

PREFERENCE BETWEEN AUDIO-VISUAL RECORDED
PERFORMANCE AND AUDIO-ONLY RECORDED
PERFORMANCE

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Tennessee at Chattanooga in Partial Fulfillment
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ABSTRACT

This research explores whether subjects have a preference for an audio-only (AO) presentation or an audio-visual (AV) presentation of the same piece of music. The research was conducted in two parts as a pilot study and as a main study. In the pilot study, the adult subjects were directed to the website YouTube where they listened to an audio and an audio-visual recording. During each presentation, the subjects ranked segments at 30-second intervals on a Likert scale from strongly-dislike to strongly-like. Using χ^2 , a statistically significant difference was found in the “Dislike” category with a χ^2 of 14.44 and the “Strongly Like” category with a χ^2 of 10.424 in favor of audio-visual type presentations.

In the main study, fourth- and fifth-grade subjects listened to AO and AV presentations of excerpts from eight pieces of music in varying styles. There was a statistically significant difference between AV and AO results: unpaired t -test, $t = 3.1422$, $df = 14$, $p = < .05$.

DEDICATION

I would like to dedicate this research to my wife, Candace, and my daughter, Kayleigh.
For their patience and understanding, I am forever grateful.

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The author would like to express his deepest gratitude to the faculty in the music department of the University of Tennessee at Chattanooga for making the attainment of this degree worthwhile and possible. To Dr. Mario Abril, Dr. Paul Shurtz, and Dr. Kenyon Wilson, I say thank you for making me a better educator and a better musician through your wisdom. Their tutelage and expertise have truly opened my mind and my ears. The author also wishes to extend special thanks to Dr. William Lee, whose immense guidance since my undergraduate years have been invaluable. Dr. Lee has also been extremely instrumental in encouraging me to persevere and reassuring me in the quality of my work. Lastly, the author wishes to thank both Dr. Lee Harris and Dr. Kevin Ford for their work on my graduate committee.

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CHAPTER I

INTRODUCTION

Though music videos had been around for quite some time, the emergence of MTV in the early 1980s propelled their use in media exponentially (Bowman, 2003, pg. 544). These videos may depict a performance, interpret the subject of a song, or use completely unrelated imagery (Finnas, 2001). The commonality of video recorded performances, in particular, seems to have superseded that of audio-only performances. Current youth culture is invariably exposed to video recordings many times over through television, gaming devices, mp3/media players, cellular devices, and the internet.

Although contemporary music videos have a strong foothold in popular music, the same cannot be said for more traditional Western art music. If music videos indicate that performer-felt emotion enhances listener-felt emotion, would this not be a powerful tool to increase exposure to more traditional music besides the contemporary? Classrooms that rely heavily on audio-only recorded performances may find greater engagement from students if video recorded performances were used instead.

The advent of YouTube has made videos of every sort available to those with a high-speed internet connection. This includes, but is not limited to: commercially produced music videos by today's popular artists, live concert performances, fan created music videos, and audio-tracks with lyrics in a karaoke style. YouTube has been used in classrooms of multiple disciplines practically from its inception, not only for viewing videos but also in the creation of

classroom projects (Mullen and Wedwick, 2008; Jones and Cuthrell, 2011; Desmet, 2009; Rudolph and Frankel, 2009). Despite this, the literature on YouTube's use in the field of education, particularly music education, is lacking.

Currently, teachers of every discipline are encouraged or commanded to adopt new technology as it becomes available (Straub, 2009, pg. 625). Though many comfortably adopt new technology, others do not adopt it so readily. There are many reasons for this lack of enthusiasm (see Zhao and Frank, 2003), but those will not be explored here. Despite personal apprehensions, music teachers should not disregard technology's impact in the music classroom. Technology has often influenced, even driven music education. Consider Frances Elliot Clark's use of the phonograph in her music classes or the use of the radio for music appreciation courses during the early 1900s (Mark, 2007, pp. 292-295).

These early examples of technology use are the norm today with students often listening to recordings and other media as part of the curriculum. The modern proliferation of technology, however, suggests an examination of this paradigm. The following study will examine whether a possible preference exists between audio-visual (AV) recorded performances and audio-only (AO) recorded performances. This study was conducted in two parts and made use of current iDevices as well as the aforementioned website, YouTube.

CHAPTER II

LITERATURE REVIEW

Audio and Visual Perception

Schutz (2008) contends that although music is primarily prized for its auditory qualities, visual information influences what we hear. There are many studies regarding the correlation between visual stimuli and audio stimuli (see Finnas, 2001). The question at hand is whether visual stimuli affects audio stimuli and vice versa and to what extent. It seems that the stimulus that has the greatest effect is, at best, elusive (Boltz, Ebendorf, and Field, 2009; Finnas, 2001).

Finnas (2001, pp. 55-56) identifies three “modes of musical presentation”: live, audio-visual, and audio alone. Live presentation implies that the audience and the performer(s) are in the same room. Audio alone, of course, is a presentation like that acquired from a CD or mp3 recording. Audio-visual presentation can be highly varied and is also the most studied (e.g. Boltz, Ebendorf, and Field, 2009; Li, Tao, Maybank, and Yuan, 2008; Iwamiya, 1994; Jeong et al, 2010). Taped, live performances in documentary or “TV style” formats are often used, especially when comparing audio-visual with live performances (Finnas, 2001). Several studies however make use of montage type images (see Boltz, Ebendorf, and Field, 2009) or singular images (Jeong et al, 2010).

Li, Tao, Maybank, and Yuan (2008, pg. 2023) noted the theory of synaesthesia. Synaesthesia is a blending of the senses and in the case of music, a blend of the aural and

visual senses. Musical synaesthesia is often depicted as music representing images and vice versa. Though studies in musical synaesthesia typically involve a correlation with colors, it validates a relationship between visual stimuli and audio stimuli.

