THE EFFECT OF IMPLIED PERFORMER AGE, IMPLIED PERFORMER GENDER, AND PERFORMANCE QUALITY LEVEL ON MUSIC MAJORS’ EVALUATIONS OF SOLO MUSICAL PERFORMANCES

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THE EFFECT OF IMPLIED PERFORMER AGE, IMPLIED PERFORMER GENDER, AND PERFORMANCE QUALITY LEVEL ON MUSIC MAJORS’ EVALUATIONS OF SOLO MUSICAL PERFORMANCES

DISSertation

A dissertation submitted
in partial fulfillment of the requirements
for the degree of Doctor of Philosophy in Music Education
College of Fine Arts
At the University of Kentucky

By
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2016
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THE EFFECT OF IMPLIED PERFORMER AGE, IMPLIED PERFORMER GENDER, AND PERFORMANCE QUALITY LEVEL ON COLLEGE MUSICIANS’ EVALUATIONS OF MUSICAL PERFORMANCES

The purpose of this study was to examine the effect of implied performer age, implied performer gender, and performance quality level on undergraduate music majors’ evaluations of solo alto saxophone performances. Participants (N = 124) were randomly assigned to one of four experimental conditions: (a) good quality musical performances with images of male performers, (b) good quality musical performances with images of female performers, (c) poor quality musical performances with images of male performers, and (d) poor quality musical performances with images of female performers. All experimental conditions contained high quality images of the faces of both older adults (OA) and younger adults (YA). Participants rated six examples of solo saxophone performances by responding to seven evaluative statements and assigned each performance an overall rating. Two performances were presented in an audio-only format (AO), two performances were presented in an audio-visual (AV) format that featured an image of an OA, and two performances were presented in an AV format that featured an image of a YA. The participants also rated each soloist’s potential to improve musically over a one-year period and provided written comments explaining their rationales for these ratings.

The raw data were used to compute each participant’s mean rating of the AO presentations, the presentations that featured the OA soloists, and the presentations that featured the YA soloists. Individual means were then used in a mixed repeated-measures ANOVA. A significant two-way interaction for implied age condition and performance quality was found and a significant interaction for implied performer gender and performance quality was found. No significant three-way interaction was found. A statistically significant main effect was observed for implied performer age and for level of performance quality. Statistically significant differences were also found between improvement capacity scores assigned to the OA performers and the YA performers and favored the YA performers. The participants’ written explanations of these ratings indicated negative attitudes toward the OA soloists’ abilities to improve musically over a one-year period.
KEYWORDS: Music Perception, Performance Evaluation, Older Adults, Music Across the Lifespan

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CHAPTER 1
INTRODUCTION

Background

The worldwide number of older adults has increased during recent decades and is predicted to continue to grow (Ortman, Velkoff, & Hogan, 2014; “Constitution on Global Strategy and Action Plan on Aging and Health,” 2015). By the year 2050, the number of American citizens age 65 and older are expected to account for 20% of the national population (U.S. Census Bureau, 2014). Members of the U.S. Census Bureau (2014) and multiple scholarly works consider individuals age 65 and older to have entered old age. Terms such as older adults, aging population, senior citizens, and retirement age are used synonymously to label this increasing portion of the population (Cohen, 2014; Lehmberg & Fung, 2010).

The quality of life experience by the growing population of older adults has been examined by researchers in music therapy and in music education. Previous research appears to support that participating in active music making positively affects older adults’ quality of life. Lehmberg and Fung’s (2010) cross-disciplinary review of literature demonstrates these benefits experienced by older adults who engaged in active music making.

Active music making has a positive effect on [older adults’] quality of life. Active music participation holds numerous benefits for senior citizens, including, but not limited to (a) an overall sense of physical and mental well-being, (b) the slowing of age related cognitive decline, (c) feelings of pleasure and enjoyment, (d) pride and a sense of accomplishment in learning new skills, (e) creation and maintenance of social connectedness, (f) a means of creative self-expression, and (g) the construction of identity at a time of life when sense of identity may be in flux. (Lehmberg and Fung, 2010, p. 20)
Previous research also suggests that older adults prefer to receive music instruction in groups rather than individually (Bugos, 2014; Wristen, 2006). These quality of life benefits along with group based music instruction are available to older adult populations through community music making. In particular, New Horizons International Music Association (2015) facilitates older adults’ music learning and their participation in performing ensembles. Investigations conducted with members of New Horizons ensembles found that ensemble members experienced feelings of (a) joy, (b) satisfaction, (c) enjoyment in interpersonal relationships developed through ensemble membership, and (d) purpose through providing musical contributions to society (Carucci, 2012; Dabback, 2008).

At the conclusion of a highly applauded public performance by a New Horizons concert band, one band member posed a momentous question to the ensemble conductor: “Did they like us because we’re good or because we’re old?” (as cited in Coffman & Levy, 1997, p. 17). The importance of this question resides in cultural phenomena. Negative attitudes or beliefs about older adults are prevalent in many Western cultures (Michel, 1985), and the “avoidance of older adults, age denial, and holding negative attitudes and stereotypes about older adults” are examples of ageism (as cited in Bodner, 2009, p. 1004). It is possible that awareness of this cultural aspect caused the band member to question whether the audience had responded to the musical performance or to the advanced age of the performers. The band member’s query prompted the conductor to refute the idea that the post-performance applause had stemmed from listeners’ ageist feelings of sympathy or pity (Coffman & Levy, 1997). The necessity of this refute highlights the potential presence of ageist attitudes in the minds of the
audience. Indeed, Levy and Banaji (2004) claim that ageism is highly widespread and perhaps one of the least combatted forms of discrimination. The investigators also consider that the pervasiveness of ageism is such that “it can operate without conscious awareness, control, or intent to cause harm” (p. 50). While the audience’s response to the New Horizons performance was favorable, the interchange between the inquiring band member and the conductor subtly implies the potential for ageist attitudes towards older adult performers to be expressed without malicious intent.

