2010

The Effect of Viewing Model Performances Posted on the Internet on Expressive Performance Among 7–14-Year-Old Piano Students

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THE EFFECT OF VIEWING MODEL PERFORMANCES POSTED ON THE INTERNET ON
EXPRESSIVE PERFORMANCE AMONG 7–14-YEAR-OLD PIANO STUDENTS

By

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A Dissertation submitted to the
College of Music
in partial fulfillment of the
requirements for the degree of
Doctor of Philosophy

Degree Awarded:
Summer Semester, 2010
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ACKNOWLEDGEMENTS

I would like to thank many people who have assisted and supported me throughout my coursework, research, and writing.

Dr. Madsen: Thank you for the teaching example you set in your wonderful classes, where content included recognition of the importance of compassion, appropriate behavior, and respect for others.

Dr. Gainsford: Thank you for improving my musicianship and broadening my repertoire. It was a distinct pleasure to be included in your studio. And thank you for your skillful performance of my little compositions.

Dr. Geringer: Thank you for instilling in me a fascination with music research. The idea of conducting experimental studies and using statistical analysis would have seemed beyond my grasp if I had not had the benefit of attending your classes.

Dr. McArthur: Thank you for being the inspiration behind my decision to come to F.S.U. to resume academic study. Thank you also for showing me how to have more fun in the classroom and lessons, and how a positive, creative approach can inspire young students more than any other. Finally, thank you for using your expert editing skills to help me with my writing.

To the professional studio piano teachers from the FSMTA and the CBMC who participated in my study: I'm very grateful. Without your excellent students this project could not have been completed.

A special thank you is extended to my friends and colleagues in the College of Music for your assistance and camaraderie, especially Lori, Natalie, Satoko, Nicole, XuHui, Michelle, Kirsten, and Justine.

Above all, thank you to my husband of 30 years, Robert, and our children, Emily and Cassidy. Without your love and support I would never have been able to attain this degree.
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ABSTRACT

The purpose of this study was to examine the effect of viewing model performances, which were posted on the Internet, on the expressive performance of young piano students. Participants \((N = 43)\) had a mean age of 9.88 years and a mean of 2.86 years of piano study. Participants were randomly assigned to one of two conditions, either an expressive video performance viewing condition or a static (inexpressive) video performance viewing condition, and were given the appropriate piece to learn by their respective piano teachers \((N = 17)\). After a two-week participation period, recordings were made of participant performances. These recordings were evaluated by a panel of three expert judges, who issued rating scores using a Likert-type scale from 1 to 7. Judges were asked to assign separate rating scores for expression and technique. Resultant scores were examined to determine whether a difference existed between video model conditions. Three factors also examined were the participants' gender, age, and years of piano study. Participants in the expressive video condition received higher rating scores for expression than the participants in the static video condition, but received lower scores for technique, which resulted in a significant interaction, \(F(1, 41) = 6.79, p < .05\), partial eta squared = .14. A plausible explanation is that the students in the static video condition were better able to imitate their assigned video model performances, and that successful imitation might have contributed to performances that were superior in elements such as rhythmic continuity and steadiness, but lacking in expressive qualities. While gender appeared to have had no effect on rating scores, the participants' age and years of piano study seemed to influence their ability to successfully imitate the expressive model. Although the magnitude of the effect of the video model condition on the expression and technique scores was not large, observations are made about the possible relevance of these results to the teaching and learning of expressive music performance.
CHAPTER 1

INTRODUCTION

Both technical and expressive skills are viewed as necessary elements for the achievement of expertise in music performance. Although technical skills are usually taught from the beginning of study, expressive skills are often viewed as instinctive rather than teachable (Juslin & Persson, 2002). Indeed, there is little consensus on the most effective method, age, or level of study for teaching music students how to achieve expressive performance.

In order to teach it, expressive performance must first be defined. Many music teachers believe that musical expression is the communication of emotion, perhaps specific emotions, in performance (Laukka, 2004). Some research focuses on the structure of the music and its clarification as the basis for interpretative and expressive variation in performance (e.g., Clarke, 1988). Another approach is to view expressive performance from the mechanical standpoint; that is, to determine how performers manipulate elements of music such as dynamics and tempo to create what is considered to be a "musical" or expressive performance (Palmer, 1997).

There are three basic methods by which music teachers convey expressive performance to their students: by use of metaphoric language, concrete descriptive language, and modeling (Woody, 2006a). Most teachers tend to use a combination of the three; however, metaphoric language may confuse elementary-aged students because of natural developmental limitations (e.g., Berk, 2007). Because of the difficulty in determining which of these elements is effective with children, the present experimental study, conducted with 7 – 14-year-old piano students, examined only the third method: modeling. This study attempted to isolate modeling from verbal instruction in order to explore its effectiveness.

Psychologist Albert Bandura (1977) wrote, “Most human behavior is learned observationally through modeling: from observing others, one forms an idea of how new behaviors are performed, and on later occasions this coded information serves as a guide for action” (p.22). Modeling has been shown to be an effective musical pedagogical tool across a range of age groups (Dickey, 1992), and it has also been shown that young children between four and nine years of age are able to discriminate between expressive and mechanical performance.
(Rodriguez, 1998). Given the above statements, it is reasonable to suppose that young piano students might be able to imitate expressive musical behavior and performance.

It generally is accepted that a sensitive developmental period exists for the acquisition of language that ends around the time of puberty (e.g., Hurford, 1991). This sensitive period has been explored in relation to the acquisition of musical skills and expression (e.g., Heller & Athanasulis, 2002). Musical enculturation, a term that refers to both conscious and unconscious exposure to music in everyday life, is central to the Suzuki method of teaching young children, in which music teaching attempts to utilize features of language absorption and learning. This method requires parents to expose their young children to recordings for several hours a day, creating an atmosphere of musical enculturation which has the development of sensitivity to the nuances of expressive performance as a principle goal (Bigler & Lloyd-Watts, 1998).

Listening to recorded models has been shown to be an effective addition to students' home practice. (Kostka, 2004; Zurcher, 1975). The performance accuracy of young piano students may be positively affected by exposure to recorded models (Frewen, 2010; Novak, 1999). Very few studies have employed video model recordings, which have an advantage over audio alone, since a performer can be observed demonstrating body movement in relation to sound production and expressive performance. Bodily movement is associated with both the generation and perception of expressive performance (J. W. Davidson, 2007; Juchniewicz, 2008).

**Need for the Study**

Research studies that featured the use of recorded models and imitation of expressive performance have generally employed college-aged pianists as participants. Some of these studies have indicated that a combination of verbal description and modeling was most effective for teaching expressive performance; however, these results may not be generalized to younger students (Rosenthal, 1984; Woody, 2006a). If the assumption can be made that children learn from observing and imitating the behaviors of others, and that learning the nuances of expression may be related to a developmental period that occurs before puberty, exposure to expressive performance models would seem to be a critical component in the expressive musical development of children.
The purpose of this study was to contribute to the small body of research in the area of modeling behaviors in the piano lessons of children; specifically, to attempt to determine whether the expressiveness of their performance would be affected by viewing and imitating model performances of pieces they were learning. Model performances were posted on the Internet, and student participants were randomly assigned to either an expressive performance video viewing condition or a static (inexpressive) performance video viewing condition. Their task was to attempt to imitate the performance in the assigned video. Student performances were recorded and evaluated by a panel of 3 expert judges for expression and technique. Questions addressed in this study were:

1. Would there be a difference in rating scores between participants in the expressive video condition and those in the static video condition?
2. Would expression scores differ significantly from technique scores?
3. Would the students' age, gender, or length of piano study influence rating scores?

With the advent and widespread use of high-speed Internet connections, it is possible to easily present video-recorded performances for use as models for piano students in home practice. As of the completion date of this study, no additional studies could be found that employed the Internet and video-hosting websites to provide performance models for young students. The use of a post-participation survey attempted to answer these questions:

1. Did student participants follow video viewing instructions?
2. Did students and teachers enjoy the use of the Internet video performance models?
3. Did teachers believe their students' performances were influenced by the video models?
4. Would teachers consider using Internet performance models in the future?
CHAPTER 2

REVIEW OF LITERATURE

Defining Expressive Performance

Music researchers have worked to identify and measure the various elements that when combined, create expressive performance. Madsen (1999) defined musical expression succinctly: “It has been said that all musical expression depends on only a very few interpretive attributes—loud/soft, short/long, and slow/fast. Yet, the precise arrangement of these attributes makes a great deal of difference” (p.88).

Some researchers have chosen to explore the emotional aspects of expression, regarding both the performer and/or the listener (e.g., Bever, 1988; Schellenberg, Krysciak, & Campbell, 2000; Schubert, 2004). Expression can perhaps be distinguished from emotion in music; expression could be those acoustic elements of timing, timbre, articulation, and dynamic variation that a performer controls to achieve a desired expressive performance (Palmer, 1997), without attempting to convey any specific emotions. Or, expressive performance may be considered a combination of emotional and acoustic elements that affect both the performer and the listener (Juslin, 2003; Juslin & Persson, 2002, Repp, 2000; Sloboda, 1991).

Elements such as timbre, dynamics, rhythmic timing, and articulation are intentionally varied by composers and performers for expressive means. The use of lyrics in vocal music gives this medium a distinct advantage in this arena, since a listener may more easily discern the expressive intent of the music. However, as is the case with instrumental performance, the expressive range of vocal music may be limited by a performer who fails to vary expressive musical elements appropriately due to low skill level or experience (Broomhead, 2001).

Structural Approach

It has been observed that certain expressive consistencies in skilled performance indicate that the structure of the music itself determines its interpretation. If a skilled performer is able to a) replicate his own performance years later, b) spontaneously produce an expressive interpretation of a previously unseen piece of music, and c) make immediate alterations of an interpretation, one may find the explanation to be that the structure of the music has determined the interpretation (Clarke, 1988; Shaffer, 1984). It has been hypothesized that an interpretation
“consists of a set of abstract expressive markers” and that “the structural component then acts as a framework around which the expressive markers are organized” (Clarke, 1988, pp. 14-15).

Implicit rules that guide a performer’s interpretation begin with the score, but within this framework the performer may exercise some creative freedom. A performer may use timing variations and resultant changes in forward motion to convey musical structure to the listener. For example, a phrase may be shown by a quickening of tempo towards the center, and slowing towards the end (e.g., Gabrielsson, 1988).

Thompson, Sundberg, Friberg, & Fryden, (1989) identified specific “rules” for expressive performance that include patterns of timing and dynamic adjustments based on the musical structure. These rules include lengthening and shortening of notes, denotation of phrase boundaries, marking of melodic and harmonic change, and accompanying rising pitch levels with increasing tempo and volume. The authors attempted to isolate these elements from acoustic properties that might vary and interact in actual performance by using computer-generated performances in their experiments. Melodies by famous composers were manipulated according to the proposed rules, and the number of rules that were employed varied from one to several. The “performances” that used a greater number of the rules were subsequently rated the most expressive. Since these rules are based largely on musical structure, results of this study suggest that the amount of knowledge a performer has of the structural elements in the music can affect the expressive outcome.

Todd (1992) asserted that expressive performance is largely dependent on two basic principles based on the perception and memory of the performer. These are the structure of the note groupings and phrases, and an internal sense of motion. The concept of physical gesture and motion in conjunction with rubato usage was expounded on by Todd (1995). A sense of physical motion may be linked to both variations in timing and dynamic intensity in musical performance (Todd, 1992, 1995; Palmer, 1997).

The argument has also been made that structural identification in the analytical sense is not necessary for expressive performance; rather, a learned repertoire of expressive skills or gestures is employed for emotional effect (Sloboda & Davidson, 1996). Repp (2000) stated that expressive nuances often are not dependent simply on structural elements in the music; however, the demonstration or clarification of the music’s structural elements may be inherent in a trained musician’s spontaneous interpretation. He suggested there are two interrelated components to
interpretation, one the result of cognitive structural analysis and the other the result of expressive characterization and emotional feeling.

Juslin (2003) attempted to clarify the definition of musical expression by identifying five influential factors, each with several sub-categories: the piece of music, the instrument, the performer, the listener, and the context. Juslin further expanded on his definition by presenting five facets that define musical expression as a “multi-dimensional phenomenon.” The first refers to generative rules based on structural elements of the music; the second, emotional expression; the third, random variation; the fourth, both biological and intentional motion principles, and fifth, deviations from stylistic expectations. The emotional expression component was deemed the most important for expressive judgment by listeners.

Because of limitations of the instrument, the performing pianist has certain elements available for expressive purposes in performance. Included among these is bodily movement, an effective device in a concert or video performance (e.g., Juchniewicz, 2008; J. W. Davidson, 2005); but when examining piano performance from a purely aural standpoint, researchers have focused on the manipulation of expressive timing, or "rubato," and dynamics as the method by which pianists turn their performances from "mechanical" into "musical" (Rodriguez, 1998).

**Imitative Studies**

Various research studies have explored whether expressive timing can be imitated by an experienced performer. Clarke and Baker-Short (1987) presented appropriate and inappropriate use of rubato in an imitative experiment that used three recorded versions of a short melody on the piano: “deadpan,” which was metronomic without rubato; rubato based on musical structure; and “perverse” rubato, which contained variations in timing that did not coincide with the structure of the melody. Participants were four pianists, all university music majors with over ten years of piano study. The three versions of the melody were described to the participants beforehand, and then each version was played three times. Participants were asked to imitate each performance as closely as possible.

The pianists were most successful in their imitation of structure-based rubato, and the authors concluded that it was difficult for pianists to imitate inappropriate metric deviations from the musical structure of a melody. However, Repp (2000) pointed out that the pianists’ “spontaneous” performances were not recorded before their exposure to the experimental
recordings, and because the pianists’ spontaneous performance would not be “deadpan” to begin with, it is difficult to prove that they did not already perform similarly to the appropriate model.

Repp subsequently conducted two experimental studies in which highly skilled graduate piano majors imitated computer model performances (Repp, 2000). These models were composites of artistic interpretations and variations of the first five measures of a piece by Chopin. Participants were recorded both before and during the imitation activity to insure that the imitated performances could be legitimately compared to the models. Repp identified two ways that the participants’ recordings were evaluated: in “absolute terms,” meaning how well they imitated the model, and in “relative terms,” meaning how much better the participants’ imitative performances matched the model rather than their own pre-model or “spontaneous” performance.

Results indicated participants were able to provide a fairly accurate imitation of the model, and that more practice time would be necessary for significant improvement, particularly in the imitation of timing. However, the author noted that skilled pianists naturally revert to their own spontaneous performance when imitating a model that displays appropriate variation in timing and dynamics; therefore, successful imitation of such models is more difficult to detect than imitation of inappropriate models.

In another study, expert violinists imitated a specific expressive performance of a piece by J. S. Bach (Lisboa, Williamon, Zicari, & Eiholzer, 2005). A movement from an unaccompanied sonata, repertoire that was previously learned and performed by the violinists, was selected for this study. Performers in the experimental group \( n = 3 \) attempted to imitate a recorded performance by violinist Jascha Heifetz. The authors found that the violinists had limited success imitating the model after working for an average of two weeks. One month later, participants were again recorded performing the same piece. Results indicated that these performers combined expressive elements from the model with their pre-study interpretation; however, they generally tended to revert to the expressive elements of their pre-experimental performance.