Jeong et al (2010) confirms the congruency between visual and audio stimuli in an emotional sense. In this study, allegedly happy and sad music was paired with faces displaying happy or sad emotions. Congruency was confirmed between happy music and happy faces as designated by the researcher. In fact, the happy music also made the happy faces seem happier. Incongruency left the emotional perception indiscernible.

A study by Iwamiya (1994) seems to support Jeong et al (2010). Iwamiya demonstrated that audio perception suffered if the visual parameter was not congruent or matched up with the audio parameter. In this case, Iwamiya replaced the audio track from one video with the audio track from another video. Presumably, this causes a distraction with the viewer leading to a difficulty in audio perception. Interestingly, the study did state that visual perception may not suffer due to poor audio quality.

According to Finnas (2001, pg. 57) an audio-visual presentation may evoke a more enhanced experience versus a purely audio presentation. He points out the presence of facial expressions and body language in live performance as having positive effects and that seeing the performers increases the vividness of the experience. Additionally, Schutz (2010, pg. 85) believes that sights and sounds each provide respectively unique information to the observer, thus increasing the audio-visual experience.

Emotional Models

Ladinig and Schellenberg (2011, pg. 6) contend that liking for music is determined by the emotion perceived or evoked. If this statement is true, then liking of music cannot be discussed without mentioning the emotional contributions attributed to music. There are several models used in research to determine the emotion involved, whether the emotion be perceived or evoked.

The two primary models in current music research are the discrete emotions model and the dimensional model (Juslin and Sloboda, 2010; Hunter and Schellenberg, 2010). Discrete, or basic, emotions include generic, albeit readily available, labels such as happiness, sadness, fear, anger, surprise, and tenderness. Studies that use this model tend to force judgement as to the emotional intentions of a listening example. The dimensional models on the other hand use more open-ended descriptors such as valence, arousal, and tension to not only describe the perceived emotion, but also the felt emotion (Eerola and Vuoskosk, 2011; Hunter and Schellenberg, 2010).

Zentner, Grandjean, and Scherer (2008) developed a new method for measuring emotion, coined the Geneva Emotional Music Scale (GEMS) which employs nine musical emotions: wonder, transcendence, tenderness, nostalgia, peacefulness, power, joyful activation, tension, and sadness (Zentner, Grandjean, and Scherer, 2008). This model was developed in response to the long-standing models that emphasize the so-called basic emotions and dimensional emotions.

Emotion and Music

Zentner, Grandjean, and Scherer (2008) note that the universal appeal of music may lie in its “emotional rewards” (Zentner, Grandjean, and Scherer, 2008, pg. 494). Overall affective qualities are dependent upon small-scale structural units such as loudness, pitch level, pitch contour, tempo, texture, and sharpness (Coutinho and Cangelosi, 2011).

There are studies that seem to support the belief that music is only capable of causing basic emotions like happy or sad. Even then only through the use of extrinsic circumstances such as the context in which the music is heard or through an extra-musical activity such as dance. The ability for music to *express* emotion is often confused with the purported belief that music *induces* emotion (Konecni, 2008). This is supported by a recent study by Hunter, Schellenberg, and Schimmack (2010) which showed that although emotional feeling and perception can be closely related, emotional perception of the piece itself is more often regarded than what the listener felt themselves.

A study conducted by Lundqvist, Carlsson, Hilmersson, and Juslin (2009), however, reported information to the contrary. The study found that music can induce an emotional response in the listener and that it was not merely perceived by the listener. A previous study had similar results in which the subjects tended to report experiencing the feelings that were perceived by the musical examples (Kallinen and Ravaja, 2006).

Still, the answer regarding the relationship between music and emotion, and liking or disliking for that matter, seems at best uncertain (e.g. Konecni, 2008; Hunter, Schellenberg, and Stalinski, 2011; Zentner, Grandjean, and Scherer, 2008). There seems to be some consensus, however, that the emotional traits of happiness and sadness are often depicted in music, whether it be induced or perceived (e.g. Kallinen and Ravaja, 2006; Hunter,

Schellenberg, and Schimmack, 2010; Ladinig and Schellenberg, 2011; Schellenberg, Peretz, and Vieillard, 2008).

Tempo appears to be a leading indicator of happiness or sadness. Children as young as four-years-old often rate faster tempo music as “happier” when compared with slower tempo music (Mote, 2011). Some studies have also shown that there seems to be a preference for faster tempos (LeBlanc et al, 1988).

If it holds true that happy music is characterized by faster tempos, then general assumptions about the types of music individuals will like can be made. For instance, Hunter, Schellenberg, and Stalinsky (2011) found a general affinity for music that exemplifies positive emotions and Juslin et al (2008) showed that musical experiences tend to accompany positive emotional experiences.

It has been indicated that the more familiar a listener is with a piece of music, the more they will like it; regardless if it is happy or sad. Conversely, there is an inverted-U relationship between the perceived complexity of a piece of music and how well it is liked (North and Hargreaves, 1995; Hargreaves, 1984; Schellenberg, Peretz, and Vieillard, 2008).

North and Hargreaves (1995, pp. 86-88) noted in their study that familiarity strongly influenced liking among subjects when exposed to popular music. This study used a total of sixty excerpts to reach this conclusion. To the contrary, a study by Ladinig and Schellenberg (2011, pg. 6) indicates that individuals can like unfamiliar music, depending upon the type of emotion that is elicited, individual personality, and prior musical training.

The aim of this study is to determine a preference between mediums: that of audio recorded performances and audio-visual recorded performances. The emotions in this case that will invariably influence the level of liking must be examined from two directions: aurally and

visually. For this reason, the researcher has chosen to use a single musical source for comparison in the first study.