Although the influence of implied performer age on listeners’ attitudes toward a musical performance had not yet been investigated at the time between the New Horizons ensemble member and conductor, several previously conducted studies have suggested that non-musical factors may influence audience members’ perception of musical events (Broughton & Stevens, 2009; Davidson, 1993; Duerksen, 1972; Elliott, 1995/1996; Fredrickson, Johnson, & Robinson, 1998; Gillespie, 1997; Griffiths, 2010; Harrington, 2015; Howard, 2012; Huang & Krumhansl, 2011; Killian, 2001; McCrary, 1993; Morrison, 1998; Pope, 2012a; 2012b; Ryan, Wapnick, Lacaille, & Darrow, 2006; Siddell-Strebel, 2007; Silveira, 2014; Silveira & Diaz, 2014; VanWeelden, 2002; 2004; Wapnick, Campbell, Siddell-Strebel, & Darrow, 2009; Wapnick, Darrow, Kovacs, & Dalrymple, 1997; Wapnick, Mazza, & Darrow, 1998; 2000; Zembower, 2000). In particular, performer appearance may influence listeners’ perceptions of performance quality. Ratings of music performance have been affected by performer attractiveness (Davidson & Coimbra, 2001; Ryan & Costa Giomi, 2004; Siddell-Strebel, 2007; Wapnick, Campbell, Siddell-Strebel, & Darrow, 2009; Wapnick, Darrow, Kovacs, & Dalrymple, 1997; Wapnick, Mazza, & Darrow, 1998), race (Elliott, 1995/1996; McCrary, 1993;
Morrison, 1998; VanWeelden, 2004), movement (Broughton & Stevens, 2009; Davidson, 1993; Gillespie, 1997; Huang & Krumhansl, 2011; Silveira, 2014), attire (Griffiths, 2010; Wapnick, Mazza, & Darrow, 1998; 2000), and gender (Behne & Wöllner, 2011; Elliott, 1995/1996; Griffiths, 2010; Ryan, Wapnick, Lacaille, & Darrow, 2006; Wapnick, Mazza, & Darrow, 1998; 2000). The visual information that conveys these non-musical performer attributes may also imply performers’ chronological age. Additionally, previous research suggests that ageist attitudes toward older adults may be triggered by viewing facial characteristics associated with old age (Berry & McArthur, 1985, 1986; Berry & Zebrowitz-McArthur, 1988; Hummert, 1994a; Hummert, 1994b; McArthur, 1982; McArthur & Baron, 1983).

**Statement of the Problem**

Previous research indicates that due to ageist stereotypes, visible signs of old age may elicit negative responses. These physical characteristics may be visible to audience members during a music performance. Although various aspects of performer appearance have been reported to influence listeners’ perceptions of performance quality, no published research has investigated the effects of the visible characteristics of old age on the listeners’ perceptions of music performance quality.

**Delimitations of the Study**

The present study involves the investigation of several phenomena related to music performance evaluation. The participants were presented with one musical style (lyrical), one range of tempi (  = 56 – 62 bmp), and solo performances on one
instrument (alto saxophone). Additionally, participants in this study, undergraduate music majors, represent only one group of adjudicators. The tendency of undergraduates to express ageist attitudes (Kalavar, 2001), made college musicians ideal for this study.

**Definition of Terms**

The following definitions were used to clarify the variables used in the present study:

1. **Implied Age Condition** – This term refers to the within group variable. By means of this variable the participants experienced three levels of implied performer age (see below).

2. **Audio Only (AO)** – This level of the implied age condition did not provide participants with any visual information about the soloists. Therefore, it may be described as “no age implied”. The AO level of the implied age condition was presented to participants prior to all other levels of the implied age condition. Therefore, participants received no visual information about the performers’ age before or during the AO level of the implied age condition.

3. **Older Adult (OA)** – An adult who is age 65 or older (Ortman, Velkoff, & Hogan, 2014).

4. **Younger Adult (YA)** – An adult between the ages of 20 and 30 years old.

5. **Performance Quality level** – This term refers to the between group variable through which participants experienced either good quality performances or poor quality performances.

6. **Good Quality Performance** – These performances demonstrated high levels of musicianship including rhythmic accuracy, good intonation, characteristic tone quality, and appropriate vibrato use (Pope, 2012b). Skillful execution of phrasing, dynamic contrasts, and expressivity were also demonstrated in these performances. The recording of good quality performances was facilitated by specific directions and notations on the soloist’s sheet music (Pope, 2012b).
7. **Poor Quality Performance** – These performances demonstrated low levels of musicianship including rhythmic inaccuracy, poor intonation, uncharacteristic tone quality, and lack of vibrato (Pope, 2012b). A lack of phrasing, dynamic contrast, and expressivity were also demonstrated in these performances. The recording of poor quality performances was facilitated by specific directions and notations on the soloist’s sheet music (Pope, 2012b).

8. **Implied Performer Gender** – This term refers to the between group variable that presented participants with digital images of either male performers or female performers.

9. **Improvement Capacity Index (ICI)** – A rating of participants’ perceptions of the soloists to improve musically over a one year period.
CHAPTER 2
REVIEW OF LITERATURE

Areas of research that are relevant to the present study are presented in this chapter. This review of the literature is organized in the following manner: (a) performance quality and its importance as a fundamental component of the evaluation of a musical performance, (b) an overview of music performance evaluation instruments, (c) Effects of selected evaluator characteristics, (d) Influences of musical and non-musical aspects of a musical performance on listeners' perceptions of performance quality, and (e) attitudes towards older adults and the relationship between physical signs of old age and ageist stereotypes. Following the review of literature, the purpose statement, research questions, and statement of hypotheses are presented.