Advanced college pianists were better able to imitate expressive dynamics when specific expressive features were verbally identified (Woody, 1999, 2002). Because of previous experience, these musicians more easily detected the dynamic variations that were exceptional and unexpected, and were less likely to notice subtle variations. The author suggested that less-
experienced musicians may need to have subtle expressive variations pointed out to them or they may go undetected. Woody (2003) conducted a similar study in which advanced university piano students were exposed to both a “deadpan” and an expressive performance, and subsequently attempted to imitate the expressive version. Again, the author recommended that teachers verbally assist students by pointing out specific expressive elements. He further suggested that student musicians should develop both an “explicit plan” for expressive performance and self-monitoring skills to assure that expressive performance goals are met.

**Body Movement in Performance**

Because they are able to use only hand, body, and facial gestures to convey expressive direction in musical performance, conductors are musicians for whom bodily movement is critical (e.g., Seitz, 2005). An instrumentalist’s body movement also plays an important role in generating expressive performance. In addition to making the necessary physical movements to produce sound on an instrument, a performer’s movement, which includes a repertoire of learned gestures, is associated with communicative aspects of performance (J. W. Davidson, 2005; Davidson & Borthwick, 2002). There is a correlation between the size of movements and the degree of intensity; for example, a musician might make larger movements and gestures as the intensity increases (J. W. Davidson, 2005; Davidson & Borthwick, 2002). The velocity of movements, particularly of the head, may affect perception of specific expressive conditions (Castellano, Mortillaro, Camurri, Volpe, & Scherer, 2008; Dahl & Friberg, 2007). It has been proposed that the elements of expressive performance including cadence points, variations of timing, and phrasing are highly related to bodily processes (Seitz, 2005). When asked to perform a piece without expression, experienced musicians will likely limit their physical movement without prompting (J. W. Davidson, 2007).

A performer’s bodily movements and facial expressions enhance the musical experience for listeners, giving clarity to both structural and emotional intentions (Thompson, Graham, & Russo, 2005; Vines, Krumhansl, Wanderly, & Levitin, 2006). Although expressive musical performance can be understood without being seen, the impact of visual elements strongly affects audience perception (J. W. Davidson, 2005). Unskilled listeners may rely entirely on visual elements of a performance to obtain expressive information (J. W. Davidson, 1993); however, skilled listeners may be affected as well. In a study by Juchniewicz (2008), undergraduate and graduate university music majors ($N = 116$) were shown three piano
performance videos that featured varying amounts of performer movement. Unknown to participants, the same recording provided the audio track for all three videos; the only variation was the amount of body movement exhibited by the pianist. Participants rated the video performance that featured the most performer movement significantly higher on three selected expressive elements as well as on the overall performance. These results suggest that skilled listeners’ evaluations of expressiveness are significantly affected by a performer’s body movements.

**Teaching Expression**

Expressivity is highly regarded among instrumental teachers (e.g., Laukka, 2004), but despite its importance, several studies of instrumental teaching have indicated that the majority of lesson time is spent in the teaching of technique (Karlsson & Juslin, 2008; Young, Burwell, & Pickup, 2003). It has been established that effective practice is essential for developing expertise in musical performance (Ericsson, Krampe, & Tesch-Romer, 1993; Sloboda, Davidson, Howe, & Moore, 1996). Since a principal goal of mastering an instrument is to perform with expression, it should follow that a greater number of instructional and practice techniques that develop expressive performance would be explored (Davidson, Pitts, & Correia, 2001; Juslin & Persson, 2002; Karlsson & Juslin, 2008; Tait, 1992). However, some teachers believe that expression cannot be taught or that it should not be taught (Juslin & Persson, 2002; Laukka, 2004). These ideas are generally based on non-empirical beliefs about innate ability; that teaching expression will ruin its “mystery” and dampen creativity, and the notion that musical expression cannot be defined.

A survey of 135 conservatory music students (18-43 years of age) revealed that expressivity was rated as the most important characteristic of musical performance (Lindstrom, Juslin, Bresin, & Williamon, 2003). “Playing with feeling” and “communicating emotion” were terms participants most often used for defining expression. Survey results showed that the amount of time participants spent on expressivity increased with age, and participants indicated their desire to spend more time practicing expression. In another survey, college musicians were found to value expressivity highly, rating it as perhaps the most important element of musical performance (Woody, 2000).
A survey of 51 instrumental teachers in England and Sweden indicated that how expressive performance is taught is largely unknown (Laukka, 2004). This survey asked participants, all of whom were conservatory teachers who worked with college-aged students, to answer questions about the definition of expression and how to teach it. Sixty-four percent of the teachers ranked expressivity as the most appreciated characteristic of musical performance yet did not spend as much time focusing on teaching expression as they would like. Participants felt expressive skills should be taught at an earlier stage; the mean indicated length of study was 2.6 years.

Some researchers have attempted to show that expressive performance can be taught (e.g. Johnson, 1998; Marchand, 1975). Advanced graduate music students used a software program, combined with concrete verbal instruction, to create a more musical performance with expressive timing variations (Johnson, 1998). Results suggested that musicians can learn to modify their interpretations to make them more expressive. After further research that included dynamic as well as rhythmic variation, Johnson (2000, 2000/2001) asserted that the elements for forming an appropriate interpretation must be taught to students because they do not generally appear on the score. This idea was purported by Gabrielsson (1988) who stated that for musical performers, the score is only a starting point. Implicit rules that govern appropriate expressive variations from the score are learned and taught through actual practice (Gabrielsson & Juslin, 1996). Musicians at first consciously learn expressive cues, but later internalize and unconsciously employ these cues (Juslin & Persson, 2002).

Three methods for teaching expression in music were compared by Woody (2006a). Methods were verbal imagery and metaphor, verbal concrete description, and aural modeling. Participants (N = 36) were college piano students, with equal sized groups of keyboard and non-keyboard music majors. Non-keyboard majors had an average of 9.3 years of private piano instruction. Each participant was given three melodies to learn with instruction in each of the conditions. Following a short practice time and the recording of a "baseline" performance, pianists were given expressive instruction, allowed to practice again, and were recorded. Results indicated that, although the pianists were able to effectively perform under all three conditions, no one of the instructional methods was the most successful. In the aural modeling condition, participants were inclined to attempt to perform an exact imitation of the model. The concrete description was inconsistent, and the imagery/metaphor conditions produced more variety, but
not necessarily in the desired direction. The author noted that these results may not apply to younger or less-experienced piano students.

While there are hundreds of publications on teaching functional skills such as ear-training and theory, there are few books about teaching expressive performance (Repp, 2000). The question of how best to teach students the concept of generating and practicing expressive musical performance has been explored in recent research, however, most of this research employed adult participants, and results may not apply to younger musicians (Woody, 2006a). Perhaps unfortunately, assessment of adolescents and children is usually based on technical achievement, while emotional expression and interpretation are skills upon which adults are evaluated (Sloboda, 1991). Teachers of children tend to focus on technical aspects of the instrument, and chiefly direct students to practice notational and motor activities (Crum, 1998; Davidson, Pitts, & Correia, 2001; Kaplan, 2003).

**Children and Musical Expression**

Young children between the ages of 4 and 9 were found to have the ability to discriminate between mechanical and expressive performance, with accuracy levels increasing with age. Rodriguez (1998) selected 60 students, 20 each from kindergarten, second, and fourth grade general music classes to participate in a three-part study to examine expressive perception, performance, and description. The results of the perception portion of the study demonstrated that given two choices, mechanical or expressive, children were able to differentiate correctly with sixty percent accuracy, with a significant difference occurring between the kindergarten and older participants. The author stated that expressiveness perception skills in music can be developed at earlier ages than traditionally thought, and recommended the exposure to discrimination skills from the earliest stages of music training.

Davidson, Pitts, & Correia (2001) observed that beginning instrumental students are naturally concerned with the technical demands of learning to produce sounds on their instruments, but early ignoring of expressive aspects can become habitual. They asserted that children respond to a whole-body approach to learning expressive musical performance, away from notation, with encouragement for creative experimentation. Although it is more demanding of music teachers, these authors state that expression should be the focus of musical instruction, not something to be addressed and added later on. Such an approach may lead to less dependence
on adult intervention and imitation and lay the foundation for the understanding of musical expression.

Manno (1993) attempted to determine which expressive elements were appropriate for teaching elementary piano students and evaluated their appearance in various piano teaching method books. Expressive elements included “breathing between phrases,” observance of expression marks, correct rhythm, articulations, rests, pedaling, and fingerings. He observed that current popular pedagogical books often neglected to give instructions for, or to even mention, the teaching of expressive performance. By contrast, more contemporary pedagogy books encourage teachers to include elements of expressive performance in the piano lessons of children. A full chapter is devoted to the development of musicality in elementary piano students in a text designed for professional piano teachers (Jacobson, 2006). Here teachers are given advice and creative strategies for encouraging young students to learn to self-evaluate their playing, understand structural aspects of the music, use expressive imagery, and to connect emotions with musical communication. The beginning piano method series, Piano Adventures, features companion books entitled, Technique and Artistry, which are designed to expose young children to expressive concepts (Faber, Faber, & McArthur, 1996). Another popular method, Alfred Premier Piano Course, introduces expressive elements beginning with the earliest levels of instruction (Alexander, Kowalchyk, Lancaster, McArthur, & Mier, 2005).

**Critical Period for Learning Expression**

An amount of research has been done in the area of the existence of a critical period for learning expression in language and a possible connection to the understanding and acquisition of musical expression. Early childhood exposure to music provides optimal opportunities for the development of musical aptitude (Rogers, 1990), and this early exposure may enhance children’s sensitivity to music. Some researchers have linked early exposure to musical training with the acquisition of intonation and pitch accuracy, including absolute pitch acquisition (Gruhn, 2002; Miyazaki & Ogawa, 2008; Vitouch, 2003). It has been established that the peak of the brain’s synaptic growth has been achieved by the age of ten (Nash, 1997), and in an analysis of brain plasticity and the role of early musical training on the development of tonal induction, it was suggested that as with linguistic processes, this plasticity declines with age (Cohen, 2000). There may be evidence for a theory of two sensitive periods for music acquisition; the first in early childhood, where the basic “grammar” of music is learned, and the second in adolescence, where
the “vernacular stylistic” and emotional elements are learned (Cohen, McFadden, & Bailey, 2005).

Although a link between language and music acquisition is acknowledged by many researchers (i.e., Piro & Ortiz, 2009), some have argued that speech and music perception develop along different paths, and that musical development does not co-vary with the development of language skills (Fassbender, 1996; Rogers, 1990). However, a comparison can be made between complex structures in music and their acquisition with that of basic elements of language, and as a result, research suggests musical training may be employed as a strategy for improving language skills in children with reading problems (Bygrave, 1995-1996; Douglas & Willatts, 1994; Hannon & Trainor, 2007). Children with specific language impairment (a disability that causes difficulty in processing syntax) also demonstrate difficulty in processing musical syntax, and an effective therapy for this disability can include musical training (Jentschke, Koelsch, Sallat, & Friederici, 2008; Marin, 2009).

The acquisition of speech prosody, the rhythm and intonation of language, may parallel that of music (Palmer & Hutchins, 2006). In a study of adults’ ability to acquire the phonology of a second language, a positive correlation was detected between musical skills and phonology (Slevc & Miyake, 2006). An individual who learns a second language after the age of ten, and particularly after the onset of puberty, is unlikely to be able to speak it as well as a native speaker (Begley, 1996; Johnson & Newport, 1989).

McMullen and Saffran (2004) examined music acquisition from a developmental standpoint, stating that infants acquire language and musical knowledge at a rate that far exceeds their ability to demonstrate. Infants absorb what they hear even though they may not be able to comprehend and are unable to generate correct reproductions (Scott, 2004). It is possible that infants perceive fundamental qualities of music before birth, and there is some evidence that they can also discern emotions from musical performance (Juslin & Laukka, 2003; Papousek, 1996). Children as young as four years of age are able to match emotion in facial expressions to musical emotion (Nawrot, 2003).

Vocal expression and music performance use similar acoustic cues to express emotion and some research suggests that musical training may impact emotion-detection abilities in speech (Ilie & Thompson, 2005; Juslin & Laukka, 2003; Palmer & Hutchins, 2006). In the same manner that children learn to use elements such as pitch, rhythm, and dynamics in speech to
convey emotional expression, they learn to perceive such expressive elements in music. Parallels between speech and language expression are observed when young children demonstrate the emotion of happiness by singing louder, faster, and at a higher pitch level, and portray sadness by singing slower, lower, and more quietly (Adachi and Trehub, 1998). Dolgin and Adelson (1990) determined that although four-year-olds were better able to recognize emotions in vocal music, they were also able to do so, albeit to a lesser degree, with instrumental music, perhaps because of instrumental imitation of the emotional features of the voice. Musicians’ perception of emotion in speech may be biologically enhanced by earlier and continued musical training (Strait, Kraus, Skoe, & Ashley, 2009).

Research into the development of the human brain has been abundant in recent years, partly as a consequence of advances in scientific measurement. An examination of the brains of professional musicians revealed that they are physically different than those of non-musicians, particularly if musical training began before age seven (Begley, 2000). A study of patterns of brain waves in a group of eight-year-olds before and after six months of musical training showed changes in the development of neural processes, resulting in an improvement of pitch discrimination in both music and speech (Moreno, Marques, Santos, Santos, Castro, & Besson, 2008). It is more difficult to gain mastery of a musical instrument as an adult if it was not first learned in childhood; akin to remembering how to ride a bicycle, early music training establishes a "muscle memory" that may be retrieved in adulthood (Begley, 1996).

Determining developmental patterns and adapting instruction might be the key to learning how to make music meaningful to young children (Rodriguez & Webster, 1997). Heller and Athanasulis (2002) stated that the manner in which a phrase is delivered is as important as the word selection, and similarly, the way that a musical phrase is performed is as important as its notes. They argue that since children learn these subtle rules of music and language simultaneously from exposure to models during a sensitive period in early childhood, teachers should focus on the expressive elements of music over traditional note-based concepts.

**Metaphoric Language**

Piano instructors often use metaphors to inspire expressive performance (e.g., Lindstrom, Juslin, Bresin, & Williamon, 2003; Woody, 2006a). However, younger students may be unable to understand the double meaning that characterizes metaphoric language. At the age of ten, many children have a basic understanding of metaphors but are too unsophisticated to apply
them appropriately (Winner, Rosenstiel, & Gardner, 1976). Understanding of metaphoric language generally increases with age (Purser, Thomas, Snoxall, & Mareschal, 2009; Winner, et.al) and can be a valuable educative tool (Vosniadou, 1987).

Because of natural developmental limitations, a metaphor may confuse a child. According to the influential 20th century cognitive theorist Jean Piaget, children under 11 years of age are not yet capable of abstract thinking (Berk, 2007). Piaget divided childhood into developmental stages, and grouped children between the ages of 7 and 11 years into the “concrete operational” stage, characterized by logical reasoning. Therefore, it is likely that children in this age group may be inclined to form a literal, rather than a conceptual, interpretation of a metaphor.

