Since Dewey many educators and researchers developed their own definitions of reflection. Taggart and Wilson (1998) constructed a list of additional prominent definitions of reflection. After examining the list of definitions, the researchers chose to define reflection as the process of collecting data about teaching, making judgments about teaching, designing intervention plans, and evaluating the intervention plans. These reflection steps were based on common themes found in the prominent definitions of reflection.

This study used these reflection steps to investigate how the use of the video analysis tool, Media Notes, influenced teacher reflections. During the study the researcher examined the experience of a faculty member from the Teaching and Technology department at large private university and his student teacher as they used a video analysis tool to reflect on teaching. The researcher tried to understand how the use of Media Notes influenced the student teacher's ability to collect data about her teaching, make judgments about her teaching, develop intervention plans for future teaching situations, and evaluate the interventions.

## Method

### *Participants*

There were 2 participants in this study: a faculty member and a student teacher from the department of Teaching and Technology at Brigham Young University. The participants

were chosen because they were the only mentor and student teacher at BYU who were exploring the use of Media Notes at the time. The student teacher in this study was an undergraduate student who was finished with coursework and was student teaching in a junior high and a high school classroom during the semester. The student teacher spent the first six weeks of her student teaching experience at a junior high teaching the career, technology, and education class. Then she spent the remaining six weeks at a high school teaching non-linear video editing.

The reflection process for the student teachers in the Teaching and Technology department traditionally involves the supervisor visiting the student teacher's classroom and taking written notes during the observation. Then the student teacher and supervisor meet to reflect on and discuss the lesson. The student teachers are not required to do any type of formal reflection before meeting with their supervisor. The new reflection method that was implemented by the faculty member this semester required the student teacher to video her lesson, analyze the lesson using a video analysis tool, share the analysis with her supervisor, and discuss ways to improve future teaching situations.

#### *Data Collection*

The data collection took place over Fall semester 2007. During this time the researcher conducted observations and interviews.

#### *Observations*

The researcher observed the faculty member and student teacher from the department of Teaching and Technology as they participated in post lesson conferences using Media Notes and using traditional methods. The supervisor and the student teacher originally planned to participate in three traditional conferences and three conferences

with the video analysis. However, due to scheduling issues, the participants actually participated in one traditional conference and two video analysis conferences. The conferences lasted between 30 and 45 minutes. During the conferences the researcher looked at how using video analysis influenced student teacher's ability to collect data about her teaching, make judgments about her teaching, develop an intervention plan for future teaching situations, and evaluate the intervention plans. The conversations during the observations were recorded and transcribed. Written notes were also used to answer the observation questions listed in Appendixes A and B. The participants were asked follow up questions after the observations in order to clarify some of the researcher's observations.

### *Interviews*

After the student teacher and faculty member had the opportunity to use Media Notes, the researcher interviewed each participant separately. Then each of the participants was interviewed again at the end of the study. The interviews lasted between 15-20 minutes. The purpose of the interview questions were to understand how using video analysis influenced student teacher's ability to collect data about her teaching, make judgments about her teaching, develop an intervention plan for future teaching situations, and evaluate the intervention plans. The interview questions were flexible to allow the participants to discuss additional points of interest. Examples of the questions are listed in Appendixes C and D.

### *Data Analysis*

The researcher used domain and taxonomic analysis as recommended by Spradley (1980) for analyzing case studies. There were four domains in this study: collecting data,

making judgments, designing interventions, and evaluating interventions. These domains came from the four research questions that focused on how the use of video analysis influences teachers' abilities to collect data about their teaching, make judgments about their teaching, design interventions plans for future teaching situations, and evaluate intervention plans.

The researcher coded the observations and interview notes using NVIVO according to the domains listed above. Then the researcher re-coded the data to identify themes under each of the domains. The researcher looked for issues that were consistently raised by the participants or appeared to be important to the participants. These issues became the sub domains. After examining the sub domains, the researcher realized that they seemed to fit into strength and weakness categories. The researcher divided the sub domains into strengths and weaknesses of each reflection method and sent the list to the participants to check for accuracy. The student teacher said that she felt the list was accurate, and the supervisor added two sub domains to the list. When a final list of domains and sub domains was created, the researcher re-coded the data. To view the final list of domains and sub domains, see Appendix E.