Therefore, the purpose of this research will be to determine if there is a preference between an audio-visual performance of a piece of music versus an audio-only recorded performance of the same piece. Two different studies will be explored in this investigation and will conclude with a short discussion on the possible repercussions in the music classroom.

Research Hypotheses

The first study will explore whether listeners have a preference for an audio-only versus an audio-visual music presentation of the same piece of music, and to determine whether liking or disliking have structured correlations within the music.

The second study will explore whether listeners have a preference for audio-only versus audio-visual music presentations of excerpts from several pieces of music, and survey personal listening habits to indicate the usage of audio-only and audio-visual music presentations.

Null Hypothesis

The null hypothesis is there will be no significant difference between liking audio-visual performances and audio- only performances.

CHAPTER III

PILOT STUDY

Procedure

The researcher began with a pilot study using adult subjects to determine the best approach to a later main study with children subjects. The primary feature of this study was dividing the listening example into 30-second segments. The researcher felt this would help in identifying either musical or visual phenomena that would skew a listener's preference.

To begin, subjects were given a self-designed measurement tool (see Appendix B) that contained instructions and a URL that led to a recorded performance on the website YouTube. While listening to this performance, the subject rated their level of liking using a five-point Likert scale ranging from strongly dislike to strongly like at 30-second intervals. The subject then completed an identical task for the second recording. Both recordings were Giacomo Puccini's aria "Nessun Dorma" from his opera *Turandot*, though the audio recording used a different artist from the audio-visual recording. Subjects were randomly given either an "A test" or a "B test", the only difference in the two being which recording medium they listened to first. This was an attempt to stave off the effects of familiarity playing a role in confounding the scores. An equal number of each test variant was distributed to the subjects ("A," n = 10 and "B," n = 10).

In addition to completing the two five-point scales, the subjects were asked to give basic demographic information for the purpose of analysis. The subjects were given five

working days period to complete the form and return it to a designated envelope, so that complete anonymity of the subjects would remain intact.

The researcher compared the results for each 30-second segment between both recordings to determine any similarities or differences. Differences in scores may be the result of visual stimuli present during a specified interval that either enhanced or degraded the level of liking for the subject.

Musical Selection

“Nessun Dorma” was chosen in part due to its manageable length of around three minutes for both the audio recording and audio-visual recording. Also, this piece has almost a steady progression of its musical/emotional high and low points; especially the climax in the last 30-second segment. The performer’s expression during this segment could possibly point to a pivotal moment in favor of audio-visual recordings of live performances.

Subjects

The subjects for this study were educators and staff from a local school in the North Georgia area (n = 20) who volunteered to participate in this study. They ranged in age from 26 to 59 (mean age = 40.1) with varying education levels (High school n = 3; Bachelor’s n = 8; Master’s n = 7; Doctorate n = 2), approximately fourteen females and six males.

Musical backgrounds varied greatly among the subjects. Five participants had no musical training; several had some training on an instrument either in band, chorus, or on piano; and one participant was self-taught on guitar.

Results

The researcher used the chi-square statistic to determine whether there was any significant difference between the audio-visual (AV) recording and the audio-only (AO) recording by testing each 30-second segment against one another. The score was also analysed and compared against both recording mediums.

Table 1

Pilot Study Audio-Visual Subject Results

30-Second Segment	Strongly Dislike	Dislike	Neutral	Like	Strongly Like
1	0	0	8	7	6
2	0	0	8	6	6
3	0	2	5	7	7
4	0	0	8	6	7
5	0	0	6	7	8
6	0	1	4	4	12

Table 2

Pilot Study Audio-Only Subject Results

30-Second Segment	Strongly Dislike	Dislike	Neutral	Like	Strongly Like
1	0	4	7	7	2
2	0	5	4	8	3
3	0	4	4	8	3
4	0	4	6	7	3
5	1	2	6	7	4
6	1	3	3	8	5

The results of the χ^2 tests showed that each of the six segments were not significantly different at the $p = < .05$ level when compared with its corresponding segment in the other sample.

Table 3

Pilot Study 30-Second Segment Comparison

Segment	x^2	df
1	6.046*	3
2	7.619	3
3	2.35	3
4	5.942	3
5	4.312	4
6	6.338	4

Note: * $p = < .05$

The sums for each level of liking for both recording mediums were also compared using x^2 to facilitate looking at AV and AO overall. Of the five levels of liking designated, two showed a significant difference at the $p = < .05$ probability level. These were the “Dislike” category which had a x^2 of 14.44 and the “Strongly like” category which had a x^2 of 10.242. Comparing the overall scores of AV and AO yielded a x^2 of 28.742 and df of 4, also significantly different at the $p = < .05$ level.

Table 4

Level of Liking Comparison with Aggregate Score Test

Level of Liking	AV	AO	x^2
Strongly Dislike	0	2	2*
Dislike	3	22	14.44
Neutral	39	30	1.174
Like	37	46	0.976
Strongly Like	46	20	10.242
Aggregate x^2	28.742	df	4

Note: * $p = < .05$

Conclusions

Compartmentalizing the two musical selections into segments for the first study seems to favor AO type performances since no significant difference could be determined and AO performances have a longstanding history in the music classroom. It should almost be expected that this would hold true since both performances of “Nessun Dorma”, though performed by different musicians, were likely similar stylistically and were authentic to the composer’s intentions. This supports the longstanding practice of using CDs and other audio-only media as a viable form of communicating the intended musical idea and should still be used on a daily basis in the music classroom or for personal pleasure.

On the other hand, comparing the scores for each level of liking exposed significance contradictory to what was discovered by comparing each segment. From these scores, it can be determined there is a clear distinction of preference by the subjects. Here, the AV type performance is favorable as a musical medium. A myriad of possibilities could be responsible for these results such as the emotional expression of the performers face to some sort of perceived social bonding one may experience as part of an audience. Could it be that the level of engagement experienced by the listener is heightened due to the visual stimulation?