In an exploratory study, older, more experienced music students used a greater amount of metaphoric language than did younger, less experienced students when describing their expressive intentions in a video-taped practice segment (Rosenthal, Durairaj, & Magann, 2009). The principal use of metaphor was in reference to physical motion, especially among the younger, high school-aged participants.

Music instructors may need to exercise caution when using metaphoric language in their lessons (Sheldon, 2004). Woody (2006b) clearly stated this concern:

> Certainly the vocabulary used by instructors must be age-appropriate for their students, and match their experience base. More generally, however, it seems important that students not only understand the meanings of words used in their teachers' verbal descriptions, but also be fairly familiar with the broader point of the entire image. This point also emphasizes that a teacher's influence— for good or for bad— can extend well beyond the classroom or studio. Confusing instruction on the part of the teacher can contribute to inefficient practicing by the student. (p. 134)

**Modeling**

Psychologist Albert Bandura asserted that attention, retention, reproduction, and motivation are key factors for human learning, and are essential components of his “social learning” theory. Bandura (1977) wrote, “Most human behavior is learned observationally through modeling: from observing others, one forms an idea of how new behaviors are performed, and on later occasions this coded information serves as a guide for action” (p. 22). He
pointed out that by observing and imitating model behaviors, learners are able to avoid making needless errors. Recent research continues to support Bandura by asserting that observation and imitation of behavior provide faster, more varied, and safer learning opportunities than learning by trial and error (e.g., Meltzoff, Kuhl, Movellan, & Sejnowski, 2009).

The idea of learning by observing others is certainly applicable to music teaching, particularly considering a technique such as teacher demonstration, which by nature encourages imitative behaviors. Modeling in musical instruction is defined as the live or recorded presentation of anything that may be later imitated by an observer (Madsen, Greer, & Madsen, 1975). Imitation is an important component in the development of musical performance skills (L. Davidson, 1989; Madsen, 1997); observation and imitation have long been integral in the teaching and learning of music (Woodard, 2009). Priest (1989) argued that instrumental teachers do not generally acknowledge the benefits of imitative learning, although they employ imitation every time they use musical demonstration in their teaching. Some instrumental music teachers attach a stigma to rote teaching by imitation, but if used appropriately, modeling is a useful teaching device (L. Davidson, 1989; Haston, 2007; Sang, 1987).

Instrumental school teachers may find modeling to be a more effective use of class time than verbalization in developing performance skills (Sang, 1987). Dickey (1991) determined that modeling was significantly more effective than verbal direction among novice instrumental students. Dickey’s study employed a one factor pretest-posttest design, replicated concurrently by a trained colleague. Participants were middle school instrumental students (N = 128), subjected to a control-treatment design where the control was verbal instruction and the treatment was non-verbal modeling instruction. Verbal instruction included explanations, directions, analogies, and metaphors. Non-verbal instruction consisted mainly of teacher demonstration and student imitation. The results inspired the recommendation that teachers should use modeling when possible; that it replaces a verbal description with a musical experience, and is effective in demonstrating “virtually any musical phenomenon that is encountered in the instrumental music class” (p. 141).

Among other things, performance modeling, which most often features teacher demonstration and student imitation, can help learners to understand the flow of phrases, style features, and rhythmic interpretations (Rosenthal, 1984). Teacher modeling was found to be one of the key elements in a study of studio music teaching expertise (Duke & Simmons, 2006).
Modeling has been shown to be successful within a wide distribution of student ages (Dickey, 1992), and in fact is nothing new; for example, one of Frédéric Chopin’s most famous pupils, Karol Mikuli, wrote that Chopin repeatedly played not just sections, but entire pieces to convey his meaning (Eigeldinger, 1986).

Less "teacher talk" and more teacher demonstration were indicated as important elements of student-centered, as opposed to teacher-centered piano lessons (Chappell, 1999). It has been suggested that teacher demonstration provides an efficient use of lesson instruction time for both child and adult students (Kostka, 1984). An aural model presents a performance goal and provides students with the means to recognize errors and make corrections (Frewen, 2010).

An investigation into teaching behaviors in individual piano lessons revealed that the most effective lessons contained more episodes of teacher modeling (Siebenaler, 1997). Thirteen teachers, each with one adult and one child student, were video-taped over a period of three consecutive piano lessons, resulting in a total of 78 recordings. These recordings were analyzed for behavior content and student progress. Results indicated that the amount of teacher modeling in lessons was positively related to improved student performance scores. Interestingly, results also indicated that the amount of time spent on student performance in lessons was not positively related to improved performance scores.

Verbal instruction is not as effective as modeling for music training (Dickey, 1991; Rosenthal, 1984), in fact, sometimes musical directions cannot be put into words and modeling is the only way to convey the concepts (L. Davidson, 1989; Polk, 2006). This is especially important in the teaching of novice musicians and children, who have little experience with expressive language and concepts in music. Verbal instruction, if not clear, may serve only to confuse students (Woody, 2000), and a demonstration may negate the necessity of choosing words to explain complex musical ideas (Byrne, 2005). Aural modeling is a useful non-verbal form of precise teaching that can enhance both the development of skills and student creativity (L. Davidson, 1989; Tait, 1992). Bandura (1977) stated that modeling may enhance innovation, as observers absorb different aspects of model performances and use these observations to build something new. This concept was demonstrated by Ebie (2004), who found that middle school-aged vocalists transferred learned musical behavior from an aural model to their performance of a different piece of music.
In a survey of 46 undergraduate music majors, participants most often indicated that modeling was their chief source for learning expressivity, including teacher demonstration, observing peers, and listening to professional recordings (Woody, 2000). Subjects who studied with demonstration-oriented teachers reported that they spent more practice time on emotional elements in their practice than did those who studied with verbal-oriented instructors.

**Use of Recordings as Models**

Musicians frequently listen to a wide variety of recorded performances, analyzing and comparing differences, thereby contributing to the development of their own interpretation without physical practice (Barry & Hallem, 2002). In a study on practice techniques, Rosenthal, Wilson, Evans, and Greenwalt (1988) found that advanced musicians who simply listened to a model performance without physical practice performed as well as their counterparts who had practiced on their instruments. Purposeful practice is preferable to unsystematic, haphazard practice, and may contain elements in addition to motor activities such as listening to model performances (Radocy & Boyle, 2004). Barry & McArthur (1994) stated that although performance is improved by listening to performance models, professional music teachers who participated in a survey did not consistently assign listening tasks to their students, the majority of whom were pre-college students. Exposure to recorded performances of high quality can be an important component of the home musical routines for beginning students. Aural models provide useful practice guides (Kostka, 2004; Zurcher, 1975), but as students progress, caution must be exercised to prevent the development of “stereotypical” performances caused by use of a single recorded example (Barry & Hallam, 2002).

Teachers trained in the Suzuki method of music instruction routinely use modeling and encourage students to imitate recordings (Barber, 1991). A popular handbook for Suzuki instruction states that “the whole basis of Suzuki education is imitation and repetition” (Bigler & Lloyd-Watts, 1998, p. 26). The Suzuki method depends greatly on the use of aural models in the training of young students. Recordings of all repertoire pieces are provided to parents, who are asked to expose the children to them as much as possible. Instructions include providing two hours of passive listening each day, where the child is not actively listening, but can hear the model performances while engaging in play and other activities. In addition, parents are encouraged to play the recordings in the car, during mealtime, and at bedtime. The parent’s chief
responsibility is to provide an environment where this music is easily absorbed by its frequent presence in daily life, thus contributing to the development of the child’s “musical ear.” The purported results of the frequent listening include the development of sensitivity to pitch, sequence, pattern, memory, and most importantly, the nuances of musical expression (Bigler & Lloyd-Watts, 1998).

**Aural Models and Pre-College Music Classes**

Results of studies on the effect of aural models on performance scores for middle and high school band students have been mixed. Anderson (1981) explored the use of aural models in home practice on specific skills among sixth-grade clarinet students. The skills that were evaluated were pitch and rhythm reading, tempo accuracy, and intonation. Although there was not a significant difference between performance scores of the groups that used the aural models and those who did not, results may have been somewhat compromised by the fact that all participants performed for the band director and received feedback, and all were exposed to correctly-performed models. A subsequent study conducted among high school band students revealed that those participants who used an aural model in their practice sessions had significantly higher scores on the rhythm portion of the posttest, although not on the portions that consisted of tempo pattern variations and pitch discrimination (Henley, 2001). Results were interesting enough for the author to suggest that recorded models may be useful for preventing students from learning errors in the absence of an instructor.

Morrison, Montemayor, & Wiltshire (2004) conducted a five-week study that employed aural model recordings featuring ensemble performances of music selections on which bands from three middle schools and two high schools were working. Participants in the experimental (aural model) group heard the entire model performance once per week and an excerpt on each day. Pretest and posttest recordings were evaluated by a panel of five experienced instrumental teachers, and no significant difference was found between the model and no model condition scores. In addition to the professional evaluations, the students were asked for personal opinions in the form of self-evaluation questionnaires. An interesting finding from the questionnaires was that the younger students referred to the expression and phrasing of the model performances more than did the older students. The authors suspected that perhaps this resulted from the younger students’ previous unfamiliarity with such elements performed at a high level of excellence.
It has been shown that self-evaluation, or self-monitoring skills are developed gradually after several years of music study (Palmer & Drake, 1997). Recording and evaluating one’s own performance may be useful in this regard (Barry & McArthur, 1994; Hallam, 2001). Hewitt (2001) investigated the use of aural models, self-recording and self-evaluation among seventh through ninth grade band students and found that self-evaluation improved performance only when combined with a model performance recording. These findings suggest that students may not be equipped to self-evaluate without a model with which to compare their own performance. Results of the study revealed a significant difference between overall performance achievement of students in the aural model group vs. the no model group, suggesting that middle school band students will benefit from listening to aural models of unfamiliar music.

Aural modeling has been shown to be a useful practice technique for elementary level band musicians. Zurcher (1975) used recorded performances on cassette tapes as home practice models for beginning brass students and found that students who used the tapes improved performance in four of the six measured criteria over those who did not, regardless of the amount of practice. Puopolo (1971) garnered similar results with a study that used aural model performances in programmed practice guides to affect performance achievement among fifth grade band students. In a later study, sixth grade band students ($N = 40$) were exposed to three techniques for learning a short musical example: simply sight-reading (control), mental rehearsal, free practice, and listening to an aural model (Fortney, 1992). Each student was allowed 2 minutes of practice before being recorded for expert evaluation. The pretest-posttest comparison showed a significant gain only for the aural modeling technique, which gained 5 points. This was followed by silent analysis (mental rehearsal), which had a gain of 2.6 points; free practice, with a gain of 1 point; and the control group (sight-readers), who gained only .4 points on the posttest.

Although there are a number of published research studies about the use of recorded aural models for band instrument instruction for children, fewer have appeared in publication in the area of vocal/choral instruction. In a study conducted among third and fourth grade students, Baker (1980) used aural song models, both appropriate and inappropriate in the use of tempo and dynamics. Students were exposed to the models by listening and singing along, and as a posttest, were directed to indicate preference between given recordings then asked to sing two songs. Results suggested that children’s performance preferences are influenced by the way in which
they are taught, appropriate or not. This presents serious concerns for music education in that the
group of models used for teaching children must be carefully considered.

**Aural Models and Pre-College Piano Students**

A limited number of studies with children and aural models in piano instruction can be
found. Frewen (2010) examined the effect of exposing children in kindergarten through fourth
grade music classes ($N = 97$; ages 5 to 10) to an aural model of a melody prior to teaching them
to play it on the piano. The children in the experimental group listened to a recorded model over
a period of two weeks and subsequently performed significantly more correct notes and
measures than the children in the control group, who were not exposed to the model in advance.
The author suggested that prior exposure to the model provided participants with a greater ability
to detect errors and self-correct.

Novak (1999) conducted a two-phased study among intermediate level piano students ($N
= 60$) between the ages of 9 and 18, the purpose of which was to determine the effect of various
practice treatments on five dependent variables: accuracy of notes, rhythms, articulation, tempo,
and “phrasing-dynamics.” In Phase 1, practice treatments consisted of modeling, where students
combined listening to an expert recording of the piece with physical practice; singing, combined
singing with physical practice; silent analysis, where students studied the score away from the
piano, then physically practiced; and free practice, in which students simply physically practiced.
Results of Phase 1 indicated that, although there was no significant difference between treatment
group scores, the modeling group received the highest scores on three of the five variables
(rhythm, articulation, and phrasing-dynamics).

Since modeling was the most successful treatment in Phase 1, Phase 2 focused on
modeling alone and in combination with singing and silent analysis. Participants ($N = 40$),
selected from Phase 1, were divided into three treatment and one control group. No significant
difference was found between treatment groups, but all were significantly higher-scoring than
the control group. Treatment group gain scores between the pretest and posttest were significant
in three of the five variables (notes, rhythms, and phrasing-dynamics). In addition, although not
significant, the modeling alone condition produced the highest scores in notes and rhythms, and
the silent analysis/modeling group scored highest in phrasing-dynamics. The findings of this
study suggest that young piano students may improve the accuracy and expression of their
performance of a piece of music by listening to a recording of an expert performance as a part of the practice routine.

**Video Recordings**

The use of video technology in music education has been examined to some extent in research literature, particularly as it applies to classroom instruction. An advantage that video recordings have over audio alone is the demonstration of body movement in relation to sound production. Linklater (1997) compared the usefulness of videotaped models with aural-only models among fifth and sixth grade beginning clarinet students in a one factor, posttest only study. Students were assigned aural or video model recordings and instructed to use them in their home practice. Although results were not significant, the author suggested that video models proved beneficial to the parents of the students, who, by observing expert performance models, were better able to help their children to practice. The children in the video model condition exhibited increased performance achievement, attributable to the parental assistance.

Video models may stimulate subconscious imitative learning. With the advent of sophisticated brain-imaging technology there is increased interest in examining how the brain physically processes information. An area of scientific research specifically related to imitative behavior involves the mirror neuron system. Mirror neurons are neurons that are activated both when an animal performs a behavior and when it observes the same behavior in another animal. These neurons, found in certain species of monkeys, are alleged to exist in humans as well (e.g., Kilner, Neal, Weiskopf, Friston, & Frith, 2009; Rizzolatti, 2005). Mirror neurons stimulate imitation of observed behavior in the observer. Whether mirror neurons cause learning of new behaviors or stimulation of previously learned behaviors is still not clear (Woodard, 2009).

**Summary**

The importance of expression in music is universally agreed upon, yet it is an elusive concept to define. This elusiveness, combined with a lack of generally tested and accepted teaching techniques, often contributes to the neglect of this vital aspect of performance in classroom and studio instruction, which, in the case of young students, may instill a habitual neglect of expressive elements that is difficult to reverse (Davidson, Pitts, & Correia, 2001).