### Results and Discussion

The purpose of this thesis was to understand how the use of a video analysis tool influenced a student teacher's reflections. The researcher was interested in this topic because research indicates that improved reflections can lead to improved teaching (Dewey, 1933). Therefore, the researcher compared a student teacher's experience using video analysis to reflect with the traditional reflection method used by her department.

The results of this study can inform researchers and educators about the value of using video analysis tools to reflect.

Overall, it appeared that video analysis helped the student teacher to have a more active role in the reflection process. The student teacher was actively involved in collecting and analyzing the data about her teaching, making judgments about her teaching, and designing intervention plans for future teaching situations. Many educators advocate teachers playing an active role in the reflection process (Brinko, 1993). Researchers have found that when teachers are actively involved in the reflection process they have more positive feelings toward the feedback they receive, they develop an understanding of professional practices and skills, and the reflection process is more effective (Brinko, 1993; Collins et al., 2004).

The participants in this study noticed three major benefits of having the student teacher actively involved in the reflection process: (1) The student teacher was more prepared for the conferences with her supervisor, (2) The conferences with the supervisor were more collaborative, and (3) The student teacher felt more ownership over the reflection process.

#### *Preparation*

The student teacher was more prepared for the video analysis conferences because she had invested time watching her teaching video, marking specific things that she noticed, making judgments about her teaching, and thinking about additional ways she could have addressed specific situations in her lessons. The student teacher said that video analysis “completely changed the conferences.” Her preparation allowed her to

come to the conferences “thirsting” and motivated to contribute to the discussion and to improve her teaching.

### *Collaboration*

Most pre-service teachers rely on their supervisors to give them feedback about their teaching (Miyata, 2002). The traditional conference seemed to fit this typical pattern. The student teacher sat in a chair with her hands clasped between her legs the entire conference as she listened to her supervisor share his observations of her teaching. The student teacher rarely made comments, even when the supervisor invited her feedback. Although it may be typical for pre-service teachers to rely on their supervisor’s feedback, Penny & Coe (2004) stated that teachers need opportunities to articulate their feelings about their teaching.

Video reflections can help pre-service teachers to improve their ability to recognize and vocalize their feelings about their teaching (Grainger, 2004; Powell, 2005). During the video conferences, the student teacher was less reliant on her supervisor to provide feedback on her teaching. The conferences became more collaborative, and the student teacher initiated many of the topics that were discussed. The student teacher commented that she enjoyed the video analysis conferences more than the traditional conferences because she was able to participate more.

Sharpe et al. (2002) noticed that as pre-service teachers continued to participate in video reflections, their “confidence and willingness” (p. 538) to contribute to the discussions increased. This seemed to be apparent in this study. As the student teacher had more opportunities to analyze her video and discuss it with her supervisor, she seemed more confident discussing her teaching. She did not seem nervous to identify or

discuss the challenges that she encountered as she was teaching. For example, she laughed when her supervisor and she watched a clip of her struggling to manage her class. Rather than being nervous to talk about something she did wrong, the student teacher appeared confident talking about her interpretation of the situation and her plans for addressing similar issues in the future.

### *Ownership*

Another benefit of the student teacher being actively involved in the reflection process was that she felt ownership over the reflection. The supervisor felt that the student teacher was “empowered” when she was given the opportunity to analyze videos of her teaching. Nicol and Crespo (2003) agreed that marking and naming specific things in teaching experiences is an important aspect of helping teachers to own the learning process. The student teacher felt more ownership because she had put more effort into thinking about how she wanted to improve, instead of just listening to how her supervisor thought she could improve.