If the data from Table 1 and Table 2 are converted to bar graphs (see Table 5 and Table 6), it becomes clearer that AV receives more favorable scores than AO. Both graphs also indicate a steady rise in positive score as the music reaches its climax in Segment 6 and a subsequent decline in overall negative scores. Table 5 also shows a steady “Like” score throughout, indicating that the piece selected was generally well-received although the AV presentation was indeed better liked.

Table 5

Pilot Study AO Subject Results Bar Graph

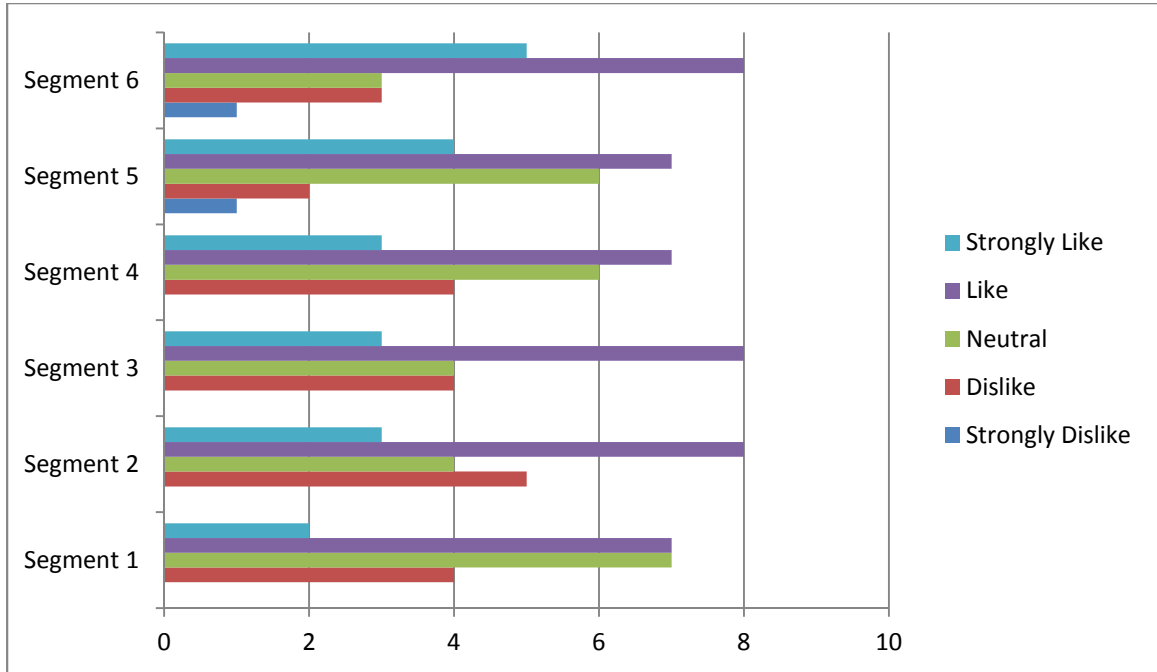
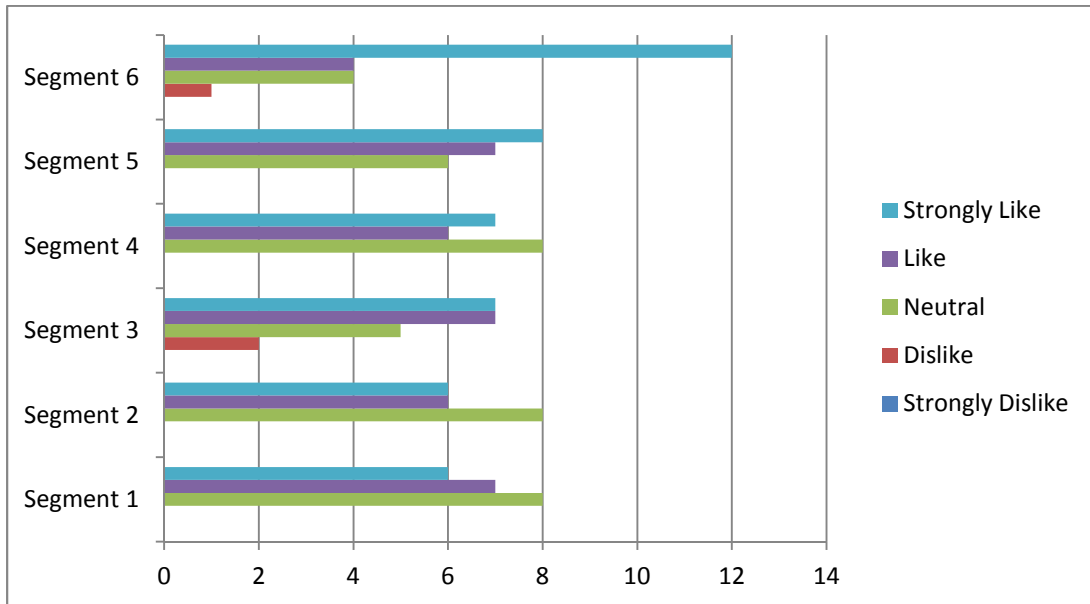


Table 6

Pilot Study AV Subject Results Bar Graph



It appears from the pilot study that AV type performances are liked better than AO type performances, but given the limited scope of this research, a definitive conclusion about why the subject preferred one medium over the other remains speculative.

The process of compartmentalizing the music into smaller chunks mentioned earlier was an attempt to determine if certain aesthetic qualities within the music influenced preference. Although evidence indicates that this is true, for the second study the researcher decided to broaden the scope of the overall research. This research should focus on how the music was presented not what was in the music. This change in methodology brought around the change in procedure. Now the question is clearer and easier to define: Do the subjects like AO recordings or AV recordings?