It has been shown that teaching expressive performance may be successfully achieved by non-verbal means. This is an important consideration when teaching very young students, who
because of their age and maturity level may not understand the language of musical concepts, metaphors, and descriptions. Early exposure to expressive musical performance may be especially important in light of a possible relation to a sensitive period for expressive language acquisition, which occurs before puberty. Assuming that much of the learning that takes place in childhood occurs as a result of observation and imitation of the behaviors of others, exposure to expressive performance models would seem to be a critical component of the musical development of young musicians.
CHAPTER 3

METHOD

This study was designed to test the hypothesis that by viewing model video performances on the Internet, expressive performance among young piano students would be affected. Two conditions were employed, exposure to a static (inexpressive) video performance model and exposure to an expressive video performance model. A one-factor, posttest only design was used to determine if there was an overall effect. The independent variable was the use of the video model performances, and the dependent variable was performance rating scores assigned by a panel of judges. Additional factors examined for possible effects on the dependent variable included the age, gender, and attained years of piano study of the participants. Prior to beginning the study, approval from the Human Subjects Committee at the Office of the Vice President for Research at The Florida State University was conferred (see Appendix A).

Participants

Participants \((N = 43)\), aged 7 – 14, were students enrolled in piano lessons in the private studios of 17 teachers from six counties in Florida. Students were placed into one of four groups according to age, and randomly assigned to one of the two conditions. Participants were obtained by contacting members of piano teachers’ organizations including the state associations of the Music Teachers National Association and the National Federation of Music Clubs (see Appendix B). Individual teachers solicited student volunteers from among their classes for participation, and consent was obtained from teachers and parents of participants, as well as assent from the participants (see Appendix C).

Procedure

Compositions

Four original compositions (see Appendices D – G.), composed by the researcher, were used for creating the performance models and for performance by student participants. Pieces were designed to specifically address the needs of this study. First, it was important that the pieces were unfamiliar to participants. Second, it was necessary that the pieces were of such a
length that they could be learned in two weeks, and third, it was important that the pieces contained the potential for employment of expressive elements, appropriate to the age and skill level of young piano students. Opportunities for expressive performance were provided by features such as flowing melodies, moderate tempos, and use of the sustaining pedal. The compositions were of four approximate levels of increasing difficulty from elementary to intermediate. To assure content validity, the pieces were evaluated by two expert pedagogues. One of the experts holds a master’s degree in piano performance, and has specialized in teaching piano to young children for 20 years. The other expert has taught piano to children for over 30 years, and works as an editor and writer of piano teaching materials.

Descriptive titles were not attached to the compositions. Scores contained typical expression markings that students of this level might encounter such as crescendo, diminuendo, ritard, and fermata. However, teachers were instructed not to comment on expressive markings and to correct only notes and rhythm if necessary. In order to avoid confusing students by presenting more than one aural model, teachers were asked not to perform any portion of the piece themselves. Woody (2006) explored three methods by which teachers convey expression in music to students: by aural modeling, concrete verbal description, and verbal metaphor and imagery. This study attempted to isolate modeling away from possible confounding effects of the descriptive and metaphoric means of teaching expression.

**Recording and Posting of Video Models**

All pieces were performed by the same performer, who is a university piano professor and concert artist. Performances were videotaped on a Kodak Zi8 HD video camera with a Sony ECM-717 external stereo microphone, and uploaded to an Internet video-sharing website (see Appendices H – O.). Two versions of each piece were recorded; the first, a static performance with minimal expressive elements, and the second, a performance with appropriate expressive elements. It has been shown that highly trained pianists are not able to perform completely free of expressive elements (Clarke & Baker-Short, 1987; Repp, 2000; Woody, 2003). The static performance featured a minimum amount of physical movement by the performer, and the expressive performance contained appropriate, but not excessive, physical movements. Research in the area of bodily movements on a pianist’s ability to be expressive has demonstrated that bodily movements play an important role (Davidson & Correia, 2002), and that such movements affect the listener’s perception of emotional expressiveness (Juchniewicz, 2008).
Participants were assigned to one of two model performance viewing conditions, either the static performance or the expressive performance. Popular Internet video hosting sites such as YouTube.com (http://www.youtube.com/) provide links to videos that are posted by the same account holder, and when a video is viewed, additional postings by the same author or e-mail account appear on the page. Therefore, accounts at two separate Internet hosting sites were created under two different identities to avoid the confounding of results that might occur if participants purposely or inadvertently viewed the opposing performances. The expressive performances were posted on YouTube.com, and the static performances on Metacafe.com (http://www.metacafe.com/). Each video was titled with a numeric code to be provided to participants for location and downloading purposes.

**Implementation**

Once teachers expressed an interest in participating, all four pieces were sent to them as PDF files via e-mail. Teachers were asked to select the piece(s) for their student(s), and to e-mail the name of the student, age, and piece number, but to not expose the students to any of the pieces until directed. Each student was assigned to one of four age groups: Group I: 7-8; Group II: 9-10; Group III: 11-12; Group IV: 13-14. A coin was tossed when the first student name in each group was received to determine whether he/she would be placed in the expressive or static video group. Subsequent assignments were alternated between the two conditions in the order that student names were received. This was done to avoid the potential situation where all or most participants in a particular age group would be assigned to only one of the conditions. The two groups that contained the oldest students, those from ages 11 to 14, were later combined for analysis because of the small number in each.

After students were assigned to one of the two conditions, the corresponding video numbers for the selected pieces were sent via e-mail to the teachers. At this point, teachers also received attachments with specific instructions for participation (see Appendix P), consent forms (see Appendix C) and student handout (see Appendix Q). Teachers were directed to call or send an e-mail if they experienced any problems opening the files, in which case hard copies of all materials could alternately be sent via U.S. mail.

Portions of three consecutive piano lessons were required for participation in this study. At the first lesson, the teacher and student watched the assigned video on the Internet, the student sight-read the piece, and the teacher made corrections to notes and rhythm as needed. The
student was given a hand-out with video access information (see Appendix Q) which directed him/her to watch the video at home at least once a day and to try to perform the piece exactly like the pianist in the video. At the second lesson, the teacher asked the student if he/she had been watching the video, then listened to the student’s performance, making notes and rhythm corrections if necessary. At the third lesson, an audio recording of the student’s performance of the piece was made after a short warm-up time.

The researcher did not have direct contact with participating students during the study. Participating teachers were given written instructions for conducting the procedure in advance (see Appendix P). Teachers were instructed to correct only notes and rhythm if needed, and not to comment about expressive score markings to their students. In addition, they were instructed to view the video performance with the student during lesson time, before allowing the score to be sight-read. It has been demonstrated that musicians may revert to a default performance based on past experience (Lisboa, Williamon, Zicari, & Eiholzer, 2005; Repp, 2000), and an effort was made to avoid this tendency by requiring the students to observe the model interpretation before attempting to form their own.

**Participant Recordings**

Both inexperienced and experienced listeners’ perceptions of expression may be affected by viewing the physical movement of a performer (Davidson & Correia, 2002; Juchniewicz, 2008). Therefore, in order to evaluate aurally-perceived expressive performance apart from visual perceptual influence, participating students were recorded by their teachers onto audio-only recorders, and these recordings were subsequently used for evaluation by an expert panel of three judges employed for this study.

A Sony IC voice recorder, model ICD-PX720 with a built-in microphone and directions for use (see Appendix R) was sent via U.S. mail to each teacher for recording the student performances. The "super high quality" recording mode (SHQ) was used and teachers were directed to make MP3 recordings sampled at 44.1 kHz with a bit rate of 192 kbps. This recorder was selected for three reasons: its simplicity of use, the quality of the built-in microphone, and the USB connection feature. Recording instructions included positioning the recorder “so the microphone (located on the top) is facing the right side of the piano keyboard, approximately 3 feet away.” Also included with the recorder was a participant form (see Appendix S) on which teachers were asked to specify if an electronic or acoustic piano was used for the recording, and
to record each student’s name, piece and track number, age, gender, years of study, and whether he/she practiced on an electronic or acoustic piano at home. Recorders were returned to the researcher via U.S. mail and the recordings were downloaded with Sony Digital Voice Editor 3, which was the manufacturer's provided software program for the IC voice recorder.

**Evaluation of Recordings**

A computer file was created containing a randomized ordering of all student recordings, regardless of age group, piece, or condition. Randomization was achieved through the use of an online tool at the website for Research Randomizer (http://randomizer.org/form.htm). The recordings file was copied onto compact discs and provided to a panel of adjudicators composed of three university doctoral piano majors, one in performance and two in pedagogy. The panel assigned two rating scores to each recording, one for expression and one for technique. Judges were provided with a list of expressive and technical elements to consider for rating purposes (see Appendix T). Expressive elements included crescendo/diminuendo, dynamic contrast, forward motion/direction, tapering of phrases, intentional speeding up or slowing, and holding the fermata. Technical elements for evaluation included accuracy of notes and rhythm, clarity, control of pace/steadiness of tempo, and tone quality. Student performances were rated on a Likert-type scale from 1 – 7, with 1 as poor and 7 as excellent (see Appendix U). Panel members were not provided with information concerning age, gender, or years of study for the performers; nor did they know that performers were instructed to watch or imitate a video performance.

**Post-Participation Surveys**

Post-participation surveys were issued to the teachers and students (see Appendices V and W). A primary purpose of the surveys was to determine whether provided instructions were followed and to approximate how many times students actually viewed the posted videos during their home practice. Additional demographic information was collected, including teacher age and years of teaching experience. Surveys included an area for written comments to be evaluated for positive and negative opinions concerning participation in the study and the use of the Internet. Names were not attached to the surveys to encourage respondents to be candid with their answers.
CHAPTER 4

RESULTS

Demographics of Teacher and Student Participants

Studio piano teachers \((N = 17)\) from six counties in Florida volunteered to participate in this study. Females \((n = 15)\) outnumbered males \((n = 2)\). Post-participation surveys were issued to and returned by 100% of participating teachers and students. Table 1 displays the ages and years of teaching experience of participating teachers as self-reported on the surveys. The mean age of participating teachers was approximately 45 years.

Table 1

**Age and Teaching Experience of Participating Piano Teachers**

<table>
<thead>
<tr>
<th>Years of Age</th>
<th>20-30</th>
<th>30-40</th>
<th>40-50</th>
<th>50-60</th>
<th>60+</th>
</tr>
</thead>
<tbody>
<tr>
<td>Number of Teachers</td>
<td>3</td>
<td>2</td>
<td>6</td>
<td>4</td>
<td>2</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Years of Teaching</th>
<th>0-5</th>
<th>5-10</th>
<th>10-15</th>
<th>15-20</th>
<th>20+</th>
</tr>
</thead>
<tbody>
<tr>
<td>Number of Teachers</td>
<td>1</td>
<td>1</td>
<td>4</td>
<td>1</td>
<td>10</td>
</tr>
</tbody>
</table>

Participating teachers enrolled student volunteers from their private studios resulting in a total of 43 student participants; 25 female and 18 male. The mean age of participants was 9.88 years. Table 2 displays the number of males and females in each age group. As participants’ names and ages were received, they were placed into groups by age, and randomly assigned to
the expressive or static video condition. There were 9 males and 13 females in the expressive video condition, and 9 males and 12 females in the static video condition. The range for the length of piano study for participating students was from 0.5 to 6 years, and the mean length of study was 2.86 years, with a standard deviation of 1.60.

Table 2

*Gender and Age Group of Student Participants*

<table>
<thead>
<tr>
<th>Group 1</th>
<th>Group 2</th>
<th>Group 3</th>
<th>Total</th>
</tr>
</thead>
<tbody>
<tr>
<td>Age 7-8</td>
<td>Age 9-10</td>
<td>Age 11-14</td>
<td></td>
</tr>
<tr>
<td>Males</td>
<td>8</td>
<td>3</td>
<td>7</td>
</tr>
<tr>
<td>Females</td>
<td>6</td>
<td>10</td>
<td>9</td>
</tr>
</tbody>
</table>

**Video Viewing Frequency**

Student surveys (100% returned) contained self-reported data on the number of times assigned videos were viewed. The number of viewings ranged from 0 to 30 and the total number of reported viewings was 412. There was a mean difference of less than 1 viewing between the expressive and static video conditions. Table 3 displays the means and standard deviations for both groups.
Table 3

Means and Standard Deviations for Video Viewing Frequency by Condition during Two-Week Participation Period

<table>
<thead>
<tr>
<th></th>
<th>Expressive Video Condition</th>
<th>Static Video Condition</th>
<th>Combined</th>
</tr>
</thead>
<tbody>
<tr>
<td>Mean</td>
<td>10.00</td>
<td>9.10</td>
<td>9.60</td>
</tr>
<tr>
<td>SD</td>
<td>8.44</td>
<td>6.29</td>
<td>7.45</td>
</tr>
</tbody>
</table>

Rating Scores and Analysis of Data

A panel of three expert judges evaluated the participant recordings on a Likert-type scale from 1 to 7, with 1 as poor and 7 as excellent (see Appendices T & U). Recordings were assigned two rating scores, one for expression and one for technique. For expression scores, Cronbach's Alpha was .874 and the intraclass correlation coefficients were .676 for single measures (comparisons of each individual at a time), .862 for average measures (comparisons of all individuals for the 3 judges). Similarly, for technical scores, Cronbach's Alpha was .937, with intraclass correlations of .782 and .915 for single and average measures respectively. An average of the three judges' rating scores for each participant was used for data analysis. Judges' rating scores may be seen in Appendix X.

Analysis of Variance (ANOVA) Results

Because the study was not designed to balance for the factors of gender, age, and years of study, a 2-way analysis of variance (ANOVA) with repeated measures was employed to address the main research question. The independent variable was the video viewing condition, which had two levels: expressive video model and static video model. The repeated measures were the rating scores for expression and technique. The 2-way ANOVA revealed no significant difference overall between conditions, $F(1, 41) = .021, p > .05$. However, a significant difference was indicated in the repeated measures, $F(1, 41) = 41.45, p < .001$, partial eta squared $= .50$, indicating a significant difference between scores for expression and technique. Means and standard deviations for expression and technique scores are shown in Table 4. Technique score
means (5.47) were almost 1 point higher than mean expression scores (4.48).

Table 4

*Means and Standard Deviations for Expression and Technique Rating Scores*

<table>
<thead>
<tr>
<th></th>
<th>Video Condition</th>
<th>Mean</th>
<th>SD</th>
<th>N</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Expression Rating Scores</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Expressive Video</td>
<td>4.65</td>
<td>1.43</td>
<td>22</td>
<td></td>
</tr>
<tr>
<td>Static Video</td>
<td>4.30</td>
<td>1.26</td>
<td>21</td>
<td></td>
</tr>
<tr>
<td>Total</td>
<td>4.48</td>
<td>1.35</td>
<td>43</td>
<td></td>
</tr>
<tr>
<td><strong>Technique Rating Scores</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Expressive Video</td>
<td>5.25</td>
<td>1.45</td>
<td>22</td>
<td></td>
</tr>
<tr>
<td>Static Video</td>
<td>5.71</td>
<td>1.36</td>
<td>21</td>
<td></td>
</tr>
<tr>
<td>Total</td>
<td>5.47</td>
<td>1.41</td>
<td>43</td>
<td></td>
</tr>
</tbody>
</table>

A significant interaction occurred between the rating scores and the two conditions, expressive video and static video, $F (1, 41) = 6.79, p < .05$, partial eta squared = .14. The interaction, which is displayed in Figure 1, indicated the expression rating scores for the expressive video condition were higher than those of the static video condition, but lower for technique.
Table 5

Rating Score Ranges for Expression and Technique

<table>
<thead>
<tr>
<th></th>
<th>Expression Score Range</th>
<th>Technique Score Range</th>
</tr>
</thead>
<tbody>
<tr>
<td>Expressive Video Condition</td>
<td>2.17 – 6.97</td>
<td>1.83 – 7.00</td>
</tr>
<tr>
<td>Static Video Condition</td>
<td>1.07 – 6.43</td>
<td>1.67 – 7.00</td>
</tr>
</tbody>
</table>

The expression and technique scores for both the expressive video and static video conditions were compared to obtain a measure of association between the two. The Pearson Product Moment Correlation Coefficient revealed a moderately strong relationship between expression and technical scores for the expressive video and static video conditions when combined ($r = .69, p < .01$). When the expression and technical scores were compared by individual video condition, a strong relationship between expression and technical scores for the
expressive video group emerged \((r = .80, p < .01)\), and a moderately strong relationship was found between expression and technical scores for the static video group \((r = .64, p < .01)\).