According to Brinko (1993), “feedback from oneself is more valued, better recalled, and more credible than feedback from other sources” (p. 577). The student teacher was able to bring her own feedback to the conferences because she had the opportunity to analyze her videos prior to meeting with her supervisor. As a result, she had more control over the discussions, and she understood that the reflection process was for her benefit. The process became more about personal growth and less about proving herself to someone.

### Video Analysis Benefits

Prior to the traditional conference the student teacher did not do any formal reflection. Sometimes she thought about her lesson after she finished teaching it, but she never wrote down her thoughts. The student teacher may have been more prepared for the traditional conferences and experienced some of the benefits previously mentioned if the supervisor had asked her to do a written reflection on her teaching prior to meeting with him.

The supervisor recognized that it would have been beneficial to have the student teacher complete some type of written reflection prior to their traditional conferences. However, both the supervisor and the student teacher felt that the video analysis still provided several benefits that would not have been experienced with written reflections. The participants felt that the video analysis allowed the student teacher to notice things in her teaching that she had not remembered, helped the student teacher focus on specific areas of her teaching, and provided evidence to support their discussions.

#### *Noticing and Remembering*

The student teacher commented that the video analysis helped her to attend to things that she did not remember or notice about her teaching. The video allowed the student teacher to compare her perception of what she thought happened during her lesson to what the video captured. Sometimes she was surprised to notice that certain aspects of her teaching were different than she had remembered. For example, she thought she was very excited to be teaching a lesson, but after watching herself on the video she realized that her excitement was not demonstrated in her mannerisms. After watching the video she commented, “Wow! How can that be.”

Teachers' understandings of their performance can be limited by what they attend to during their teaching and what they can remember from their lesson (Dye, 2006; Struyk, 1993). The student teacher commented that she liked using video to reflect because it was difficult for her to be self-reflective at the same time she was teaching. Video has the affordance of capturing the lesson, so teachers are not completely reliant on their memory. Video also enables teachers to gain a new perspective on their teaching and to realize things about their lesson that they may not have attended to. (Halter, 2006). At the end of one conference the student teacher said, "I think without [video analysis] I wouldn't have realized all those things that we just talked about for forty-five minutes. I don't think I would have realized half of them." The student teacher felt that watching the video was more beneficial than having someone tell her how she needed to improve because the video allowed her to see it herself.

#### *Focusing on Specific Teaching Areas*

Most supervisor evaluations are designed to give student teachers summarized feedback about their teaching (Struyk, 1993). However, when the feedback is summarized, it may lose the specificity needed to help teachers improve on specific aspects of their teaching (Dye, 2006). Researchers have found that pre-service teachers are more likely to modify their teaching practices when feedback is more precise (Miyata, 2002; Eley & Hess, 1992, as cited in Wang, 2003). Video reflections can help teachers to focus on specific areas of their teaching practices because the video provides more precise information about their teaching (Powell, 2005; Wang, 2003). As the student teacher used video analysis to reflect, she noticed that her reflections shifted from her

general teaching practices to specific aspects of her teaching. She said that the video helped her create a list of specific ways she wanted to improve in future lessons.

### *Evidence to Support Discussions*

When teachers and supervisors reflect on a lesson, they often have different perceptions of the actual teaching experience. Although both the pre-service teacher and the supervisor witnessed the teaching performance, their perceptions are influenced by the things they attended to, as well as their memory, expectations, prior teaching experience, values, and interests. The differences between the supervisor's and pre-service teacher's perception of a teaching event can limit effective communication during post lesson conferences. When the pre-service teacher and the supervisor discuss the teaching experience, they interpret each other's messages in terms of their own perception of the teaching event. If the supervisor and the pre-service teacher discuss something that they perceive similarly, then a meaningful conversation is possible. However, if the mentor and pre-service teacher try to discuss an event that they perceived differently or did not attend to, it is difficult to have a meaningful discussion (Dye, 2006).