The perception and evaluation of a musical performance is important to the success of a wide variety of musicians. Professional musicians and music students of all skill levels may be affected by listeners' perceptions of the quality of their performances. Influential listeners include but are not limited to audience members, music critics, music educators, and the performers themselves (Thompson, Williamon, & Valentine, 2007). For several decades, the music education community has exerted a considerable effort toward increasing the objectivity and utility of formal performance evaluations (Zdzinski, 1991). However, this task does remain challenging. Difficulties arise, not only from the subjectivity of a musical performance (Abeles, 1973), but also from the complex human behaviors involved in music making and listening (Cooksey, 1982).
Performance Quality

Listeners’ perceptions of the quality of a musical performance are essential to its formal evaluation. To evaluate a musical performance, listeners’ must differentiate between both overt and subtle aspects of a musical performance that contribute to the evaluation of its quality. Several investigations have indicated that a wide variety of listeners can successfully distinguish between different levels of performance quality. For example, Madsen and Geringer (1999) reported that musicians were able to recognize good quality and poor quality performances and that performance quality appeared to be linked to the performers’ demonstrations of good and poor intonation and characteristic tone quality. Byo and Brooks (1994) demonstrated that both middle school students and in-service music educators were capable of accurately discriminating between middle school wind band performances and university wind band performances. Both the middle school students and the in-service music educators consistently assigned higher ratings to the more advanced ensembles and lower ratings to the less advanced ensemble. Similarly, Pope (2012b) also found that college musicians were able to distinguish between performance quality levels. The participants consistently rated professional level ensembles more favorably than high school level ensembles.

Pope (2012a) examined college musicians’ evaluations of string quartet performances. These performances specifically presented listeners’ with either a good quality musical performance or a poor quality musical performance. Results of the study indicated that college musicians rated the good quality quartet performances significantly higher than the poor quality quartet performances. Additionally, the investigator found that the listeners’ unfavorable ratings of the poor quality musical performances could be
affected by accompanying visual stimuli. When a video of the performance was added to the audio stimulus, listeners’ ratings of the quality of the musical performance were affected. Specifically, the participants rated the musical performances more favorably when the string quartet visually demonstrated desirable playing techniques such as the good use of the bow, synchronized bow movements, good hand and instrument position, and high levels of communication. The same audio stimulus was rated less favorably when the string quartet did not visually demonstrate these desirable playing techniques. Therefore, while music majors are capable of distinguishing between good and poor quality performances, their perceptions of the quality of a musical performance may be influenced by the visual aspects of the performance.

Effects of Selected Evaluator Characteristics

Evaluator Training and Experience Level. The consistency with which music performances are evaluated is important to the practical application of music performance assessment. As such, evaluator consistency has been investigated through the examination of several criteria including evaluation training. Winter (1993), Brakel (2006), and Ekholm (1997b) found higher reliability ratings between participants who completed evaluation training prior to adjudication than participants that did not. Though not trained on a specific assessment tool, Kim (2000) found that individuals with at least 10 years of adjudication experience were more consistent with their ratings than evaluators who lacked adjudication experience. Findings from these studies suggest that while adjudication experience may contribute to consistency, evaluation training may
assist experienced and inexperienced evaluators in providing consistent evaluations of musical performances.

An adjudicator’s level of music performance experience may also influence his or her evaluations of the quality of a musical performance (Kinney, 2004; 2009). In his investigation of high school students’ ratings of expressivity, Kinney (2004) found that students with at least two years of high school music performance experience were capable of higher levels of internal consistency than non-musicians of similar ages and individuals in both groups were less consistent than music faculty members. In a related study, Kinney (2009) reported that higher levels of musical expertise also resulted in increased consistency in music performance evaluations. Ekholm (1997a) also found music educators’ ratings of musical performances to be more consistent than undergraduate music students’ ratings of the same performances. However, Bergee (1993; 1997) reported differing results. Results of two related studies indicated that both faculty and peer evaluations of brass, vocal, string, woodwind, and percussion jury performances demonstrated high levels of interrater reliability. A possible explanation for the higher level of similarity observed between the undergraduate evaluations and the faculty evaluations may have resulted from the increased musical maturity of collegiate musicians compared to middle school and high school students.

**Primary Performance Area.** The effects of adjudicators’ primary performance area on the evaluation of the quality of a musical performance has also been investigated (Fiske, 1975; Hewitt & Smith, 2004; Johnson, 1997; Pope, 2011; Simons, 2005; Thompson & Williamson, 2003; Wapnick, Ryan, Campbell, Deek, Lemire, & Darrow,
Fiske (1975) examined brass players and non-brass players’ evaluations of solo trumpet performances. He reported that non-brass players did not rate the trumpet performances differently than brass players. One exception to these findings was that non-wind players did rate the performance category of technique differently than wind players. Hewitt and Smith (2004) also found no relationship between brass players and non-brass players’ ratings of the quality of junior high trumpet performances and Simons (2005) found no differences in ratings of trumpet tone quality by musicians who listed trumpet as their primary or secondary instrument.