**Influence of Gender, Age, and Years of Piano Study**

**Gender**

Overall score means were less than .5 higher for males \((M = 5.20, SD = 1.16)\) than females \((M = 4.81, SD = 1.64)\).

**Expression rating scores.** Table 6 displays the expression rating score means and standard deviations for video condition by gender. Expression score means for males and females were separated by .37.

Table 6

*Table 6: Expression Score Means for Video Condition by Gender (with Standard Deviations in Parentheses)*

<table>
<thead>
<tr>
<th></th>
<th>Expressive Video</th>
<th>Static Video</th>
<th>Combined</th>
<th>Total</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Male</strong></td>
<td>4.77 (1.13)</td>
<td>4.62 (1.10)</td>
<td>4.69 (1.08)</td>
<td>18</td>
</tr>
<tr>
<td><strong>Female</strong></td>
<td>4.56 (1.65)</td>
<td>4.06 (1.36)</td>
<td>4.32 (1.51)</td>
<td>25</td>
</tr>
</tbody>
</table>

**Technique rating scores.** Table 7 displays the technique rating score means and standard deviations for video condition by gender. Technique score means for males and females were separated by .42.
Table 7

*Technique Score Means for Video Condition by Gender (with Standard Deviations in Parentheses)*

<table>
<thead>
<tr>
<th></th>
<th>Expressive Video</th>
<th>Static Video</th>
<th>Combined</th>
<th>Total</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Male</strong></td>
<td>5.42 (1.03)</td>
<td>6.01 (0.98)</td>
<td>5.72 (1.02)</td>
<td>18</td>
</tr>
<tr>
<td><strong>Female</strong></td>
<td>5.13 (1.72)</td>
<td>5.48 (1.60)</td>
<td>5.30 (1.64)</td>
<td>25</td>
</tr>
</tbody>
</table>

**Age**

The age factor contained three levels (groups). Age groups and participant numbers by video condition appear in Table 8.

Table 8

*Number of Participants in Age Group by Condition*

<table>
<thead>
<tr>
<th>Group Number</th>
<th>1</th>
<th>2</th>
<th>3</th>
<th>Total</th>
</tr>
</thead>
<tbody>
<tr>
<td>Age</td>
<td>7-8</td>
<td>9-10</td>
<td>11-14</td>
<td></td>
</tr>
</tbody>
</table>
| Participant Numbers by Video Condition

<table>
<thead>
<tr>
<th></th>
<th>Expressive</th>
<th>Static</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Expressive</strong></td>
<td>7</td>
<td>6</td>
</tr>
<tr>
<td><strong>Static</strong></td>
<td>7</td>
<td>7</td>
</tr>
</tbody>
</table>

*Expression rating scores.* Figure 2 displays means and standard deviations for expression rating scores by age group and video model condition. Both conditions produced scores that increased concurrently with the age of participants. The expressive video condition scores increased by 1.3 between Group 1 and Group 3, while the static video condition scores
increased by .64.

Figure 2. Means and standard deviations for expression rating scores by age group and video model condition.

Technique rating scores. Figure 3 displays means and standard deviations for technique rating scores by age group and video model condition. Technique rating scores for the expressive video condition became successively closer to the static video condition scores with the increase in participant age.

Figure 3. Means and standard deviations for technique rating scores by age group and video model condition.
Years of Piano Study

The years of piano study factor contained three levels (groups). Years of piano study groups and the number of participants in each condition appear in Table 9.

Table 9

*Number of Participants in Years of Piano Study Group by Condition*

<table>
<thead>
<tr>
<th>Group Number</th>
<th>1</th>
<th>2</th>
<th>3</th>
<th>Total</th>
</tr>
</thead>
<tbody>
<tr>
<td>Years of Piano Study</td>
<td>.5 – 1.5</td>
<td>2 - 3</td>
<td>3.5 - 6</td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Participants Numbers by Video Condition</th>
</tr>
</thead>
<tbody>
<tr>
<td>Expressive</td>
</tr>
<tr>
<td>Static</td>
</tr>
</tbody>
</table>

**Expression rating scores.** Means and standard deviations for expression rating scores by years of piano study and video model condition are displayed in Figure 4. The expressive video condition scores increased concurrently with the increase in years of study, while the static video condition scores were highest for Groups 1 and 3, and lowest for Group 2.
Technique rating scores. Means and standard deviations for technique rating scores by years of study group and model video condition are displayed in Figure 5. The expressive video condition scores for technique increased concurrently with the increase in years of study, while the static video condition scores were lowest for Group 2.
Teacher and Student Surveys

A post-participation survey questionnaire was issued to the 17 participating teachers and 43 student participants, with a return rate of 100%. Surveys were included with the Sony voice recorders that were sent via United States Postal Service (USPS) at the end of the 2-week participation period. To facilitate their return, each survey was attached by paper clip to a USPS-stamped mailing envelope addressed to the researcher's post office box.

The teacher surveys (see Appendix V), which did not contain names, collected demographic information in the form of age range and years of piano teaching experience. Six "yes" or "no" questions followed. Nine blank lines were provided for additional comments. Teacher survey questions and responses are displayed in Table 10.

Table 10

Teacher Survey Questions and Responses

<table>
<thead>
<tr>
<th>Question</th>
<th>Yes</th>
<th>No</th>
</tr>
</thead>
<tbody>
<tr>
<td>I think my student(s) enjoyed participating and watching the video.</td>
<td>17</td>
<td>0</td>
</tr>
<tr>
<td>Some parents were hesitant to allow their children to participate.</td>
<td>4</td>
<td>13</td>
</tr>
<tr>
<td>I feel my student(s)' participation in this study was beneficial.</td>
<td>17</td>
<td>0</td>
</tr>
<tr>
<td>I believe my student(s) watched the video at home as directed.</td>
<td>15</td>
<td>2</td>
</tr>
<tr>
<td>I think my student(s)' performance was influenced by the video.</td>
<td>16</td>
<td>1</td>
</tr>
<tr>
<td>I would consider including Internet videos in my studio in the future.</td>
<td>17</td>
<td>0</td>
</tr>
</tbody>
</table>

Fifteen teachers wrote comments on the provided blank lines. The complete verbatim comments appear in Appendix Y. Four general themes emerged: student enjoyment, helpfulness
of the video for student learning, problems with students following video viewing instructions, and observations that students needed more guidance to benefit from the experience.

All participating students \((N = 43)\) returned completed surveys, which included demographic information such as age, gender, and years of piano study (see Appendix W). Students, who were not identified by name, were asked which video hosting website they used to view assigned videos, which provided the researcher with the necessary information for determining whether the respondent was assigned to the expressive or static video condition. All expressive videos were posted on YouTube.com (http://www.youtube.com/), and static videos were posted on MetaCafe.com (http://www.metacafe.com/). Students were asked if they enjoyed watching the video on the Internet, and to give the approximate number of times they viewed the assigned video. Video viewing frequency numbers appeared earlier in this chapter in Table 3. Gender and age group information from the surveys is displayed in Table 2, which also appeared earlier in this chapter. Eight blank lines were provided for additional comments.

Three students, two in the static video condition and 1 in the expressive video condition, indicated they did not enjoy viewing the posted video on the Internet. Eighteen students wrote comments on the provided blank lines. The complete verbatim comments appear in Appendix Z. Student comments were generally positive in nature, and three broad themes emerged: the helpfulness of the videos for student learning, student enjoyment of participation, and student enjoyment of the pieces.
CHAPTER 5

DISCUSSION

Overview

This chapter discusses the results of the present study and explores the possible relevance and application of these findings to research in the area of music teaching and learning. The first section begins with a discussion of the results, in general, followed by a discussion of the post-participation teacher and student surveys. The next section focuses on model performances and imitation, followed by observations relating to this study in the areas of informal music learning, the media, playing by ear, and use of video models and the Internet. Included in the final section of this discussion chapter is an explanation of the limitations of this study and recommendations for further research.

General Observations

The purpose of this study was to examine the effect of viewing model performances, which were posted on the Internet, on the expressive performance of young piano students. Participants \( (N = 43) \) had a mean age of 9.88 years and a mean of 2.86 years of piano study. Participants were randomly assigned to one of two conditions, either an expressive video performance viewing condition or a static (inexpressive) video performance viewing condition, and were given the appropriate piece to learn by their respective piano teachers \( (N = 17) \). After a two-week participation period, audio recordings were made of participant performances. These recordings were evaluated by a panel of three expert judges, who assigned rating scores using a Likert-type scale from 1 to 7. Judges were asked to issue separate rating scores for expression and technique. Resultant scores were examined to determine whether a difference existed between video model conditions. Three factors also examined were the participants' gender, age, and years of piano study. Participants in the expressive video condition received higher rating scores for expression than the participants in the static video condition, but received lower scores for technique, which resulted in a significant interaction, \( F (1, 41) = 6.79, p < .05, \) partial eta squared = .14.
In order to provide an explanation for this interaction, a closer look was taken of the scores for expression and technique in each of the video model conditions. The *Pearson Product Moment Correlation* revealed that the two sets of scores for the expressive video condition were more closely related, \( r = .80 \), than the expression and technique scores for the static video condition, \( r = .64 \). A plausible explanation is that the students in the static video condition were better able to imitate their assigned video model performances, and that successful imitation might have contributed to performances that were superior in elements such as rhythmic continuity and steadiness, but lacking in expressive qualities. Or, perhaps the judges assigned the students in the static video condition higher scores for technique because the elements that generally receive technical approval, which were listed on the evaluation sheets they were given, stood out as features of the performances. These elements included accuracy of notes and rhythm, clarity, tone quality, and control of pace/steadiness of tempo (see Appendix T). It may be possible that the prominence of the technical aspects of the student performances in the static video condition overshadowed any expressive aspects.

It is understandable that the scores for students in the expressive video condition would be higher than the static condition scores for expression, but what is less clear is why these students scored lower for technique. A look at additional factors lends some assistance to explaining this discrepancy. Although gender appeared to have had no effect on rating scores, the participants' age and years of piano study seemed to influence their ability to successfully imitate the expressive model, and unsuccessful imitation could have contributed to lower scores overall for the expressive video condition. A glance at Figures 2 and 4, which appear in Chapter 4, will give the reader a cursory view of the connection between age and experience and the expression scores.

It is worth considering possible explanations for why the least-experienced students in the expressive video condition had lower expression scores than their static video condition counterparts. Could it be that as typical teachers of novice students, these teachers tended to focus on technical over expressive elements in lessons (Karlssohn & Juslin, 2008; Young, Burwell, & Pickup, 2003), and as a consequence, these students were not accustomed to performing expressively? If so, perhaps their attempts to produce an imitation of the expressive performance caused irregularities in tempo and dynamics that did not sound natural to the judges. The expressive elements that were considered by the judges included dynamic contrast,
crescendo/diminuendo, tapering of phrases, intentional speeding up/slowing, forward motion, direction, and holding the fermata (see Appendix T).

Music students' ability to model is somewhat dependent on their performance skill level (L. Davidson, 1989). It is difficult to determine whether the results of the present study support this assertion because participants were not rated on how well they modeled the video, but rather on expressive and technical qualities of their recorded performances. However, the possibility that skill level impacts the ability to model may have been demonstrated by the youngest and least experienced students' attempts to imitate the models, particularly the expressive models. The fact that students in the expressive video condition who were in Years of Piano Study Group 1, who had a mean age of 8, received lower scores than their counterparts in the static video condition perhaps indicates these younger, less-experienced students' performances were negatively affected by their attempts to imitate expressive elements. An illustration of this explanation occurred in remarks from a participating teacher in a post-participation e-mail where she stated that her 7-year-old student, who was assigned to the expressive video condition, tried to "imitate the phrasing by lifting her arms," and that she did not think this attempt at phrasing was detectable in the recording.

Although the effect of the video model condition on the expression and technique scores was not large, observations may be made about the possible relevance of these results to the teaching and learning of expressive music performance. This study was designed to examine the effectiveness of modeling alone on musical expression in the performance of piano students, although previous research has shown that a combination of modeling, concrete verbal description, and metaphor are effective for teaching expressive performance (Woody, 2006a). The purpose of isolating modeling was to attempt to determine whether young children could imitate expressive elements simply by repeated exposure to an expressive video model, independent of teacher explanation or directions. Participants in previous research studies were predominately adults, and were much more advanced musicians compared to the students in this study, who had an average of less than 3 years of piano study, and an average age of less than 10 years. The present study demonstrated that, although the expressive model condition affected the expression scores of the students assigned to this condition, the youngest and least experienced students had greater difficulty imitating the expressive model, a circumstance that may have been remedied by added verbal direction from their teachers.
Figures 2 and 4 show a steady increase in expression rating scores for the students in the expressive video condition, a rise that coincides with the increase in age and years of piano study. The scores for the expressive condition were generally lower than the static condition for the younger, less experienced students, but as the age and years of piano study increased, the expressive video condition scores rose above the static video condition scores. It is possible that the students in the expressive video condition were increasingly able to imitate the expressive elements as they gained maturity and experience, or, they might have naturally played with more expression as they matured. It is interesting to compare their scores with the scores for the static video condition, which did not have the same steady rise with increased age and experience. It is difficult to ascertain whether these students received lower scores because they did not have the benefit of viewing an expressive video, or because they were successful in their imitation of the static video model. In either case, it appears that the video model condition assignment had some influence on the expression ratings in both video conditions.

Figures 3 and 5 (also in Chapter 4) demonstrate a similar pattern in the technique scores to those observed in the expression rating scores. Although the technique scores \((M = 5.47)\) were higher than the expression scores \((M = 4.48)\) overall, the largest difference between conditions occurred in the scores of the least-experienced and youngest students. Again, a possible explanation is that the younger and more novice students had problems imitating the expressive performer, and the impact of these problems affected the judges' rating scores regarding their technical performance.

A look at this explanation from another view is that the students in the youngest, least experienced groups who were assigned to the static video condition received higher scores because they were not required to attempt expressive elements such as fluctuations in tempo and dynamics, or to perform in what might have been an unaccustomed manner. Perhaps it was easier to play in a straightforward, "mechanical" style. In fact, these students may have benefited in the area of rhythmic continuity and steadiness from watching the static model, especially without the additional requirement of attempting to imitate unfamiliar or subtle expressive variations in tempo and dynamics.