The participants in this study felt that they could understand each other's comments better during the video conferences because they were able to view the video clips together. The supervisor felt that video made their judgments more valid because they were able to base their comments on actual video clips rather than the supervisor's interpretation of what happened during the lesson. Brinko (1993) found that feedback is more effective when it is based on "irrefutable evidence" (p. 579). In this case, video provided the evidence to improve the communication between the pre-service teacher and the supervisor. The supervisor said, "The video allows you to say, 'We are observing this

together.” The student teacher felt that having video evidence in their conferences allowed her to challenge her supervisor’s comments and explain what she was thinking and her reasoning behind her actions, so they could have a meaningful discussion about why something happened and what they felt were most appropriate ways to address the issue.

### Video Analysis Challenges

Although video analysis helped the student teacher to be more active in the reflection process and provided several benefits that the traditional method did not provide, the participants experienced several challenges as they used video analysis. The biggest challenges for the student teacher were the technical issues that she encountered and the amount of time required to analyze her videos. The supervisor’s biggest challenges were getting a feel for the atmosphere in the student teacher’s classroom, understanding the context of the student teacher’s lesson, and establishing a relationship with the student teacher’s mentor teacher. Another challenge that both the supervisor and the student teacher experienced was having enough time during their conferences to discuss each of the clips that the student teacher marked and commented on.

#### *Technical Issues*

The student teacher described the process of digitizing her video as “one of the biggest pains in the world.” She said that it took her over 10 hours to digitize her video. Educators and researchers who are considering using video analysis tools should be aware that teachers may encounter technical issues. Teachers’ perceptions of the value of the tool may be affected by the amount of time they spend trying to solve technical

issues. If possible, researchers may consider trouble shooting some of the technical issues so teachers can spend more of their effort on the analysis of their teaching.

#### *Time Commitment*

Using video analysis required more time from the student teacher than the traditional reflection method required. During the traditional reflection, the student teacher was not required to prepare anything prior to meeting with her supervisor to reflect. However, the new reflection method required the student teacher to spend time recording her teaching, digitizing her video, watching her video, coding the video, and discussing it with her supervisor. The student teacher commented that video analysis was very helpful, and she would like to be able to use it everyday, but logistically it would be impossible because of the time commitment.

#### *Atmosphere in the Classroom*

The supervisor in this study likes to get a feel for the atmosphere in his student teachers' classrooms. This allows him to develop a better understanding of the relationship between the student teachers and their students. Observing student teachers' classrooms allows the supervisor to see how the student teachers and the students are interacting with each other and how the students are responding to the instruction and assignments given by the student teachers. Watching short video clips made it difficult for the instructor to get a feel for these things.

#### *Context of the Lesson*

Watching short video clips also made it difficult for the supervisor to understand the context of the student teacher's lesson. Since the supervisor was not present for the lessons that were videotaped, the student teacher had to spend time explaining the context

of her lessons during the conferences. Even with the explanations, it was often difficult for the supervisor to have a rich understanding of the context of the lessons.

#### *Relationship with Mentor Teacher*

The supervisor felt that it was important to establish a relationship with the student teacher's mentor teacher. This allows the supervisor to show his support and receive the mentor teacher's feedback on how the student teacher is doing. It would be difficult for the supervisor to establish a relationship with the mentor teacher if he only watched the student teacher's videos and never visited the classroom.

#### *Time to Discuss Video Clips*

The supervisor and student teacher did not have enough time during their conferences to discuss each of the video clips that the student teacher marked and commented on. The student teacher typically marked about 10 clips, and it was impossible to have an in depth conversation about each of the clips during the time allotted for the conference. During the conference the supervisor usually reviewed the clips and comments in sequential order, but the conference time always ran out before they were able to get through each of the clips. During the video analysis conferences the supervisor and student teacher faced the challenge of choosing which clips were most valuable for the student teacher to discuss.

Although the participants experienced several challenges when they used the video analysis tool to reflect, they both indicated that they plan to use it in the future. The student teacher said the time commitment would keep her from using it as often as she would like, and the supervisor said that he planned to use a combination of the

traditional department reflection and video analysis reflections with the student teachers he supervises in the future.