CHAPTER IV

MAIN STUDY

Procedure

The Institutional Review Board at the University of Tennessee at Chattanooga and the School District where this research took place granted approval for the children subjects to take part in this research. The researcher chose to use fourth and fifth-grade students because they were already familiar with the routine of surveys and a basic level of maturity was required due to the procedures involved in acquiring the information desired.

The main study differs from the pilot study on several points. First, the researcher chose to use several music examples instead of just one. The reason for segmenting the music selection in the pilot study was to determine if the musical phenomenon itself increased liking, while the visual parameter either hindered or added to this level of liking. This was thought to be overly complex, and it seemed more reasonable to determine the parameters of liking and disliking with respect to AV or AO. The researcher also wanted to garner more insight as to why AV or AO was liked better, thus the addition of a short survey that took place after the music excerpts.

The subjects were first given an answer sheet and asked to complete the demographic data prior to beginning the test. Each subject's paper was checked to ensure they did not include their name on the sheet. The subjects were then asked to view the television screen to

begin the test. The subjects were told that they were about to listen to two musical examples then choose which one they liked best by circling either A or B on their answer sheet.

Each example was between 20 and 30 seconds long and represented eight pieces of music. The subjects first heard an AO recording played from an iPod then viewed the AV recording for the same piece of music from an iPad connected to a television. After they finished the listening portion of the test, the subjects were given 10 minutes to complete the questionnaire portion found on the other side of the answer sheet. The test was administered during the subjects' regular music class time, and they were allowed to keep the pencils the author brought to answer the test sheet.

Musical Selections

The musical selections chosen for this study were: "Ho Hey" by the Lumineers; "Don't You Worry Child" by Swedish House Mafia; "Live While We're Young" by One Direction; "We Are Never Ever Getting Back Together" by Taylor Swift; *In the Mood* as performed by The Glenn Miller Orchestra; *Night On Bald Mountain* by Modest Mussorgsky from the Walt Disney film *Fantasia*; *Winter* by Antonio Vivaldi as performed by I Musici; and *Brandenburg Concerto No.2, mvt 1* by Johann Sebastian Bach as performed by the Freiburg Baroque Orchestra.

The first four pieces were chosen because either the song or the artist were in the Top 40 on Billboard's Hot 100 and thus most likely recognizable by the subjects (Billboard, 2013). Since these songs represent modern contemporary music, they have readily available music videos that accompany them. The other pieces represent the Baroque period, Romantic period, and 21st century jazz music. Although the vast majority of these types of music videos are

more or less recordings of live performances, the Vivaldi production by I Musici intersperses costumed characters with live performance shots. This creates something more akin to music videos found in contemporary music. Lastly, *Night on Bald Mountain* is an animated realization of the Mussourgsky classic.

Subjects

The subjects ($n = 120$) for the main portion of this study were fourth- and fifth-grade students from several elementary schools belonging to the same school district in the North West Georgia area. The subjects were between the ages of 9 and 12 (mean age = 10.5) and were chosen from the available elementary schools within the district. The subjects do receive general music classes regularly, though the schedules at each school are different. Their ethnic composition was as follows: Caucasian $n = 7$; Hispanic $n = 98$; African-American $n = 9$; Asian $n = 2$; and Other (each specified as “mixed”) $n = 4$.

Results

The author used an unpaired t -test to determine whether there was any significant difference between AO and AV types of recordings by comparing the raw scores for each musical selection. The results indicate a t value of 3.1442 with a df of 14 and a standard error of deviation of 8.070 at the $p = < .05$ probability level. The t -test shows that these results are significantly different and therefore the null-hypothesis is rejected for the main study.

Table 7

Main Study Raw Scores

Music Selection	AO	AV
<i>Brandenburg Concerto No. 2</i>	46	74
<i>In the Mood</i>	54	66
<i>Night on Bald Mountain</i>	24	96
“Live While We’re Young”	33	87
“Don’t You Worry Child”	60	60
“We are Never, Ever, Ever Getting Back Together”	42	78
“Ho Hey”	44	76
<i>Winter</i>	76	44

In addition to the statistical information provided by the subjects, the researcher also collected some qualitative data in an attempt to determine why individuals may choose AV recordings over AO recordings. The author recognized several patterns emerging from the questionnaire regarding music videos. First, the subjects tended to like music videos that acted out a story related to the song. This seemed to keep their interest and as some pointed out, increased their understanding of the lyrics. Secondly, they indicated that they enjoyed seeing the artists sing and/or dance. To be entertained was the primary function of watching music videos, though a few subjects thought some videos to be inappropriate.

Although most subjects indicated that they enjoyed watching music videos from time to time, several subjects showed an affinity for non-video recordings. These subjects stated that not watching the music videos allowed them to imagine what the storyline would look like for themselves. They also pointed out that they could do other activities while listening to music

that they could not do while watching a video, such as chores, homework, outdoor activities, or play video games. The portability of smaller devices such as iPods was also an attractive feature for these subjects as well.

Some subjects indicated that they would use an iPod more if they had access to one, with 65% of all subjects indicating that they owned either an mp3 device or iDevice capable of music playback. When asked why they would choose the iPod, some subjects mentioned the ability to download only their favorite song as opposed to purchasing an entire album which may include songs they were not interested in. They also enjoyed the flexibility of previewing a song before committing to a purchase. Versatility with the iDevices was also mentioned since several subjects indicated the ability to play games and access the internet as positive features for these devices. This puts them in a position of making choices and selections according to their likes.

All subjects indicated that they had used a CD player and a radio, though the survey did not ask in what context or if they owned one personally. On the other hand, few subjects stated that they listened to radio stations over the internet. Most subjects stated that they did not listen to the same style of music as their parents and it could be inferred that using personal portable devices such as iPods, radios, computers, etc., as the only way for these subjects to listen to their music. The survey did not ask this question directly however, nor did it ask how the subjects purchased music.