The effect size for the video model condition on the expression and technique rating scores was relatively small (partial eta squared = .14). One possible explanation is that there simply was not enough contrast between the static and expressive video model performances to
generate a large difference between the two conditions. Although the performer did his best to play in a "mechanical" style in the recordings for the static video condition, it has been shown that experienced performers are not able to perform completely without nuance (Gabrielsson, 1988). Videos used in this study may be seen in Appendices J – Q.

The number of times that students in this study viewed the videos was less than the desired frequency, and may have had an impact on imitation efforts. Student survey results (100% returned) indicated the average number of views was 9.6 (standard deviation was 7.45), which was less than anticipated. Students were directed to watch at least once per day, and since participation lasted for two weeks, the number of viewings should have been closer to 14. A few students indicated that they viewed the video only once or twice. Repeated exposure to a performance model is important for successful imitation (Bandura, 1977). Young children who were repeatedly exposed to a recorded performance of a piano piece performed significantly better than those who were exposed to only a few teacher demonstrations (Frewen, 2010). Simply put, a person cannot model a behavior if he or she is unable to remember it (e.g., Bandura, 1977).

One drawback to requesting students to watch and/or listen to model recordings is that they may choose not to or forget to do it. The consistency of video viewing tasks may need monitoring and might require some involvement by the parents, especially for younger students. An amount of parental participation is beneficial; positive parental support has been shown to be one element of successful music learning (Moore, Burland, & Davidson, 2003). Because of the risk of incidental viewing of inappropriate matter on the Internet, the present research study requested the "supervised home viewing of a video piano performance of an assigned repertoire piece posted on the Internet" (see Appendix C).

In the interest of presenting the participating students with an environment similar to a normal assignment, the scores used for this study contained a limited number of expressive markings and finger numbers (see Appendices F – I). These marks were included to present the students with a score that they might see in typical piano lessons, where they are not likely to encounter a sheet of music devoid of any markings. The presence of these expressive markings might have influenced some of the participants to perform the indicated features whether or not they were assigned to the expressive video condition.
In order to take full advantage of the use of a model, students may need to have their attention clearly directed to the desired features of the model performance. For example, middle-school choral singers were able to sing with emotion after being given a verbal description of the expressive elements during exposure to the model performance (Ebie, 2004). Without guidance, students may not know what to listen for and which skills to employ in order to physically reproduce the desired features of the model (Juslin & Persson, 2002; Woody, 1999). Bandura (1977) stated that an observer may fail to match the model as a "result of any of the following: not observing relevant activities, inadequately coding modeled events for memory representation, failing to retain what was learned, physical inability to perform, or experiencing insufficient incentives” (p. 29).

**Post-Participation Surveys and Comments**

**Teacher Surveys**

All participating teachers \((N = 17)\) returned completed post-participation surveys, which did not ask for teacher names. In general, teachers enjoyed participation in the study and were pleased with the idea of using the Internet to view musical performances (Table 10 in Chapter 4 displays the responses to the teacher survey questions). All of the teachers felt participation was beneficial and enjoyable for their students, and indicated they would consider using Internet videos in their piano studios in the future. Only one teacher felt that his/her students were not influenced by watching the video. The teachers' written comments were generally positive, with only a few comments that could be considered negative. The teachers' verbatim comments may be seen in Appendix Y.

The positive comments contained two general themes. The first theme was that of student enjoyment. One teacher wrote, "Students were excited to be encouraged to use the internet (sic) as part of their piano lesson," and another wrote, "Students enjoy doing something different." The second theme centered on the helpfulness of the videos to the students in their learning of the pieces. Eight comments contained this theme. One teacher wrote, "The video was very helpful in conveying the importance of a smooth and continuous performance to my students." Another wrote, "It would be helpful for students to be able to see and hear a performance of a piece throughout their practice time between lessons."
Negative responses also had two general themes: lack of confidence that students followed video viewing instructions, and observations that inexperienced students needed explicit instructions about what to watch for in the video models. One teacher felt that because viewing videos was not a part of the usual practice routine, the students would have forgotten to watch the video if he/she had not called their homes to remind them. Another teacher wrote, "I do believe watching the video was helpful, but if asked to use one as a teaching tool I would review it more in depth with the student to specifically identify what they were attempting to copy."

Three weeks after the end of the participation period for this study, participating teachers were asked via e-mail if they noticed any changes among their students who participated, and if they would like to make further comments. Four teachers sent e-mails responding to this request, and all four were positive in nature. One teacher, a native Chinese speaker, wrote (verbatim):

Through your assignment, my students learned to use online resources for practicing the piano. They become more independent. One of my students plays Bach's invention now, and I told her to find harpsichord performance on youtube, and she got more idea about playing Bach. Another student not only watch her piece on youtube, but also listen to other good performers play different repertoire, and she told me she has a list of repertoire want to play because she heard them on youtube. She is more interested in playing piano now.

Another teacher wrote about her young student, age 7:

My student was interested in watching the expressive playing video of Piano Piece No.1 and did try to imitate the phrasing by lifting her arms. Unfortunately she is such a new beginner that I am not sure any of that came through in the recording! I think that like many aspects of learning piano even more repetitions of viewing the video might have made a bigger difference. She enjoyed watching someone play "her" piece!
Student Surveys and Comments

All student participants ($N = 43$) returned the completed post-participation surveys, which did not contain student names. Students' verbatim comments can be seen in Appendix Z. Comments were all positive in nature, and three general themes emerged: the helpfulness of the videos for learning the pieces, student enjoyment of participation, and student enjoyment of the pieces. Comments about helpfulness included, "Watching the video on the internet (sic) helped me with the rhythms, hand positions, and tempos," and, "Compared to learning it without the video, it is much easier. I'd like to use this method for the future. The person who played it was very musical, so I could be more musical."

Student comments about enjoyment of participation included, "Thank you so much for letting me participate in this assignment. This has been a lot of fun! It's awesome!" and, "It was fun. This was the best. Me and my parents enjoyed it," and, "Thought it was cool to go on youtube."

Topics In Relation to Results and Research Goals

Model Performances and Imitation

It might be argued that students who successfully imitated the expressive video simply displayed adequate imitative skills. However, a goal of teaching expressive performance by imitation, or modeling, is for students to be able to transfer observed and learned expressive gestures and elements to other pieces. It is reasonable for teachers of university-level students to discourage imitation of recorded models, but it may be unwise to deny young, inexperienced students the opportunity to learn from imitating model performances. Music students of any age benefit from models and examples (Radocy & Boyle, 2004). Student musicians eventually form their own expressive style from imitating teachers, other musicians, recordings, and concert performances (Parncutt, 2007; Svard, 2010).

Exposure to model performances contributes to the development of critical listening skills and creativity. Lisboa, Williamon, Zicari, & Eiholzer (2005) found that the imitation activity in their study inspired participants to employ skills in critiquing, decision-making, and listening. It is well known that the young Mozart extensively analyzed and copied compositions by other composers, eventually forming his own unique compositional style. Bandera, Ross, & Ross (1963) spoke of creative aspects of imitative behavior:
Contrary to common belief, innovative patterns can emerge through the modeling process. When exposed to diverse models, observers rarely pattern their behavior exclusively after a single source, nor do they adopt all the attributes even of preferred models. Rather, observers combine aspects of various models into new amalgams that differ from the individual sources. (p. 48)

The concept that expressive performance is largely determined by the musical structure may have some merit. However, children do not perceive musical structure as do adults; acquisition of sensitivity to musical structure increases with skill level and age. Performance planning, which refers to anticipatory musical behavior, and monitoring, which is the responsive ability to make and accommodate corrections, are skills that increase most in the transition from beginner to intermediate skill level (Palmer & Drake, 1997). In addition, it has been observed that a cognitive analytical approach to expressive performance may not suit certain types of learners (Parncutt, 2007). Research in the area of categorizing students by learner type may assist music educators in finding the teaching techniques that are most effective and accommodate the learning style and temperament of their students (Golay, 2005).

Unlike their more experienced counterparts who unconsciously rely on previous learning and exposure, novice musicians may not employ even the most basic expressive elements without being directly instructed (Woody, 1999, 2006a). An experienced musician will automatically taper phrases, slow down at cadences, or otherwise use appropriate rubato and dynamics for expressive purposes. Young beginning musicians who are not exposed to such techniques through models or direct instruction are not likely to display these elements.

Although musical expression is highly regarded, teachers of young students tend to focus on developing fundamental skills such as note-reading and technique, often delaying training and encouragement for expressive playing until students become older and more mature. Some music teachers avoid the specific teaching of expression altogether, feeling that students will eventually develop individual expressive performance on their own (Thompson, Sundberg, Friberg, & Fryden, 1989). However, this early inattention to expressive elements may become habitual and prove difficult to remedy later on (Davidson, Pitts, & Correia, 2001). There is no logical reason to delay teaching musical expression; students will benefit from receiving instruction and encouragement in expressive performance at each level of technical growth (Kaplan, 2003). Rodriguez (1998) recommended teaching expression from the earliest stages of musical training,
having demonstrated that children as young as 4 – 9 years of age are able to perceive expressive musical performance.

When music teachers attempt to teach expression by verbal means, they may use vague and unclear language (Karlssohn & Juslin, 2008; Parncutt, 2007). The use of metaphoric language may be an effective component of expressive instruction for adults and experienced musicians, but such language can serve to confuse a young beginning student, who may not comprehend or be able to physically apply the verbal concepts to musical performance. It is important for music teachers to consider the age of their students in order to present material in an appropriate manner (Radocy & Boyle, 2004).

Rosenthal (1984) determined that verbal direction without a direct model was ineffective, and that direct modeling alone was more effective on students' performance accuracy. However, in an observational study of university applied instrumental lessons it was found that verbal instruction was used more frequently than musical modeling (Karlssohn & Juslin, 2008). By contrast, expert Suzuki string teachers spend 20-27% of lesson time in teacher demonstration (Colprit, 2000; Duke, 1999). Teachers of young children in the Suzuki method provide recorded models for the musical enculturation of their students in daily life (Bigler & Lloyd-Watts, 1998). The nuances of expressive inflection and timing in language are easily absorbed during a sensitive developmental period, and the Suzuki method takes advantage of this period by applying the same concept to the absorption of the nuances and expressive properties of music.

Arguments for the usefulness of modeling as a music teaching tool are strong. It has been stated that modeling is useful for demonstrating any melodic or rhythmic idea in instrumental music instruction (Dickey, 1991), and that modeling is indeed the only means by which some musical instruction can take place (L. Davidson, 1989). The use of recorded models as home practice aids have been shown to be beneficial. By exposing young students to a model performance, a "target goal" is provided that assists in error identification and self-correction, important skills that enhance practice efficiency (Frewen, 2010; Hewitt, 2001). Advanced classical musicians regularly use recordings to compare interpretations and to improve their own performance; similar use of recordings may benefit beginning musicians as well (Green, 2002). Listening to recordings gives students musical experience, which enhances skills for identifying, interpreting, and performing the expressive characteristics of musical performance (Geringer & Madsen, 1987).
Informal Music Learning and the Media

Research in music education has focused primarily on formal music educational settings. A shift in focus seems to be taking place from the traditional teacher-centered concept to a learner-centered approach, encompassing a range of learning environments that includes informal music settings (Folkestad, 2006). Among other things, researchers are looking at how students of all ages use and learn music outside of school for social reasons, dancing, listening, and performing (e.g., Campbell, 1995; Campbell, Connell, & Beegle, 2007; Green, 2002; Jaffurs, 2004). To clarify, informal music learning is generally characterized by the absence of a teacher or structured environment, and usually does not involve Western art music.

According to Campbell (1995), music enculturation is provided to modern youths through the media, and little of it consists of traditional Western art music. Some studies have examined the effect of this media enculturation. For example, university students, both music major and non-music major, and children in grades 5 – 12 (N = 500) participated in a study to explore preference for recordings of popular music in original form, or in versions in which the tempo and/or pitch was altered (Geringer & Madsen, 1987). Participants preferred the unaltered versions across all age groups and training levels. The authors suggested a contributing factor may have been the repeated exposure to this music that participants experienced through the popular media. In other words, it appears that on some level participants were familiar enough from exposure to the music to discern a key or tempo change.

The Kaiser Family Foundation reported that between 2005 and 2010, young people increased the amount of time spent using electronic media such as computers, televisions, cell phones, and portable mp3 players from 6 hours and 21 minutes to 7 hours and 38 minutes per day. This figure is even higher when multitasking (simultaneous use of more than one form of media) is taken into consideration, which brings the total media use to 10 hours and 45 minutes per day. The Kaiser Family Foundation's media report entitled, "Generation M2: Media in the Lives of 8-18-Year-Olds" (Rideout, Foehr, & Roberts, 2010), is the product of a large-scale survey that explored media use among young people (N = 2,000). The survey revealed that 61% of children between 8 and 10 years of age own an mp3 player, 17% own a laptop computer, and a third have cell phones. Although this age group averages 46 minutes per day on the computer, that number increases by an hour in the 11 to 14-year-old group. The three most popular uses of
computers for 8-18-year-olds are social networking, computer gaming, and watching videos on popular hosting sites such as YouTube.com (http://www.youtube.com/).

In recent years use of the Internet by young people has significantly increased, perhaps due to the rising number of households that have access and the increasing availability of high-speed connectivity (Roberts & Foehr, 2008). The presence of this media is affecting how students learn and work in numerous ways. The concept of the learning environment as a classroom is changing, as colleges and universities have demonstrated with online courses. The Internet provides students with the opportunity to control the time and space of their education, learning wherever and whenever they desire (Conole, de Laat, Dillon, & Darby, 2008; Cooper, Dale, & Spencer, 2009; Greenhow, Robelia, & Hughes, 2009). Educators are increasingly working to provide "learner-centered" instruction and personalization (Selwyn, 2007).

Cooper, Dale, & Spencer (2009) conducted a study that explored the use of podcasting, in which digital media files of course content were made available on the Internet for downloading to students' i-Pods (popular portable media players). Participants (N = 24) were university students, aged 18-21, enrolled in a popular music course. Results indicated that the students benefited from using the podcasts in their learning in terms of enrichment, motivation, and greater engagement with the course content. The authors stated that podcasting provided a useful supplement, but not a replacement for traditional lectures.

The technical skills students employ for their own learning are sophisticated, and transfer to other life and learning activities (Conole, et. al, 2008). The line between "work" and "fun" begins to blur when the same technologies are employed for both. Music teaching and learning, particularly informal music learning, are being affected by the increasing availability of Internet resources and online communities (Ruismaki & Juvonen, 2009). Employing media technologies such as social networks and online communities in music pedagogy may contribute to the creation of environments where students are able to become independent, lifelong learners (Salavuo, 2009).

**Playing by Ear**

Traditionally, young musicians are judged by their skill at learning and reproducing musical notation; consequently, exploration of creative skills that help to develop the musical ear are often neglected (McPherson, 2005; McPherson & Gabrielsson, 2002). However, young musicians who attained a high level of performance were more likely to have indulged in
creative, informal musical activities than their less accomplished counterparts (Moore, Burland, & Davidson, 2003; Sloboda & Davidson, 1996). These pleasurable activities include playing popular music, improvising, and singing, and are unrelated to formal music lesson assignments. Such behaviors may contribute to the attainment and development of expressive musical skills and gestures.