### Conclusions and Future Research

After comparing the student teacher's experiences using video analysis to reflect with her department's traditional reflection method, which included a classroom observation and post-lesson conference, it appeared that both video analysis and the traditional reflection method were beneficial for reflection. However, the student teacher felt that using video analysis to reflect was more useful than the department's traditional reflection method for helping her understand the changes she wanted to make in her teaching. The student teacher felt that video analysis was more useful than the traditional reflection method because it allowed her to notice things that she did not remember or attend to during her lesson, it helped her focus her reflections on specific aspects of her teaching, and the video clips provided evidence to support her discussions with her supervisor. Overall, the participants felt that video analysis was a powerful tool for helping the student teacher develop a plan to improve her teaching.

The participants also felt that the traditional reflection method provided benefits that were difficult to achieve with when the teacher only used video analysis to reflect. For example, traditional reflection method was useful for helping the supervisor to get a feel for the atmosphere of the student teacher's classroom, understand the context of the student teacher's lessons, and establish a relationship with the student teacher's mentor.

Since both methods offered benefits for reflection, the participants felt that the combination of the traditional reflection method and video analysis were optimal for helping student teachers. This supports Thomson's (1992) finding that the combination

of the conventional supervision and using video was more effective than either method by itself.

Researchers have found that it is beneficial for teachers to receive feedback from several sources (Brinko, 1993; Penny & Coe, 2004). Using multiple sources, such as classroom observations, video recording, self-reflections, etc., can help teachers gain a more accurate picture of their teaching performance (Penny & Coe, 2004). It is important for educators to remember that video is only one source of feedback that can be used to help teachers reflect. Future research should investigate how other sources of feedback can be used along with video analysis to obtain optimal benefits. Researchers may consider investigating when video analysis tools are more advantageous than other feedback methods and how video analysis can be used most effectively during supervisory conferences.

The supervisor in this study recommended what he felt was the best strategy for combining the traditional and video analysis reflection methods. He suggested that the university supervisor visit the student teacher at the beginning and end of their classroom experience. Visiting at the beginning of the student teaching experience would allow the supervisor to meet the student teacher's mentor teacher and get a feel for the ambience of the classroom. A visit at the end of the student teaching experience would allow the supervisor to talk with the mentor teacher about how the student teacher improved, what the student teacher did during the experience, and the mentor teacher's overall impressions of the experience. In between the traditional classroom observations, the supervisor recommended doing video reflections. He felt that this would make the logistics of getting to the schools easier, and the supervisor felt that it was better than the

traditional method for helping student teachers to do self-assessment. Researchers and educators may consider investigating the benefits and challenges of using this process. This would allow researchers to continue to refine the process of using video analysis tools to reflect on teaching.

Future research should also investigate how using video analysis tools to reflect impacts student learning. The literature states that improved reflections can lead to improved teaching (Dewey, 1993), and the goal of improved teaching is to improve student learning. The student teacher in this study said that using video analysis to reflect was more beneficial than the department's traditional reflection method for helping her understand the changes that she wanted to make in her teaching. However, the supervisor and student teacher never examined the impact of the changes on student learning. Therefore, future research should examine how using video analysis to reflect impacts student learning.

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## Appendix A

### Observation Sheet: Traditional Post Lesson Conferences

1. How was the data about the teaching situation collected?
2. How is the data used during the conference?
3. What judgments are made regarding teaching?
4. Who makes the judgments about the teaching?
5. Do they design an intervention plan address the judgments?
6. How is the intervention plan designed?
7. Who does the majority of the talking during the conference?
8. What does the mentor choose to talk about during the conference?
9. Does the student teacher talk during the conference? If so, what are the student teacher's comments focused on?
10. What appears to be the student teacher's role in conference?
11. What emotions does the student teacher express during the conference?
12. What are the actions of the student teacher and mentor during the conference?
13. How long was the conference?
14. Are there any contrasts between this conference and the conferences using Media Notes that stand out?