Other researchers however, have reported that the adjudicators’ primary performance area did influence evaluations related to the quality of a musical performance. Wapnick et al. (2005) observed that non-pianists provided more consistent ratings for solo piano performances than pianists. Johnson (1997) reported that evaluators who shared the same primary instrument as the performer, rated performances less favorably. Johnson’s results are supported by Thompson and Williamon (2003) who stated that professional string players rated solo string performances less favorably than solos performed on keyboard instruments, woodwind instruments, brass instruments, guitar, and voice. In contrast to these studies, Pope (2011) reported that evaluators who shared the same primary performance area with intermediate performers assigned more favorable ratings to the musical performances. Specifically, pre-service string teachers assigned higher ratings to middle school sting performances than preservice band students and pre-service choral students. However, in a follow up study, Pope (2012a) found that participants’ experience on string instruments did not affect their ratings of good and poor quality string quartet performances.
Effects of Selected Musical Factors on Performance Evaluation

Listeners’ perception of musical events may influence ratings of the quality of a musical performance (Ballard, 2011; Byo, 1993; 1997; Byo & Brooks, 1994; Cavitt, 2003; Crowe, 1996; Decarbo, 1982; Ely, 1992; Geringer, 1976; Geringer, 1978; Geringer, Allen, MacLeod, & Scott, 2009; Geringer & Johnson, 2007; Geringer & Madsen, 1984; Geringer & Sogin, 1988; Geringer & Witt, 1985; Geringer & Worthy, 1999; Huron, 1989; Johnson & Geringer, 2007; Madsen & Geringer, 1981; Madsen & Geringer, 1999; Morrison, 2000; Papich & Rainbow, 1974; Pope, 2012a; 2012b; Ramsey, 1979; Salzberg, 1980; Schlegel, 2010; Sheldon, 1998; Sogin, 1989; Springer, 2016; Thomason, Williamon, & Valentine, 2007; Vasil 1973; Waggoner, 2011; Wapnick & Freeman, 1980; Wapnick; et al., 2005; Worthy, 2000; Yarbrough & Ballard, 1997; Yarbrough, Morrison, & Karrick, 1997). These musical events may include, but are not limited to, the type of errors present in a musical performance (rhythm or pitch), musical texture, and the listeners’ use of a musical score. The effects of tempo, intonation, tone, performance duration, and the level of performance quality on evaluations of a musical performance have also been investigated.

Several researchers have investigated the effects of various musical elements on listeners’ abilities to detect errors in a musical performance. Some common trends in error detection literature include (a) higher rates of success were observed for the detection of rhythmic errors rather than pitch errors (Byo, 1993; Cavitt, 2003; Decarbo, 1982; Ramsey, 1979; Schlegel, 2010; Sheldon, 1998; Waggoner, 2011), (b) Music majors were more successful at detecting errors with simpler musical textures and displayed the most error detection accuracy in single voice textures (Byo, 1993; 1997; Crowe, 1996;
Huron, 1989; Sheldon, 1998), (c) The addition of a musical score did not necessarily improve the listeners’ ability to detect errors (Crowe, 1996; Schlegel, 2010).

Previous research has also investigated the effect of score use on listeners’ ratings of the quality of a musical performance. Napoles (2009) observed that listeners who were provided a conductor’s score rated choral performance lower than listeners’ who did not have access to a score. However, Pope (2012b) found that the use of a conductor’s score did not influence listeners’ ratings of technique or musicality and Springer (2016) found that the ratings of performance quality under the conditions of full score, condensed score, and no score were not statistically significantly different.

The effect of intonation on the evaluation of a musical performance has also been investigated and several trends have been observed. Previous investigations have reported low correlations between musicians’ abilities to play with good intonation and their abilities to successfully detect intonation problems in a musical performance (Ballard, 2011; Ely, 1992; Geringer, 1978; Geringer & Witt, 1985; Yarbrough, Morrison, & Karrick, 1997). Additionally, when intonation problems occur, musicians tended to play sharp rather than flat (Geringer, 1978; Geringer & Sogin, 1988; Geringer & Witt, 1985; Morrison, 2000; Papich & Rainbow, 1974; Salzberg, 1980; Sogin, 1989; Yarbrough & Ballard, 1997; Yarbrough, Morrison, & Karrick, 1997), and listeners tended to be more successful at perceiving intonation problems that result from flatness rather than from sharpness (Geringer, 1976; Geringer & Madsen, 1984; Madsen & Geringer, 1981). Listeners’ perceptions of intonation may be influenced by tone quality. Previous research has reported that listeners were more likely to associate a bright tone quality with sharpness and a dark tone quality with flatness (Geringer & Worthy, 1999;
Wapnick & Freeman, 1980; Worthy, 2000). Additionally, Madsen and Geringer (1981) reported that participants were more successful at perceiving musical performances resulting from poor intonation rather than from poor tone quality.

The tempo at which music is performed may also influence listeners’ perceptions of performance quality (Geringer & Johnson, 2007; Johnson and Geringer, 2007; Pope, 2012a; Wapnick et al., 2005). Wapnick et al. (2005), Geringer and Johnson (2007), and Johnson and Geringer (2007) reported that participants rated slower tempo excerpts of good quality performances more favorably than faster excerpts of good quality performances. Interestingly, Pope (2012a) reported that slower poor quality performances were rated more favorably than faster poor quality performances. The duration of a musical performance may also effect listeners’ perceptions of a musical performance (Geringer & Johnson, 2007; Geringer, Allen, MacLeod, & Scott, 2009; Thomason, Williamon, & Valentine, 2007; Vasil 1973; Wapnick; et al., 2005). Vasil (1973) investigated the effect of excerpt duration on professional musicians’ ratings of high school clarinet performances. Three performance lengths, 75-secons, 150-seconds, and 300-seconds, were compared. Results indicated that differences in excerpt length did not influence the evaluators’ ratings of the performances. In an effort to maximize efficiency in all-state auditions held in a large southern state, Geringer, et al., (2009) created a pre-screening process in which one-minute etude portions of auditions were rated. These ratings were then compared to ratings that were assigned after the full four-minute audition was completed. Findings indicate that the ratings from the one-minute excerpts were similar to the ratings of the full auditions.
Wapnick et al, (2005) examined different adjudicator groups’ ratings of 20-second and 60-second excerpts. The undergraduate adjudicators assigned similar or slightly higher ratings to excerpts of both lengths while graduate students and music faculty rated the 60-second excerpt considerably higher than the 20-second excerpt. In contrast to these findings, Geringer and Johnson (2007) found no main effect for duration when 12-second, 25-second, and 50-second excerpts were rated. However, the quality of the performance appeared to interact with performance duration. Shorter excerpts favored ratings for secondary level ensembles while collegiate and professional level ensembles benefited from the longer performance durations. Thomason, Williamon, & Valentine (2007) used a somewhat different approach in examining listeners’ perceptions of performance quality. Using a computer interface, participants were able to provide continuous feedback while listening to the performances. Results of their study indicated that most participants made their first judgements after listening to approximately 20-seconds of the performance. As participants continued to use a 7-point Likert-type scale to rate the ongoing performance, ratings usually increased. The investigators noted that the largest changes in performance quality ratings were recorded during the first minute, after which any changes in perception were comparatively narrower in range.