In traditional music lessons, playing by ear is often discouraged as teachers tend to use notation instead of aural and kinesthetic means to explain music to children. McPherson & Gabrielsson (2002) assert that teachers of young learners should focus on the sound, rather than the notation of music. They advocate using rote learning and playing by ear both as a precursor to reading music and as a continuing activity to complement the use of notation.

Music activities principally involve by-ear learning in informal music settings. In a study of so-called “garage bands,” it was observed that band members, all adolescent boys, usually learned the selected songs independently through repeatedly listening to recordings (Campbell, 1995). Priest (1989) interviewed ten successful musicians who played by ear, several of whom never learned to read notation. These musicians placed the highest value on expressive qualities of performance, and spent a great deal of time listening to and gaining inspiration from recordings.

Green (2002) conducted a qualitative study of musicians who played rock and popular styles. Participants (N = 14, ages 15 – 50) were observed and interviewed in an effort to find out how they learned music. Green found that these musicians chiefly learned by imitating others and copying recordings by what she termed "purposive listening." Green pointed out that learning by use of recordings is unique in the history of music, having arisen only since the widespread availability of technology in the 20th century.

In the 1940's, records featuring great jazz artists were widely available in record stores and on jukeboxes. Jazz musicians have a long tradition of learning by listening to and imitating other performers (Berliner, 1994). This tradition is illustrated succinctly in a quote from jazz artist Walter Bishop Jr. (in Berliner, 1994):

It all goes from imitation to assimilation to innovation. You move from the imitation stage to the assimilation stage when you take little bits of things from different people and weld them into an identifiable style—creating your own style. Once you've created
your own sound and you have a good sense of the history of the music, then you think of where the music hasn't gone and where it can go—and that's innovation. (p. 120)

**Use of Video Models and the Internet**

The decision to use a video format for the model performances was made for several reasons. First, the performer's movements were likely to affect the students' perception of expressiveness, as has been shown in a study involving audiences both with and without extensive musical training (Juchniewicz, 2008). It has also been shown in a study that employed video performances that both highly-trained and novice musicians found watching a performer to be more interesting than listening alone, and that performer movement allowed listeners to distinguish an expressive performance from an inexpressive performance (Broughton & Stevens, 2009). While performing the expressive versions of the pieces, the performer exhibited an amount of appropriate movement, and moved relatively little while performing the static versions (for a comparison, see the two versions of Piece 1 in Appendices J and K). The video format allowed the students to obtain a view of the performer's body, arms, and hands, providing them with a unique perspective on how the sound was produced. Mirror neurons in the brain, which are stimulated by observed behaviors, send messages for imitation of the behavior in the observer, and are more active if the musical performance is seen as well as heard (e.g., Svard, 2010). Since children learn by imitating others, it was hoped that they would absorb an amount of expressive information if it was transferred visually through body movement.

The decision to use audio alone for the student performances was made for the opposite reason: it was not desirable for the expert panel to be influenced by visual elements of the students' performances. Size, apparent age, gender, posture, ethnicity, dress, or surroundings can evoke bias on the part of adjudicators of music performers (e.g., Ryan & Costa-Giomi, 2004; Wapnick, Mazza, & Darrow, 2000), and it was necessary to try to avoid the possible confounding of results due to such adjudicator bias.

There are both advantages and disadvantages to using popular video hosting websites to post model performance videos for students. Among the disadvantages is that these sites often contain inappropriate material for young children, and parental supervision is needed. This problem, however, is certainly not unique to video sites, as students are at risk of exposure to inappropriate content at any number of Internet sites they might visit for social networking or to complete homework assignments. Another problem with using the Internet is that it is easy for
students to become distracted and off-task by wandering to other sites and activities on the web. An additional complication is that in order to watch streaming video, a fast Internet connection is necessary, and even then, sometimes videos take time to load or may not stream properly.

Even with these disadvantages taken into account, there are definite benefits to using this contemporary technology. Students enjoy and are accustomed to using the Internet for a variety of activities, and inclusion of online music lesson assignments may make music study more relevant to their daily lives. Although the typical private studio meeting time comes only once per week, students can profit from posted content on the Internet at any time that is convenient, and in the case of videos of model performances, are able to repeatedly view, back up, fast-forward, pause, and watch in slow motion as desired.

Limitations of the Study

It is possible that the sample was not representative of a general population of young piano students. All student and teacher participants resided in Florida, and perhaps the sample was not diverse enough to represent other regions. In addition, participating teachers may have selected students from their studios based on personality, musical skill, or other criteria, rather than simply enrolling volunteers.

Another factor that may have influenced the results of this study was the length of participation. The two-week participation period may have been too short, and the study could have had a different outcome if the participation period was lengthened. Additionally, the pieces themselves might have affected the outcome. If the pieces had more variation in style, it is possible that some students would have had an easier time performing expressively.

Recommendations for Future Research

The present study explored the use of contemporary media in the area of music teaching and learning. In this case, model video performances were posted on the Internet to determine whether the performances of young piano students who viewed the models would be affected. It might be of interest to future researchers to use the same process with other musical instruments or voice. Further, studies involving participants of varying age and experience levels could provide researchers with useful feedback on the use of Internet models in music learning.
Researchers who are interested in the effects of video models may take advantage of the widespread availability of the Internet to reach participants in remote locations. For example, teachers and participating students in the present study lived in six different counties in a Southern U.S. state, and participation was conducted almost entirely over the Internet. Teachers were solicited for participation by e-mail, sent the necessary forms, instructions, and piano compositions as e-mail attachments, and the researcher was able to answer any questions by e-mail. Students viewed the online video models on home computers, and one teacher indicated that his/her students viewed the videos on an "i-phone" (a popular multi-feature cellular telephone). The one exception to the use of the Internet for this project was the physical mailing via U.S. Postal Service of the small Sony voice recorders that participating teachers used to record their students' performances. However, with the advent of improved technology, there may soon be a procedure for obtaining recordings of similar quality on home computers or cellular telephones that can be sent electronically to the researcher over the Internet.

Traditionally, piano lessons contain an amount of modeling behavior by the teacher and imitation by the student. Any time a teacher demonstrates by singing or playing a passage, modeling has taken place (Haston, 2007). However, most published research literature in the area of modeling behaviors in music teaching involving young students has been conducted among children enrolled in school band programs. Further study in the area of the effectiveness of recorded models in the piano lessons of children is necessary, as many studio teachers may need evidence that model performances are useful teaching tools before they will be given a significant role in lessons.

Further research is needed to determine what form of modeling, whether generated by a teacher only at a lesson or used at home in the form of an audio recording or viewed on the Internet, will best influence novice students’ ability to create their own interpretive, expressive performances.
Office of the Vice President For Research
Human Subjects Committee
Tallahassee, Florida 32306-2742
(850) 644-8673 . FAX (850) 644-4392

APPROVAL MEMORANDUM

Date: 11/13/2009

To: Carol Payne

Address: 1014 Magnolia Lane, Gulf Breeze, FL 32563
Dept.: MUSIC SCHOOL

From: Thomas L. Jacobson, Chair

Re: Use of Human Subjects in Research
The Effect of Viewing Model Performances Posted on the Internet on Expressive Performance among 7- to 14-year-old piano students.

The application that you submitted to this office in regard to the use of human subjects in the research proposal referenced above has been reviewed by the Human Subjects Committee at its meeting on 11/04/2009. Your project was approved by the Committee.

The Human Subjects Committee has not evaluated your proposal for scientific merit, except to weigh the risk to the human participants and the aspects of the proposal related to potential risk and benefit. This approval does not replace any departmental or other approvals, which may be required.

If you submitted a proposed consent form with your application, the approved stamped consent form is attached to this approval notice. Only the stamped version of the consent form may be used in recruiting research subjects.

If the project has not been completed by 11/3/2010 you must request a renewal of approval for continuation of the project. As a courtesy, a renewal notice will be sent to you prior to your expiration date; however, it is your responsibility as the Principal Investigator to timely request renewal of your approval from the Committee.

You are advised that any change in protocol for this project must be reviewed and approved by the Committee prior to implementation of the proposed change in the protocol. A protocol change/amendment form is required to be submitted for approval by the Committee. In addition, federal regulations require that the Principal Investigator promptly report, in writing any unanticipated problems or adverse events involving risks to research subjects or others.

By copy of this memorandum, the Chair of your department and/or your major professor is reminded that he/she is responsible for being informed concerning research projects involving
human subjects in the department, and should review protocols as often as needed to insure that
the project is being conducted in compliance with our institution and with DHHS regulations.

This institution has an Assurance on file with the Office for Human Research Protection. The
Assurance Number is IRB00000446.

Cc: Victoria McArthur, Advisor
HSC No. 2009.3256
APPENDIX B

LETTER TO STUDIO PIANO TEACHERS
Letter to Studio Piano Teachers

Dear Colleagues,

I am a doctoral candidate in the College of Music at Florida State University. I am conducting a research study to explore the efficacy of a certain piano teaching technique and need student and teacher volunteers to participate. Due to limitations of the study I would like student participants to meet certain criteria:

1. Be from aged 7 to 14, male or female.
2. Be able to learn and perform in 2 weeks time one of the provided pieces (please see attached excerpts).
3. Have internet access at his/her home and be able to view posted videos on line.
4. Have parents willing to allow and supervise their child’s participation.
5. Be available for 3 successive lessons.

Teacher participants will need to meet the following criteria:

1. Have one, two, or three willing student participants.
2. Be willing to devote a portion of 3 successive lessons for each participating student.
3. Have internet access and be able to view videos on line.

This study involves supervised home viewing of a video piano performance of an assigned repertoire piece posted on the internet on YouTube.com. Repeated viewing is required over the 2-week participation period. At the 3rd lesson, student performances will be recorded by their teachers (on a provided recorder), submitted to me, and evaluated at a later time. No voices will be recorded, and names of students and teachers will not be attached to the recordings.

To insure the success of my research, your assistance is both needed and greatly appreciated.

Please keep in mind that the F.S.U. College of Music is well known for original research in music and music teaching, and teacher/student participation is an important and often essential element for the success of this research.

Thank you very much.
Sincerely,

Carol W. Payne
Letter of Consent for Parents of Participating Minor Students
C. W. Payne Study

Dear Parents,

I am a doctoral candidate in the College of Music at Florida State University. I am conducting a research study to explore the efficacy of using the viewing of internet piano performances as a piano education tool. I am requesting the participation of your child. This will involve:

- Participation for 2 weeks, including a portion of 3 successive piano lessons.
- Supervised home viewing of a video piano performance of an assigned repertoire piece posted on the internet on YouTube.com. Repeated viewing to occur over the 2-week participation period.
- Student’s performance of repertoire piece will be audio-recorded at 3rd lesson.
- Completion of a short survey by the student.

Performances will be recorded by the student’s piano teacher, submitted to me, and evaluated at a later time. No voices will be recorded, and the student’s name will not be attached to the recording or the survey. Although there may be no immediate benefit to your child, your child’s participation may lead to future improvements in piano teaching and learning.

Your child’s participation in this study is voluntary. If you choose not to participate or to withdraw your child from the study at any time, there will be no penalty whatsoever, and participation will in no way cause a risk to you or a negative effect on your child’s lesson grades. The F.S.U. College of Music is well known for original research in music teaching and learning, and student participation is often an essential element in the success of this research. Information obtained during the course of the study will remain confidential and will be protected to the extent allowed by law.

If you have any questions concerning this research study, please call me at 850-723-9935 or e-mail me at cwp07c@fsu.edu, or you may contact Dr. Victoria McArthur at 850-644-7607 or vmearthur@fsu.edu. Thank you for your assistance in this research. Your signature below will be considered your consent to participate. You may keep a copy of this letter.

Sincerely,
Carol W. Payne

I give consent for my child, __________________________, to participate in the above study.

__________________________  __________________________
Signature of Parent  Date

If you have any questions about your rights as a participant in this research, or if you feel you have been placed at risk, you can contact the Chair of the Human Subjects Committee, Institutional Review Board, through the Vice President for the Office of Research at (850) 644-8633

FSU Human Subjects Committee approved on 11/12/09 VOID after 11/3/2010 HSC# 2009.3256
Assent for Minor Student
C. W. Payne Study

I understand that my parent has given permission for me to participate in a study that involves learning a piece and viewing a piano video performance on the internet. I also understand that my participation is voluntary, even though my parent has given permission, and that I may discontinue participation at any time without penalty and without effect to any lesson grades. My participation involves a part of 3 piano lessons and 2 weeks of lesson practice. Participation involves:

- Watching a video of a piano piece performed on the internet with my teacher at the first piano lesson.
- Learning the piano piece, practicing it at home, and watching the same video on the internet as part of my practice, then playing the piece for my teacher at the second lesson.
- Practicing and watching the video at home, again, then performing the piece at the third piano lesson while my teacher records me; audio alone (not on video).
- After the recording is done, I will be asked to fill out a short survey.

My voice will not be recorded, and my name will not be attached to the recording or the survey.

This project might help teachers to find out if students can benefit from watching piano performance videos on the internet, and may lead to future improvements in piano teaching and learning.

I agree to participate.

________________________
Signature

FSU Human Subjects Committee approved on 11/12/09 VOID after 11/3/2010 HSC# 2009.3256
Teacher Consent Form  
C. W. Payne Study

I am a doctoral candidate in the College of Music at Florida State University. I am conducting a research study to explore the efficacy of a certain piano teaching technique and need student and teacher volunteers to participate. Due to limitations of the study I would like student participants to meet certain criteria:

1. Be from aged 7 to 14, male or female.
2. Be able to learn and perform in 2 weeks time one of the provided pieces.
3. Have internet access at his/her home and be able to view posted videos on line.
4. Have parents willing to allow and supervise their child's participation.
5. Be available for 3 successive lessons.

Teacher participants will need to meet the following criteria:
1. Have at least one willing student participant, but not more than 3.
2. Be willing to devote a portion of 3 successive lessons for each participating student.
3. Have internet access and be able to view videos on line.

This study involves supervised home viewing of a video piano performance of an assigned repertoire piece posted on the internet on YouTube.com. Repeated viewing is required over the 2-week participation period. At the 3rd lesson, student performances will be recorded by their teachers (on a provided recorder), submitted to me, and evaluated at a later time. No voices will be recorded, and names of students and teachers will not be attached to the recordings. Teachers and students will be issued post-participation surveys. Names will not be attached to surveys.

This study is investigating the idea of using an internet video performance as a tool to benefit young piano students. To insure the success of my research, your assistance is both needed and greatly appreciated. The F.S.U. College of Music is known for original research in music and music teaching, and student participation is an important and often essential element for the success of this research.

Your participation in this study is voluntary. If you choose not to participate or to withdraw from the study at any time, recordings of your students will be erased. Information obtained during the course of the study will remain confidential and will be protected to the extent allowed by law. If you have any questions concerning this research study, please call me at 850-723-9935 or e-mail me at cwp07c@fsu.edu, or you may contact Dr. Victoria McArthur at 850-644-7607 or vmearthur@fsu.edu.