Conclusions

A cursory look over Table 6 shows that AV was again more favorable than AO as seen in the pilot study. The two exceptions being *Winter* and “Don’t You Worry Child”. During

the administration of the test, most students were noticeably aghast by the video for *Winter*. This most likely led to the lower AV score and lends credence to earlier research suggesting that images considered off-putting will have an adverse effect on how the music is perceived. The split-decision for “Don’t You Worry Child” was quite unexpected but does create a baseline to evaluate the other scores.

The excerpt with the highest score was *Night on Bald Mountain*. Given the age of the subjects, an animated video would have a certain amount of allure. The researcher, however, believes the connection is deeper than this. The subjects indicated that they liked videos that told a story that matched the music because it helped them understand the lyrics better or, to paraphrase somewhat, understand the music better. The video in this instance bridges the gap of understanding since this piece contains no lyrics.

Often times in music classrooms, students are expected to understand without bridging this gap for them. This research indicates that AV should be a desirable tool if students are expected to understand what is taught. Does this mean videos are the only tool to use or should be used exclusively? No. The research indicates that any form of visual stimuli should and can be connected to music as long as the connection is an authentic one. Take listening maps for example. These have pictures that represent musical phenomenon set in an identifiable linear series. Most often, these pictures are related to the subject matter of the piece of music and allow the student to follow from the beginning to the end.

If this research were to be replicated, one procedure that may be attempted is switching some of the AO and AV presentations with each other. For example, play the AO from one excerpt then the AV from a different excerpt to see if the AV still scores higher, especially if the AO is a pop song and the AV is classical. The questions in the survey section should also

be revisited. There is some redundancy in the line of questioning on the form and new questions in regards to how and when young people listen to music come to mind. Although both of these studies showed that AV presentations are preferred over AO presentations, the researcher feels that more work should be done in this area.

The pertinent question is whether this information should influence a music educator's choice on which type of medium to use. Should educators scrap stacks of CDs in exchange for music videos? The short answer is no. Advancements in recording technology have provided listeners with near flawless performances across all genres for quite some time; and since music is primarily an aural art form, CDs are still a viable tool for the music classroom.

The concepts of AO and AV do not have to be limited to mere listening activities. Having students record a song is a great way of implementing several of the National Standards of Music (National Association for Music Education, 2013). Not only are they singing and reading music but they also get to evaluate their performance. If the correct song is chosen, discussions into the historical significance can also ensue. Later, a video could be recorded of the students acting out the song which would involve kinaesthetic movement and analysis of the song to determine the appropriate actions. Music is not a bystander art form; AO and AV presentations should not be either.

New technology is becoming more readily available in many school districts that are well suited to deliver AV as well as AO presentations. Devices such as Smartboards, over-head LCD projectors, Prometheon boards, iPods, and iPads, just to name a few, are being implemented for many daily educational activities. The music educator willing to embrace this technology will have the opportunity to employ both AO and AV type performances in his or

her classroom. Only then can they decide which performance type suits their personal teaching style and the needs of the students.

REFERENCES

- Billboard. (2013). *The Hot 100: March 2, 2013*. Retrieved March 5, 2013, from <http://www.billboard.com/charts/2013-03-02/the-hot-100>.
- Boltz, M. G., Ebendorf, B., & Field, B. (2009). Audiovisual interactions: The impact of visual information on music perception and memory. *Music Perception, 27*(1), 43-59.
- Bowman, R. (2003). Music video. In D. M. Randel (Ed.), *The Harvard dictionary of music* (pp. 544-545, fourth edition). Cambridge, MA and London, UK: The Belknap Press of Harvard University Press.
- Coutinho, E., & Cangelosi, A. (2011). Musical emotions: Predicting second-by-second subjective feelings of emotion from low-level psychoacoustic features and physiological measurements. *Emotion, 11*(4), 921-937.
- Desmet, C. (2009). Teaching Shakespeare with YouTube. *The English Journal, 99*(1), 65-70.
- Eerola, T., & Vuoskoski, J. K. (2011). A comparison of the discrete and dimensional models of emotion in music. *Psychology of Music, 39*(1), 18-49.
- Finns, L. (2001). Presenting music live, audio-visually or aurally: Does it affect listener's experiences differently? *British Journal of Music Education, 18*(1), 55-78.
- Hargreaves, D. J. (1984). The effects of repetition on liking for music. *Journal of Research in Music Education, 32*(1), 35-47.
- Hunter, P. G., & Schellenberg, E. G. (2010). Music and emotion. *Music Perception 36*, 129-164.
- Hunter, P. G., Schellenberg, E. G., & Schimmack, U. (2010). Feelings and perceptions of happiness and sadness induced by music: Similarities, differences, and mixed emotions. *Psychology of Aesthetics, Creativity, and the Arts, 4*(1), 47-56.
- Hunter, P. G., Schellenberg, E. G., & Stalinski, S. M. (2011). Liking and identifying emotionally expressive music: Age and gender differences. *Journal of Experimental Child Psychology, 110*(1), 80-93.