**Effects of Selected Non-Musical Factors on Performance Evaluation**

As previously discussed, listeners’ perceptions of the quality of a musical performance may be influenced by musical events. Previous research also indicates that non-musical factors may also influence listeners’ perceptions of music performance quality (Barnes & McCashin, 2005; Behne & Wöllner, 2011; Bergee, 2006; Bergee &
School Population, Expenditure, and Location. Several types of non-musical information have been linked to listeners’ perceptions of the quality of a musical performance. For example, solo and ensemble ratings appear to be related to the number of students enrolled in participating schools and those schools’ expenditure per student. (Bergee, 2006; Bergee & Platt, 2003; Bergee & McWhirter, 2005). In a series of investigations, Bergee and Platt (2003) and Bergee and McWhirter (2005) observed that students from schools with larger student populations and students from schools closest to the evaluation site were found to receive more favorable solo and ensemble ratings than students from smaller and more remote schools. Lien and Humphreys (2001) found similar results when comparing students’ scores in all-state band auditions to school size and proximity to the evaluation site.
**Performance Order and Performance Time.** Previous research has also indicated that both the performance order and performance time may affect evaluations of a musical performance. De Bruin (2005) identifies one aspect of this influence as a *serial position effect*. Under this influence, judges may be reluctant to assign ratings in lower or upper extremes until a sufficient number of performers have been evaluated. Randomization of performance order can offer each performer an equal chance to occupy all positions in a performance order but cannot eliminate serial performance order influences. However, the influence of *serial position effect* on solo and ensemble and all-state auditions is unclear. Bergee and Westfall’s (2005) examinations of solo and ensemble ratings indicated that students’ who performed in the morning were less likely to receive superior ratings. Elliott, Schneider, and Zembower (2000) reported contrary findings. Their results indicated that over 50% of students who auditioned for all-state band in the morning were accepted into the ensemble while only 14% of those who auditioned in the afternoon were accepted. Their findings indicate that the examined adjudicators’ scores became less favorable as the audition day progressed. Barnes and McCashin (2005) have suggested that the decreases in ratings observed throughout the course of an audition day may result from rater fatigue. Their investigation reports that all-state judges may evaluate the quality of musical performances for as long as 8 or even 10 hours in a single day with very little respite between performances.

**Anticipated Performer Ability.** Preconceived notions of the capabilities of the performer can affect listeners’ perceptions of the quality of a musical performance (Duerksen, 1972; Fredrickson, Johnson, & Robinson, 1998; VanWeelden, 2002).
Duerksen (1972) investigated the effect of performer prestige on listeners’ evaluations of a solo piano performance. Before evaluating the performance, the soloist was identified as either a student pianist or a professional pianist. Results indicated that performances attributed to a student pianist were rated less favorably than the performances attributed to a professional pianist. This tendency was consistent across all performance evaluation categories: tone quality, dynamic contrast, rhythmic accuracy, pitch accuracy, appropriate use of accent, appropriateness of selected tempo, interpretation, and an overall performance rating. Listeners’ expectations of musical performance quality can also be influenced by pre-performance stage behavior. Fredrickson, Johnson, and Robinson (1998) examined the effect of good and poor pre-conducting behaviors on musicians’ perceptions of conducting competency. The researchers found that poor pre-conducting behavior negatively affected the scores assigned to good quality conducting performances. Similarly, VanWeelden (2002) reported that listeners’ perception of conductor effectiveness, conductor facial expressions, and listeners’ confidence in the conductor’s abilities correlated with ensemble performance ratings. It is possible that information about individual performers, either verbally stated or visually implied, may affect performance evaluations. These studies suggest that pre-existing notions of performer capability may influence the listeners’ perceptions of performance quality.

**Presentation Format.** Although music performances are primarily aural events, visually supplied information about the performers can influence listeners’ perceptions (Davidson, 1993; Harrington, 2015; Howard, 2012; Killian, 2001; Ryan, Wapnick, Lacaille, & Darrow, 2006; Siddell-Strebel, 2007; Wapnick, Darrow, Kovacs, &
Dalrymple, 1997; Zembower, 2000). One way that this tendency has been investigated is through comparing different presentation formats. These investigations have generated differing results. For example, Wapnick, Mazza, and Darrow (2000) found little difference between evaluations of audio-only (AO) presentations and audio-visual (AV) presentations. However, other investigations have demonstrated that visual information influences listeners’ perceptions of the quality of a musical performance (Davidson, 1993; Hamann, 2003; Harrington, 2015; Howard, 2012; Killian, 2001; Lucas & Teachout, 1998; Pope & Barnes, 2015; Ryan, Wapnick, Lacaille, & Darrow, 2006; Siddell-Strebel, 2007; Wapnick, Darrow, Kovacs, & Dalrymple, 1997; Zembower, 2000). Zembower (2000) reported that 15 university level wind band conductors assigned higher performance quality ratings to a video-only condition (VO) and lower performance quality ratings to an audio-only (AO) condition. Killian (2001) quantified listeners’ perceptions of musical performances differently. The number of written comments and the percentage of those comments that pertained to musical events indicated that presentation format affected the amount of musical information perceived by elementary, middle, and high school students. Specifically, the AO condition elicited the most comments pertaining to musical events while the VO condition elicited the fewest comments about musical events.