Thank you for your assistance in this research. Your signature below will be considered your consent to participate. You may keep a copy of this letter.

Sincerely,
Carol W. Payne

<table>
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<tr>
<th>Printed Name of Participating Teacher</th>
<th>Signature of Participating Teacher</th>
<th>Date</th>
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If you have any questions about your rights as a participant in this research, or if you feel you have been placed at risk, you can contact the Chair of the Human Subjects Committee, Institutional Review Board, through the Vice President for the Office of Research at (850) 644-8633.

FSU Human Subjects Committee approved on 11/12/09 VOID after 11/3/2010 HSC# 2009.3256
APPENDIX D

PIANO PIECE NUMBER 1
Piano Piece Number 1

Piano

Hold pedal down throughout

As written

8va 2nd time

8va

mp

ritard

PP
Piano Piece Number 2

Slowly

mf - mp

pedal sim.

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APPENDIX F

PIANO PIECE NUMBER 3
Piano Piece Number 3

Hold pedal down until end

rallentando
l.h. over
Piano Piece Number 4

Slowly

Piano

\[ \text{pedal sim.} \]

\[ \text{ritardando} \]

\[ \text{r.h.} \]

\[ \text{l.h. over} \]
APPENDIX H

PIANO PIECE NUMBER 1: EXPRESSIVE VIDEO RECORDING
APPENDIX I

PIANO PIECE NUMBER 1: STATIC VIDEO RECORDING
APPENDIX J

PIANO PIECE NUMBER 2: EXPRESSIVE VIDEO RECORDING
APPENDIX K

PIANO PIECE NUMBER 2: STATIC VIDEO RECORDING
APPENDIX M

PIANO PIECE NUMBER 3: STATIC VIDEO RECORDING
APPENDIX N

PIANO PIECE NUMBER 4: EXPRESSIVE VIDEO RECORDING
APPENDIX O

PIANO PIECE NUMBER 4: STATIC VIDEO RECORDING
APPENDIX P

INSTRUCTIONS FOR TEACHERS
Payne Study
Instructions for Teachers

Thank you again for agreeing to participate in this study. It could not be done without your help! A portion of 3 consecutive lessons is required. I will be mailing a small Sony digital recorder to you with instructions for use at Lesson 3.

Here is the information you need to complete the task:

Lesson 1
Consent form: The student and a parent should sign. If the parent is not available, the student may take it home for a signature.
Using your Internet connection, view the video of the repertoire piece with the student.
*Important: The student should watch the video before sight-reading the score.
Allow the student to sight-read the score. Correct only notes and rhythm, and not expression marks. Please do not perform any portion of the piece yourself.
Tell the student to try to play the piece exactly like the performer in the video.
Read the student handout together. Circle either “metacafe.com” or “youtube.com” and write in the assigned video number that I sent to you.

Lesson 2
1) Ask the student if he/she has been watching the video. If there is a problem, i.e. the student is not able to access the video, please call me at 850-723-9935.
2) Listen to the student perform the piece. Again, correct only notes and rhythm if needed, and do not comment on expression markings, and avoid playing it yourself.

Lesson 3
1) Allow the student to warm up.
2) Record the performance.

Return the recorder with the Consent Forms in the pre-paid envelope.

Enclosures:
- Repertoire piece(s) and video access information.
- Consent forms: Please have each participating student and one of his/her parents read and sign appropriate forms, and sign the teacher consent form. (This is an F.S.U. requirement.)
- Handouts for the students (one per student).

Please call me if you have any questions or concerns. Thanks!
APPENDIX Q

STUDENT HANDOUT
Payne Study
Student Handout

Student name: ___________________

Thank you for agreeing to participate in this study! Here are some guidelines:

1. Your assigned video can be found on metacafe.com or youtube.com. Type ____________ in the search box near the top of the screen. You may copy the link to your “favorite places” or add it to your bookmarks. You may also copy the video on to your computer if you have the appropriate software.

2. If the video is on metacafe.com, there will be a short commercial at the beginning. You can replay the video without the commercial by using the replay button on the bottom left corner of the video box.

3. Sometimes videos can take a minute or so to ‘load.’ If you try to watch it before it finishes loading, it will stop and start and won’t play smoothly. You can pause the video by clicking the button in the lower left corner of the video (it looks like this: ), to finish loading. After a short wait, click the same button again and it will play.

4. If you have any trouble finding or watching the video on line, please call your teacher immediately.

5. Because you are trying to play the piece exactly like the performer in the video, you may watch the video as many times as you want. Feel free to pause the video, back up, etc. Please watch it at least once per day.
Payne Study

Recording Instructions

Recording is easy with this Sony recorder. You may want to practice with it before recording the student(s).

To record:
- Push the red button

To stop:
- Push either ‘enter’ (which will play back immediately) or ■, which will not play back immediately. To listen, press ‘enter.’

To erase:
- It is not necessary to erase anything; this recorder will store up to 12 hours. Just write down the number of the track that has your student(s)’ recording of the piece.
- Find the ‘erase’ button on the upper right side of the recorder. Hold it down until it beeps a couple of times, release and immediately press again. The most recent track will be erased. *Note: If you erase a track, the succeeding track numbers will change accordingly. Be careful not to accidentally erase a track you wanted to keep.

Position:
- Hold or place the recorder so the microphone (located on the top) is facing the right side of the piano keyboard, approximately 3 feet away.

Returning the recorder:
- Please return the recorder promptly when you are finished (I will need to send it to another teacher).
- Return the completed Participant Form in the same envelope.
- Include the completed Consent Forms, too.

General:
- Remember that at this lesson, you no longer make corrections to the performance.
- Don’t worry if the student makes a mistake; this does not have to be a perfect recording. However, if there are a lot of errors, or if the student would like to rerecord, that is fine. Just write the track number that you would like me to use on the Participant Form.
- Please give the Student Surveys and stamped return envelopes to your students. If possible, have them fill out the surveys and seal them at their lesson, then give to you for mailing.

If you have any questions, email or call me at 850-723-9935. Thanks!
APPENDIX S

PARTICIPANT FORM
Payne Study

**Participant Form**
(Return with recorder)

Teacher’s Name: ______________________________________

Piano used for recording:  □ Electric  □ Acoustic (check one)

Student Name: _______________________________________

Track number on recorder: _________ Piece number: ______
Age: _____
Gender:  □ Male  □ Female
Number of years of study (round to the half year, if needed): _____
Home piano:  □ Electric  □ Acoustic

Student Name: _______________________________________

Track number on recorder: _________ Piece number: ______
Age: _____
Gender:  □ Male  □ Female
Number of years of study: ______
Home piano:  □ Electric  □ Acoustic

Student Name: _______________________________________

Track number on recorder: _________ Piece number: ______
Age: _____
Gender:  □ Male  □ Female
Number of years of study: ______
Home piano:  □ Electric  □ Acoustic
APPENDIX T

PERFORMANCE EVALUATION INSTRUCTIONS
Performance Evaluation Instructions
Payne Study

Please rank each performance on a scale from 1 – 7, where 1 is poor and 7 is excellent. Use one decimal point between 1 and 7 if desired, for example, 3.6, 4.2, etc.

Evaluation of Expressive Performance

Elements to take into consideration:
- Dynamic contrast
- Crescendo/diminuendo
- Tapering of phrases
- Intentional speeding up/slowing
- Forward motion, direction
- Holding fermata

Evaluation of Technique

Elements to take into consideration:
- Accuracy: notes
- Accuracy: rhythm
- Clarity
- Control of pace/steadiness of tempo
- Tone quality
Rank each performance on a scale from 1 – 7, where 1 is poor and 7 is excellent.

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APPENDIX V

POST-PARTICIPATION SURVEY: TEACHERS
Post-Participation Survey
C. W. Payne Study

Participating Teacher:

Thank you for your participation in this study. Your responses to this survey will be helpful for future research. You may be assured that the survey is confidential and anonymous.

Please answer the following questions and mail this sheet in the provided addressed and stamped envelope. Thank you very much.

Age: □ 20 – 30 □ 30 – 40 □ 40 – 50 □ 50 – 60 □ 60+

Years of teaching: □ 0 – 5 □ 5 – 10 □ 10 – 15 □ 15 – 20 □ 20+

1. I think my student(s) enjoyed participating and watching the video. yes no
2. Some parents were hesitant to allow their children to participate. yes no
3. I feel my student(s)’ participation in this study was beneficial. yes no
4. I believe my student(s) watched the video at home as directed. yes no
5. I think my student(s)’ performance was influenced by the video. yes no
6. I would consider including Internet videos in my studio in the future. yes no

Additional comments:

______________________________________________________________________________
______________________________________________________________________________
______________________________________________________________________________
______________________________________________________________________________
______________________________________________________________________________
______________________________________________________________________________
______________________________________________________________________________

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APPENDIX W

POST-PARTICIPATION SURVEY: STUDENTS
Post-Participation Survey
C. W. Payne Study

Participating Student:

Thank you for your participation in this study. Your responses to this survey will be helpful for future research.

Please answer the following questions and mail the survey in the provided stamped and addressed envelope:

Age: ______

Number of years of piano lessons: ______

Gender:  □ male    □ female

I watched a video of my piece on  □ youtube.com  □ metacafe.com

I enjoyed watching the performance of my piece on the Internet.  □ yes  □ no

I watched the performance of my piece on the Internet at home _____ times (approximately).

Please write any comments you have about participating in this project below, and thank you very much.

______________________________________________________________________________

______________________________________________________________________________

______________________________________________________________________________

______________________________________________________________________________

______________________________________________________________________________

______________________________________________________________________________

______________________________________________________________________________
APPENDIX X

JUDGES’ RATING SCORES
# Judges’ Rating Scores

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APPENDIX Y

TEACHER SURVEY: VERBATIM COMMENTS
Teacher Survey Verbatim Comments

Since my students are not regularly instructed to watch a video as a part of their piano assignments, I called them by telephone soon after the first lesson. I reminded them to watch the video every day. I'm glad I called because they sounded like they perhaps would have forgotten (even though I wrote it in their assignment books!). It was fun to participate. Students enjoy doing something different.

This was a lot of fun! I always tell my students to try and find videos of their pieces being performed (advanced students), but they will come back and say their parents wouldn't let them. Even though I didn't do this with all my students, I discussed it with all the parents and showed quite a few how to access "these types" of videos. It was very helpful having my students participate. Thanks, Carol!

For a young or beginning level student, I'm not sure how beneficial a video would be, because the student may not yet be aware of all the things he or she should be looking for in the video. For a more experienced student who has an awareness of expression, dynamic contrast, etc., I think a video is very useful. The video was very helpful in conveying the importance of a smooth and continuous performance to my students.

I love the idea of having kids use different technology to learn music! I've started recording things on parent's i-phones to help them learn better at home. I think youtube is easier to use than metacafe. I used my i-phone to show it to students at their lessons.

I use videos a lot in teaching already. I do think they are valuable in providing a model for students. It's hard to become a good musician if you don't know what a good musician looks like when performing or sounds like when performing. All great artists learn from those that come before them.

It would be helpful for students to be able to see and hear a performance of a piece throughout their practice time between lessons. Good idea!

My student did seem to pick up on the mood of the piece. She liked watching Read Gainsford playing it.

All of my students use audio cds for part of their weekly assignments, so they probably focused more on how the performer sounded. I have begun using youtube videos with later elementary and intermediate students, and ask them to tell me what they like and don't like about various performances. This was fun! I'm very interested to find out what you learned from this study!

In one case, it was not clear to me, whether the parents were hesitant or the student herself did not want to have the obligation of watching the video every day. I think it is rather the latter, in my opinion, although I also marked item no. 2 as [no]. This study should also allow the 3rd choice, such as "not sure," or "not clear."
Best wishes in concluding your degree

In keeping with the teacher directives I offered no advice on dynamics or musical phrasing. All of my participants are capable of playing with a reasonable level of musical maturity, but the students did not emulate the performer because they didn't watch the video carefully using their "musical" eyes and ears. I do believe watching the video was helpful, but if asked to use one as a teaching tool I would review it more in depth with the student to specifically identify what they were attempting to copy. Was extremely disappointed with number of times the video was viewed, although I'm not sure watching multiple times would have changed their perception without more specific guidance.

The study was well organized and gave me insight into another tool for teaching piano. Thank you.

I like to video my students' performing to help them see themselves and help to correct distracting body movements or poor posture.

Learning a piece through watching the video is a very good method. It helps for independent study. I would recommend my students use the idea when they practice at home.

Students were excited to be encouraged to use the internet as part of their piano lesson. One student in particular caught on very quickly to the piece after watching the video. Another student recognized that the control group recording sounded "all the same" but did not know how to express this. A positive experience. Thank you.
APPENDIX Z

STUDENT SURVEY: VERBATIM COMMENTS
Student Survey Verbatim Comments

**Static Video Condition:**
Thank you so much for letting me participate in this assignment. This has been a lot of fun! It’s awesome!! Thanks again, your friend.
I liked it's melody. It was pretty
Well it’s a bit distracting for the person to be in the vid. But I liked it very much. Bye!
This piece helps me calm down because it is slow and soft. Some parts make me like I'm floating. I just love this piece very much.
I liked it very much. I liked it because it sounds wonderful.
My family really enjoyed listening to me play the piece. I like the piece so much I'm playing it for the valentine recital.
It was awesome! It helped me with performance skills making the recording. Watching the man helped get the tune in my head. Helped with tempo also.
It's fun. The video was good. It helped me learn my piece.

**Expressive Video Condition:**
It was fun! I like being recorded.
I learned to be more dependent on myself while gaining more through watching the youtube video. The man in the video displayed a very engaging appeal of emotion and talent. This process was a great experience, and I would enjoy to do it again.
 Compared to learning it without the video, it is much easier. I'd like to use this method for the future. The person who played it was very musical, so I could be more musical.
I enjoyed watching the person play it. He is very musical. I would recommend this video to other people learning to play this piece.
I enjoyed learning a new piece. It was pretty, but not hard at all.
This piece was so much fun to play! I'm glad I signed up for this.
It was fun. This was the best. Me and my parents enjoyed it.
Watching the video on the internet helped me with the rhythms, hand positions, and tempos. Thought it was cool to go on youtube.
It was a great project. I really got to understand and enjoy the piece. I think the video helped a lot learning the piece.
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Higher Education:
- The University of West Florida, Pensacola, Florida
  - Major: Piano Performance
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- The Catholic University of America, Washington, D.C.
  - Major: Piano Performance
  - Degree: Master of Music (1982)

- The Florida State University, Tallahassee, Florida
  - Major: Music Education with Emphasis in Piano Pedagogy
  - Degree: Doctor of Philosophy (2010)

Professional experience
- Independent Piano Studio, McLean, Virginia & Gulf Breeze, Florida
  - 1982-2007

- Pensacola Junior College, Pensacola, Florida
  - 1986-2007
  - Piano, Group Piano, Music Appreciation

- The University of West Florida, Pensacola, Florida
  - 1992-2000
  - Music Theory, Music in Western Civilization, Piano

- The Florida State University, Tallahassee, Florida
  - 2007-2010: Group Piano
  - 2010-2011: Piano Pedagogy