#### Possible Follow up Questions for Participants

- Is this a typical post lesson conference?
- When was the student teacher observed?
- How long was the observation of the student teacher?
- Did the supervisor take notes during the observation? If so, what kind of notes and how did they influence the conference?
- Did the student teacher write any reflection notes after the observation? If so, what kind of notes and how did they influence the conference?
- How did the mentor and student teacher decide on what to focus on during the conference?
- What did you like about this conference?

## Appendix B

### Observation Sheet: Conferences with Video Analysis

1. How was the data about the teaching situation collected?
2. How is the data used during the conference?
3. What judgments are made regarding teaching?
4. Who makes the judgments about the teaching?
5. Do they design an intervention plan to address the judgments?
6. How is the intervention plan designed?
7. How is Media Notes used during the conference?
8. How many clips are discussed?
9. Who does the majority of the talking during the conference?
10. Who initiates the topics for discussion during the conference?
11. What does the mentor choose to talk about during the conference?
12. Does the student teacher talk during the conference? If so, what are the student teacher's comments focused on?
13. What appears to be the student teacher's role in conference?
14. What emotions does the student teacher express during the post conference?
15. What are the actions of the student teacher and mentor during the conference?
16. How long was the conference?
17. Are there any contrasts between this conference and traditional post lesson conferences that stand out?

#### Possible Follow up Questions for Participants

- Is this typical of your post lesson conferences with Media Notes?
- What did you like about this conference?
- Is there anything you did not like about this conference?
- Is there something you wish you could change about conferences with Media Notes?

## Appendix C

## Faculty Interview Questions

1. Tell me about your experience using Media Notes to collect data about teaching.  
How did the student teacher use Media Notes to collect data on their teaching?  
How was the data used?
2. Tell me about your experience using Media Notes to make judgments about teaching.  
How was Media Notes used to make judgments?  
Does Media Notes influence the student teacher's ability to make judgments about their teaching? (If so, how and why?)
3. Tell me about your experience using Media Notes to develop an intervention plan.  
How was Media Notes used to develop an intervention plan?  
Does Media Notes influence the intervention plan that the student teacher develops for future teaching situations? (If so, how and why?)
4. Tell me about your experience using Media Notes to evaluate your intervention.  
How was Media Notes used to evaluate the plan of action?
5. How would you compare the student teacher's reflection using Media Notes to her reflection without Media Notes?
6. What do you perceive to be the strengths and weaknesses of using Media Notes to reflect on teaching?  
What do you perceive as the strengths and weaknesses (if any) of using Media Notes to reflect?  
What do you perceive to be the strengths and weaknesses (if any) of using the coding feature in Media Notes?  
What do you perceive to be the strengths and weaknesses (if any) of using the written reflection feature in Media Notes?  
What do you perceive to be the strengths and weaknesses (if any) of using Media Notes to facilitate discussion?  
What do you perceive to be the strengths and weaknesses (if any) of using Media Notes to make a plan of action for future teaching situations
7. How would you compare the strengths and weaknesses of using Media Notes in post lesson conferences compare with the strengths and weaknesses of traditional methods for post lesson conferences?

## Appendix D

## Student Teacher Interview Questions

1. Tell me about your experience using Media Notes to collect data about teaching.  
How did you use Media Notes to collect data on your teaching?  
How was the data used?
2. Tell me about your experience using Media Notes to make judgments about teaching.  
How was Media Notes used to make judgments?  
Does Media Notes influence your ability to make judgments about your teaching? (If so, how and why?)
3. Tell me about your experience using Media Notes to develop an intervention plan.  
How was Media Notes used to develop an intervention plan?  
Did Media Notes influence the intervention plan that you developed for future teaching situations? (If so, how and why?)
4. Tell me about your experience using Media Notes to evaluate the intervention.  
How was Media Notes used to evaluate the intervention?
5. How would you compare your reflections using Media Notes to your reflections without Media Notes?
6. What do you perceive to be the strengths and weaknesses of using Media Notes to reflect on teaching?  
What do you perceive as the strengths and weaknesses (if any) of using Media Notes to reflect?  
What do you perceive to be the strengths and weaknesses (if any) of using the coding feature in Media Notes?  
What do you perceive to be the strengths and weaknesses (if any) of using the written reflection feature in Media Notes?  
What do you perceive to be the strengths and weaknesses (if any) of using Media Notes to facilitate discussion?  
What do you perceive to be the strengths and weaknesses (if any) of using Media Notes to make a plan of action for future teaching situations
7. How would you compare the strengths and weaknesses of using Media Notes in post lesson conferences compare with the strengths and weaknesses of traditional methods for post lesson conferences?