Several studies have examined listeners’ perceptions of performance quality by comparing the overall ratings assigned to AO and AV performances. Howard (2012) reported that AO presentations of solo vocal performances received higher overall ratings than performances evaluated as AV presentations and Siddell-Strebel (2007) found that non-musicians' ratings of solo cello performances were more favorable under the AO
condition. Other investigations of the effect of presentation format on listener’s perceptions of performance quality have generated different results. Contrary to Howard (2012), Wapnick, Darrow, Kovacs, and Dalrymple (1997) reported that solo vocal performances received more favorable ratings under the AV condition rather than the AO condition. Similarly, Harrington (2015) found that music majors, non-majors, and older adult musicians rated the AO performances of intermediate level concert bands less favorably than the AV performances.

The effect of presentation format on ratings of specific performance categories (tone, intonation, expressivity, etc.) has also been investigated. Pope and Barnes (2015) used AO and AV conditions to examine pre-service and in-service teachers’ perceptions of tone quality, intonation, rhythmic accuracy, and musical effect. The investigators reported that tone and intonation ratings assigned under the AV condition were significantly higher than those assigned under the AO condition. Presentation format appears to be particularly important to listeners’ perceptions of the performance category of expressivity. In a two-study series, Lucas and Teachout (1998) and Hamann (2003) reported that listeners’ ability to distinguish between expressive and non-expressive musical performances were enhanced by presentation formats that included video recordings of the performance. In response to these findings Hamman (2003) states that “The element of sound raises overall perception of expression and sight improves the ability of listeners to distinguish between expressive and non-expressive performance” (p. 30). Therefore, the performer’s behaviors or physical attributes of the performer provided through AV presentations may influence listeners’ perceptions of a musical performance.
However, not all investigations of the effect of visual information on listeners’ perceptions of expressivity are in agreement. Silveira & Diaz (2014) also investigated the role of visual information on participants’ perceptions of musical expressivity. Participants evaluated a 13-minute excerpt of Puccini’s *La Bohème* under one of three conditions (AO, AV, or AV with subtitles) and indicated their perceptions of expressivity through the use of the Continuous Response Interface (CRDI). The magnitude of responses was found to be greatest for the AO condition and lowest for the AV with subtitles condition. The researchers suggest that the subtitles may have detracted from the aural events that contributed to performance expressivity.

The conflicting reports of varied visual information contained in AO, VO, and AV presentation formats speaks to the complexity of the visual information provided in live or video recorded music performances. The pervasive influence of visual information on listeners’ perceptions of musical performances is such that “[u]ltimately, one’s judgement of a live performance may only be partly attributed to what one hears…after factoring in such variables as what one see’s” (Morrison, Price, Geiger, & Cornacchio, 2009, p. 38).

**Performer Attractiveness.** The appearance of the performers themselves can also influence listeners’ perceptions of performance quality. In particular, a soloist’s level of attractiveness may influence evaluators’ ratings of his or her musical performance (Davidson & Coimbra, 2001; Ryan & Costa Giomi, 2004; Siddell-Strebel, 2007; Wapnick, Campbell, Siddell-Strebel, & Darrow, 2009; Wapnick, Darrow, Kovacs, & Dalrymple, 1997; Wapnick, Mazza, & Darrow, 1998). Investigations conducted by Davidson and Coimbra (2001) and Wapnick, Darrow, Kovacs, and Dalrymple (1997)
found that ratings of vocalists’ solo performances were influenced by their physical appearances. However, in the latter study, attractive female vocalists received higher ratings in both AO and AV conditions. More attractive males received higher ratings in only the AV condition. Similarly, Siddell-Strebel (2007) also reported that more attractive cellists received higher ratings of solo performances than less attractive cellists. The quality of the musical performance may contribute to the presence of an attractiveness effect. Ryan and Costa-Giomi (2004) found that more attractive child pianists were scored more favorably than their less attractive peers, only when the attractive children delivered performances of a high quality. Children whose performances were of a lower musical quality did not appear to benefit from being more attractive than their peers. Gender too played a role in the researchers’ findings. Attractive female pianists were rated more favorably than attractive male pianists while unattractive males were rated more favorably than unattractive females.

Reports of attractiveness bias in music performance evaluation are not without contradictions. Ratings of competitors in the Van Cliburn International Piano Competition were rated under AO, AV, and VO conditions. Results of the investigation indicated that the adult solo pianist who performed at very high ability levels did not appear to benefit from higher levels of attractiveness (Ryan, Wapnick, Lacaille, & Darrow, 2006). Additionally, performance duration, and therefore the duration in which performers are viewed and evaluated, may also mitigate attractiveness bias. Wapnick, Campbell, Siddell-Strebel, and Darrow (2009) found that excerpt duration could affect the influence of attractiveness on perceptions of performance quality. Attractive female singers benefited most from the audio-visual condition that contained a 25-second
excerpt. As the length of the excerpts expanded, the potency of the effects of the soloist’s attractiveness lessened. Results reported by Wapnick, Mazza, and Darrow (1998) offer less conclusive evidence for the influence of attractiveness on perceptions of performance quality. The investigators found that attractive violinists received somewhat higher ratings than less attractive violinists, however the differences were not statistically significant. The researchers suggest that, by virtue of their pleasing appearances, the attractive performers may have been afforded learning opportunities that enhanced their playing.