- Iwamiya, S. (1994). Interactions between auditory and visual processing when listening to music in an audio visual context: 1. Matching 2. Audio quality. *Psychomusicology*, *13*, 133-154.
- Jeong, J. W., Diwadkar, V. A., Chugani, C. D., Sinsoongsud, P., Muzik, O., Behen, M. E., Chugani, H. T., & Chugani, D. C. (2011). Congruence of happy and sad emotion in music and faces modifies cortical audiovisual activation. *NeuroImage*, *54*, 2973-2982.
- Jones, T. & Cuthrell, K. (2011). YouTube: Educational potentials and pitfalls. *Computers in Schools*, *28*(1), 75-85.
- Juslin, P.N., Liljestrom, S., Vastfjall, D., Goncelo, B., & Silva, A. (2008). An experience sampling study of emotional reactions to music: Listener, music, and situation. *Emotion*, *8*(5), 668-683.
- Juslin, P. N., & Sloboda, J. A. (Eds.) (2010). *Handbook of music and emotion*. New York, NY: Oxford University Press.
- Kallinen, K., & Ravaja, N. (2006). Emotion perceived and emotion felt: Same and different. *Musicae Scientiae*, *10*(2), 191-213.
- Konecni, V. J. (2008). Does music induce emotion? A theoretical and methodological analysis. *Psychology of Aesthetics, Creativity, and the Arts*, *2*(2), 115-129.
- Ladinig, O., & Schellenberg, E. G. (2011). Liking unfamiliar music: Effect of felt emotion and individual differences. *Psychology of Aesthetics, Creativity, and the Arts*, 1-9. doi:10.1037/a0024671
- LeBlanc, A., Colman, J., McCrary, J., Sherrill, C., & Malin, S. (1988). Tempo preferences of different age music listeners. *Journal of Research in Music Education*, *36*(3), 156-168.
- Li, X., Tao, D., Maybank, S. J., & Yuan, Y. (2008). Visual music and musical vision. *Neurocomputing*, *71*, 2023-2028.
- Lundqvist, L., Carlsson, F., Hilmersson, P., & Juslin, P. N. (2009). Emotional responses to music: Experience, expression, and physiology. *Psychology of Music*, *37*(1), 61-90.
- Mark, M. L. & Gary, C. L. (2007). *A History of American Music Education*. Lanham, MD: Rowman & Littlefield Education.
- Mote, J. (2011). The effects of tempo and familiarity on children's affective interpretation of music. *Emotion*, *11*(3), 618-622.
- Mullen, R. & Wedwick, L. (2008). Avoiding the digital abyss: Getting started in the classroom with YouTube, digital stories, and blogs. *The Clearing House: A Journal of Educational Strategies, Issues, and Ideas*, *82*(2), 66-69.

- National Association for Music Education (NAfME). (2013). *National Standards for Music Education* Retrieved June 8, 2013, from <http://musiced.nafme.org/resources/national-standards-for-music-education/>.
- North, A. C., & Hargreaves, D. J. (1995). Subjective complexity, familiarity, and liking for popular music. *Psychomusicology*, *14*, 77-93.
- Schellenberg, E. G., Peretz, I., & Vieillard, S. (2008). Liking for happy- and sad- sounding music: Effects of exposure. *Cognition and Emotion*, *22*(2), 218-237.
- Rudolph, T. & Frankel, J. (2009). *YouTube in Music Education*. Milwaukee, WI: Hal Leonard Books.
- Schutz, M. (2008). Seeing music? What musicians need to know about vision. *Empirical Musicology Review*, *3*(3), 83–108.
- Straub, E. (2009). Understanding technology adoption: Theory and future directions for informal learning. *Review of Education Research*, *72*(2), 625-649.
- Zhao, Y. and Frank, K. (2003). Factors affecting technology uses in schools: An ecological perspective. *American Educational Research Journal*, *40*(4), 807-840.
- Zentner, M., Grandjean, D., & Scherer, K. R. (2008). Emotions evoked by the sound of music: Characterizations, classification, and measurement. *Emotion*, *8*(4), 494-521.

APPENDIX A

INSTITUTIONAL REVIEW BOARD APPROVAL LETTER

Institutional Review Board
Dept. 4915
615 McCallie Avenue
Chattanooga, TN 37403-2598
Phone: (423) 425-5867
Fax: (423) 425-4052
instrb@utc.edu
<http://www.utc.edu/irb>

MEMORANDUM

TO: Eric Ellis **IRB # 13-082**
Dr. William Lee

FROM: Lindsay Pardue, Director of Research Integrity *lp*
Dr. Bart Weathington, IRB Committee Chair

DATE: May 20, 2013

SUBJECT: IRB # 13-082 Preference Between Audio-Only Recorded Performance and Audio-Visual Recorded Performance

The Institutional Review Board has reviewed and approved your application and assigned you the IRB number listed above. You must include the following approval statement on research materials seen by participants and used in research reports:

The Institutional Review Board of the University of Tennessee at Chattanooga (FWA00004149) has approved this research project #13-082

Please remember that you must complete a Certification for Changes, Annual Review, or Project Termination/Completion Form when the project is completed or provide an annual report if the project takes over one year to complete. The IRB Committee will make every effort to remind you prior to your anniversary date; however, it is your responsibility to ensure that this additional step is satisfied.

Please remember to contact the IRB Committee immediately and submit a new project proposal for review if significant changes occur in your research design or in any instruments used in conducting the study. You should also contact the IRB Committee immediately if you encounter any adverse effects during your project that pose a risk to your subjects.

For any additional information, please consult our web page <http://www.utc.edu/irb> or email instrb@utc.edu

Best wishes for a successful research project.

APPENDIX B
RESEARCHER PREPARED FORMS AND TEST INSTRUMENTS

Form A

Part I. **Instructions:** Go to the website <http://www.youtube.com/watch?v=gxIXLFh0npM>. Use the time marker at the bottom of the window to keep track of time. The selection is broken up into **six**, 30-second long segments. As you listen to the selection, please mark the appropriate box below based on how well you liked the segment of music. Be honest in your designation and do not make any alterations. You may only listen one time.

Time	Strongly dislike	Dislike	Neutral	Like	Strongly like
0-0:30					
0:31-0:60					
1:01-1:30					
1:31-2:00					
2:01-2:30					
2:31-2:57					

Part II. **Instructions:** Go to the website <http://www.youtube.com/watch?v=RdTBml4oOZ8>. Use the time marker at the bottom of the recording window to keep track of time. The selection is broken up into **six**, 30-second long segments. As you listen to the selection, please mark the appropriate box below based on how well you liked the segment of music. Be honest in your designation and do not make any alterations. You may only listen one time.