## Appendix E

Table 1

*List of Domains and Sub Domains*

Reflection Phases	Traditional Method	New Method
Data Collection		
Strengths	<p>The supervisor was able to get a feel for the atmosphere of the classroom.</p> <p>The supervisor was able to establish a relationship with the mentor teacher.</p>	<p>The data collection was less biased than just the supervisor collecting the data.</p> <p>The student teacher felt less pressure than having data collected during a formal visit.</p> <p>It was logistically easier for the supervisor to collect data with Media Notes instead of using formal visits.</p> <p>The student teacher was able to notice things that she did not remember about her teaching.</p> <p>The student teacher was more prepared for the conference because she was able to participate in the data collection.</p>
Weaknesses	<p>It took a lot of time to travel to the school to observe the student teacher.</p> <p>Sometimes the supervisor missed the instructional part of the student teacher's lesson.</p>	<p>Using Media Notes required more work for the student teacher.</p> <p>The student teacher was initially nervous to video herself teaching.</p> <p>The student teacher struggled with technical issues.</p>

Table 1 (continued)

*List of Domains and Sub Domains*

Reflection Phases	Traditional Method	New Method
Judgments		
Strengths	The supervisor felt like he was able to make better judgments about the atmosphere of the classroom	<p>The video provided evidence to support the judgments that were made.</p> <p>There was more collaborative discussion about the judgments.</p> <p>The student teacher had more opportunities to make judgments about her teaching.</p>
Weaknesses	<p>The judgments were primarily made by the supervisor.</p> <p>It was difficult for the student teacher to remember all the situations that the supervisor made judgments about.</p>	<p>The student teacher had more “buy-in” with the judgments that were made.</p> <p>The supervisor did not have a rich feel for the context of the lesson.</p> <p>It was difficult for the supervisor to get a feel for the ambiance and flow of the classroom.</p>
Interventions		
Strengths	The supervisor has experience helping the student teacher make intervention plans and will usually follow through with the interventions.	<p>Designing the interventions was more of a collaborative effort.</p> <p>The student teacher had more “buy-in” with the interventions.</p> <p>The student teacher was able to design more specific interventions.</p>

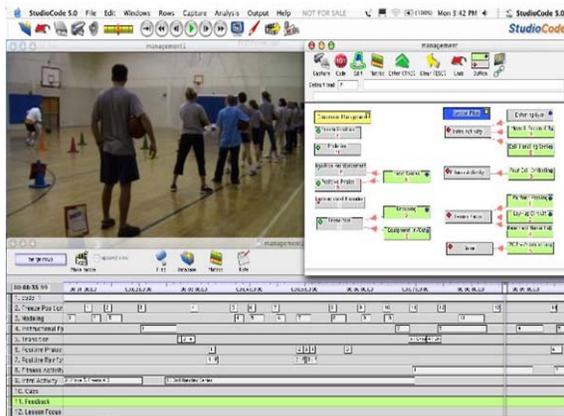
Table 1 (continued)

*List of Domains and Sub Domains*

Reflection Phases	Traditional Method	New Method
Interventions		
Weaknesses	The student teacher did not have much input on the intervention plan.	

## Figure Captions

*Figure 1.* JPEG image of Studio Code being used to analyze the teaching performance of physical education teachers.



*Figure 2.* JPEG image of Media Notes being used by students to code and annotate video examples of master teachers teaching with technology.