**Performer Race.** As previously mentioned, VanWeelden (2004) reported that conductor race influenced perceptions of conductor and ensemble performance quality during the evaluation of racially stereotypical vocal music. Specifically, identical choral performances of an African-American spiritual were rated more favorably when the conductor was African-American. The influence of a performer’s race has also been investigated in the context of solo performers. Elliott (1995/1996) investigated the effect of race, gender, and instrumentation. Musicians rated eight AV presentations: four flute performances and four trumpet performances. While one audio stimulus was used for all four flute performances and one audio stimulus was used for all four trumpet performances, the physical appearance of the soloists was changed for each presentation. The visual stimuli featured either an African-American male, a Caucasian male, an African-American female, or a Caucasian female performing on either flute or trumpet. Results of the evaluations indicated that Caucasian females were rated lower than
Caucasian males and African-American males were rated lower than African-American females.

McCrary (1993) investigated the effects of performer race on ratings assigned by a racially diverse audience. Middle school and college students evaluated AO vocal performances. Participants also indicated their expectations of each performer’s race. Results indicated that African-American students rated vocalists more favorably when they anticipated that the performer was also African-American. Caucasian students’ ratings of the vocalists did not differ as a result of perceived differences in performer race. Findings reported by Morrison (1998) support McCrary’s (1993) results. Middle school students preferred jazz performers who were of the same race as themselves. However, in some instances, African-American students did prefer Caucasian performers when responding to AO presentations. Similarly, Killian (1990) reported that junior high students expressed preferences for vocal performances that were delivered by soloists who were the same race as themselves.

**Performer Movement.** Listeners’ perceptions of the quality of a musical performance may also be affected by the performer’s use of movement (Broughton & Stevens, 2009; Davidson, 1993; Gillespie, 1997; Huang & Krumhansl, 2011; Silveira, 2014). Gillespie (1997) investigated differences in listeners’ ratings of string vibrato under both AO and AV conditions. Findings indicate that both experienced and inexperienced performers benefited from positive influences afforded by the AV condition. The researcher points out that seeing the soloist perform the movements
necessary to create a string vibrato may inflate the listeners’ perceptions of the amount of vibrato that is actually used.

Davidson (1993) investigated expressiveness ratings of piano performances presented in AO, AV, and VO conditions. The soloists performed one excerpt three times. Each performance demonstrated one of three levels of movement: deadpan, normal, and exaggerated. These three different levels of performer movement were then presented to participants in AO, AV, and VO presentation formats. Ratings of these performances indicate that listeners required visual information from the AV or VO condition to accurately discriminate between the three levels of performance movement. The researcher concludes that this speaks strongly to the importance of visual information in listeners’ perceptions of performance expressivity.

Expansions on Davidson’s (1993) research have been explored in the contexts of chamber ensembles, solo marimba playing, and solo piano performances (Broughton & Stevens 2009; Huang & Krumhansl, 2011; Silveira, 2014). Silveira (2014) investigated listeners’ perceptions of performance expressivity through the use of AV presentations of a professional trombone ensemble. One audio-stimulus was paired with three levels of expressive movement: (1) deadpan, (2) movement using only head and face, and (3) full body movement. The amount of movement that accompanied the audio-stimulus significantly affected listeners’ perceptions of the performances. Audio-visual presentations that featured full body movements received the highest ratings of performer musicality.

Broughton and Stevens (2009) found that AV presentations of marimba performances that restricted the soloist’s movements to “deadpan” received significantly
lower performance quality ratings than AV presentations of marimba performances that deliberately incorporated expressive movements. Additionally, ratings of the deadpan performance were not statistically different from the performance quality ratings assigned to the performance rated in the AO condition. The researchers concluded that AV information bolstered the ratings of performance quality when sufficiently expressive movements were used. The desirable amount of expressive movement may differ from performance to performance. Huang and Krumhansl (2011) examined the levels of expressivity (minimal, natural, and exaggerated) in solo piano performances of pieces by Bach, Chopin, and Copland. Participants’ responses indicated that the level of desired expressiveness in piano was related to the style used by these composers. Performance quality ratings of pieces composed by Bach and Chopin increased as the soloist’s expressive movement increased, while the piece composed by Copland was rated highest at the natural expressivity movement level. No pieces were rated highest in the minimal movement condition.

**Performance Attire.** The effect of the attire worn by soloists on listeners’ perceptions of the quality of a musical performance has also been investigated. Wapnick, Mazza, and Darrow (1998) found that male and female violinists who received higher ratings for appropriate dress were also rated more favorably in the categories of dynamic range, sound quality, and received higher overall ratings of performance quality. A subsequent study by Wapnick, Mazza, and Darrow (2000) concurred that stage dress functioned as one component of physical performer attributes that favorably influenced the performance quality ratings that were assigned to young pianists. Griffiths (2010)
suggests that performance dress is related to musical genre. In her study “Posh Music Should Equal Posh Dress,” she reports that listeners’ expressed preconceived notions about acceptable performance attire for female violinists. When the listeners’ expectations of appropriate stage attire were violated, perceptions of performance quality were negatively affected. The researcher suggests that the influence of stage attire on perceptions of the quality of a musical performance is of particular importance for female soloists as the expected concert attire for females may be less standardized than those expected for their male counterparts. Furthermore, acceptable performance attire for female soloists may be viewed as less serious, more decorative, and less practical than the conventional performance attire for males (Bartky, 1990). Citron (2004) suggests that societal notions of female sexuality oblige female performing artists to present themselves in such a way as to be taken seriously while also fulfilling general expectations of feminine sexuality. The researcher cautions that failure to balance these aspects of their physical appearances may hinder their success as performing artists.