Time	Strongly dislike	Dislike	Neutral	Like	Strongly like
0-0:30					
0:31-0:60					
1:01-1:30					
1:31-2:00					
2:01-2:30					
2:31-3:05					

Part III. **Demographics:** Please answer the following questions. Your anonymity is assured and the information is for data purposes only. When you have finished, please place this form in the envelope in Mr. Ellis's mail box marked "Study".

Age _____ Gender _____ Education level _____

(High School/GED; Bachelors; Masters; Doctorate)

Musical background _____

Form B

Part I. **Instructions:** Go to the website <http://www.youtube.com/watch?v=RdTBml4oOZ8>. Use the time marker at the bottom of the window to keep track of time. The selection is broken up into **six**, 30-second long segments. As you listen to the selection, please mark the appropriate box below based on how well you liked the segment of music. Be honest in your designation and do not make any alterations. You may only listen one time.

Time	Strongly dislike	Dislike	Neutral	Like	Strongly like
0-0:30					
0:31-0:60					
1:01-1:30					
1:31-2:00					
2:01-2:30					
2:31-3:05					

Part II. **Instructions:** Go to the website <http://www.youtube.com/watch?v=gxIXLFh0npM>. Use the time marker at the bottom of the recording window to keep track of time. The selection is broken up into **six**, 30-second long segments. As you listen to the selection, please mark the appropriate box below based on how well you liked the segment of music. Be honest in your designation and do not make any alterations. You may only listen one time.

Time	Strongly dislike	Dislike	Neutral	Like	Strongly like
0-0:30					
0:31-0:60					
1:01-1:30					
1:31-2:00					
2:01-2:30					
2:31-2:57					

Part III. **Demographics:** Please answer the following questions. Your anonymity is assured and the information is for data purposes only. When you have finished, please place this form in the envelope in Mr. Ellis's mail box marked "Study".

Age _____ Gender _____ Education level _____

(High School/GED; Bachelors; Masters; Doctorate)

Musical background _____

Please read before beginning the form.

Thank you for taking your time to look over my survey. Please be advised that the data from this survey is intended to be used in the completion of a thesis that will be published. Absolutely no personal information about you will be obtained. To ensure your complete anonymity is protected please do not write your name anywhere on this form and only return your form to the marked envelope at the designated area. Your completion of the attached form is consent that you agree to have your data used.

Thank You.

Side 1

- Observe the following musical examples. After the example is over, please circle the letter for which one you liked best. Please be honest.

1. A B

2. A B

3. A B

4. A B

5. A B

6. A B

7. A B

8. A B

- Please answer these questions about how you identify yourself. No Names Please.

1. I am (circle one):

White, African American, Hispanic, Asian, Other_____.

2. I am _____ years old and I am in the _____ grade.

- Please answer the following questions about your music listening habits.
 1. Which one do you do more often: (circle one) **listen to music on a device** or **watch music videos**?
 2. Have you used an iPod? **Circle Yes or No.** Have you used a CD player? **Circle Yes or No.** Have you used a radio? **Circle Yes or No.** Do you listen to the radio over the internet? **Circle Yes or No.**
 3. Of the choices in number 2 above, which device would you use more? _____ Why? _____

 4. Do you often listen to music while doing homework or doing chores? **Circle Yes or No.**
 5. Do you have an mp3 player or iPod at home? **Circle Yes or No.** Do you ever watch music videos on your device? **Circle Yes or No.**
 6. If you had a choice, would you rather watch a music video or just listen to the song? Please explain. _____

 7. Do you listen to the same style of music as your parents? **Circle Yes or No.** What style of music do YOU most enjoy listening to?

 8. Do you ever watch music videos online? **Circle Yes or No.** Why?

Parental Consent Form

Dear Parent(s)/Guardian(s):

My name is Eric Ellis and I am the music teacher at Blue Ridge School here in Dalton. I am currently conducting research on how well students like music videos and their at home listening habits. Your student will be given a sheet of paper, and then they will listen to a short excerpt from a song followed by a short video of the same song. They will then pick which one they liked better. After they do this for several songs, they will then answer a questionnaire about their listening habits along with some basic demographic information about your child. Your child's name will not be taken and I will not include their name in this research.

If you do not wish for your child to take part in this research, please sign this letter and return it to your child's music teacher by [Date].

If you have any questions regarding this research please contact the researcher, Eric Ellis, at (706)260-2700 or email at eric.ellis@dalton.k12.ga.us. You may also contact the Internal Review Board's Dr. Bart Wreathing with the University of Tennessee at Chattanooga at (423)425-4289.

Parent Signature if you do not wish your child to participate

VITA

Eric Ellis is a native of Jasper, Tennessee and the son of William B. Ellis Jr. and Talisa Stevens. He attended Marion County High School where he was highly active in the music program as a trombonist and graduated in the top 10 of his class. Ellis then studied music education at the University of Tennessee at Chattanooga where he graduated in 2003 with a Bachelor's in Instrumental Music Education. He served as the Director of Bands at Grundy County High School in Coalmont, Tennessee for three years before accepting a position teaching elementary music at Blue Ridge School in Dalton, Georgia where he currently serves. During his tenure at Blue Ridge School, Eric has founded both a chorus and beginning band program. Since college, Eric has worked with many outstanding band programs in the Southeast Tennessee and North Georgia areas as a marching and brass instructor. During his recreational time, Eric enjoys playing bass trombone in several local jazz big bands and concert bands. His extra-musical activities include spending time outdoors with his wife and daughter and rebuilding motorcycles and personal watercraft.