**Performer Gender.** The gender of the performer may also influence listeners’ perceptions of the quality of a musical performance (Behne & Wöllner, 2011; Elliott, 1995/1996; Griffiths, 2010; Ryan & Costa-Giomi, 2004). Ryan and Costa-Giomi (2004) investigated the effect of performer gender and performer attractiveness on the ratings of young piano soloists. Their findings suggest that the influence of performer attractiveness affected male and female soloists differently. Less attractive male children received the highest performance quality ratings while less attractive females received the lowest performance quality ratings. Additionally, while a higher level of attractiveness
positively affected the ratings received by female soloists, a higher attractiveness appeared to negatively affect the ratings received by the male soloists. Elliott’s (1995/1996) examinations of performers’ race, gender, and musical instrument indicate that, females were rated less favorably than males on a stereotypically masculine instrument. Ratings of male performers were comparatively more stable across different instruments. Behne & Wöllner (2011) reported that a performer’s gender may influence listeners’ ratings of specific music performance categories. The investigators reported that identical good quality piano performances were rated differently for males than for females. Specifically, male performers were perceived as more precise while female performers were perceived as more dramatic.

Category specific gender bias may also be observed in research conducted using workplace evaluations. Davidson and Burke’s (2000) meta-analysis of workplace emulating experimental studies found that men were rated higher on stereotypically masculine jobs while women were rated higher on stereotypically feminine jobs. However, Bowen, Swim, and Jacobs (2000) found little overall gender bias in work evaluation data collected in “real world field studies” (p. 2205). Evaluations of more specific job performance items appeared to be related to gender. Women were rated more favorably in job aspects that were considered to be stereotypically feminine (such as interpersonal sensitivity) and men were rated more favorably in job aspects that were considered to be more masculine (such as program implementation). The researchers suggest that these findings do not indicate that gender bias is not present in work place evaluations but that the complexity of job assignments, promotions, and other factors may somewhat neutralize the appearance of this bias when the single element is
examined. Workplace gender bias findings remain inconclusive. Castilla (2005) described the tendency of “equivalent women and men…to obtain different salary increases over time even after they are given the same performance evaluation” (p. 36). Similarly, Igbaria and Baroudi (1995) reported that women whose work was rated as equally favorably as their male counterparts were considered less likely to be promoted than men who performed at a similar level.

**Attitudes Towards Older Adults**

Physical characteristics of performers that imply race, attractiveness, and gender may also imply chronological age. Previous research suggests physical traits associated with older adulthood may activate negative stereotypes (Hummert, 1994; Hummert, Garstka, & Shaner, 1997). Facial characteristics have been particularly useful in conveying chronological age in experimental studies. Visibly wrinkled skin, greying hair or white hair, noticeable changes in skin coloring or undertones, and sagging skin in the eye area have been used to visually imply old age (Hummert, 1994). A series of age related studies reported that college students and children associated less favorable traits with pictures of older adult faces and more favorable traits with pictures of younger adult faces (Berry & McArthur, 1985; 1986; Berry & Zebrowitz-McArthur, 1988; McArthur, 1982; McArthur & Baron, 1983). Additionally, Hummert, Garstka, & Shaner (1997) found that participants of a wide variety of ages expressed negative attitudes toward older adults and these attitudes became more severe as the chronological ages of the pictured older adults increased.
Kalavar (2001) investigated attitudes toward older adults by asking undergraduates to indicate the ideal age for professionals in various fields. Participants were also asked to provide comments explaining the reasons for their choices. Experience, maturity, and responsibility were cited as desirable traits associated with middle aged and young-old adults. Participants particularly valued these traits in the fields of medicine and politics. However, perceived ideal age for professionals in these particular fields ranged from between 40 and 50 years old. Very few participants indicated a preference for receiving services from any professionals over the age of 60. These findings suggest that older adults may not be perceived as desirable members of the work force in many fields, including those in which experience and maturity are valued. Kalavar’s (2001) report that college students considered middle aged and young old adults to be desirable for certain jobs and less desirable for others may be an example of informal prototype matching. Perry (1994) reports that prototype matching occurs when potential job candidates are evaluated by comparing the candidates’ characteristics (such as age and gender) with a “person-in-job prototype” (p.1559). When the age of the worker is considered to be an important factor in successfully performing the duties associated with a job, applicants who matched the age of the prototype were viewed more favorably than applicants whose ages differed from the prototype (Perry, 1994). For example, positions that are associated with high energy levels and adaptability may be considered “young-type jobs” while positions or tasks that require more experience and responsibility maybe considered “old-type jobs” (Kunze, Böehm, & Bruch, 2011, p, 269). The authors report that these perceptions of job prototypes can contribute to feelings of age discrimination in the workplace.
Negative attitudes based on chronological age are not restricted to workplace literature and may be directed at older and younger adults (Kite, Stockdale, & Johnson 2005). However, Michel (1985) states that Western culture tends to harbor negative attitudes towards aging and older members of society. Culturally bound negative beliefs about older adults imply that old age is synonymous with declining health (Pollock, 1985), weakened intelligence, absence of ambition, and inefficiency (Bodner, 2009). The discrimination against others on the basis of age is defined as ageism (Butler, 1975).

Bodner (2009) conducted an extensive review of ageism literature. He reports that,

Ageism is apparent at the individual level, the institutional level, and the societal level. At the individual level, ageism is visible in the avoidance of contact with older people, age denial, ageist humor, and negative attitudes and stereotypes toward older adults. Elderly people are considered less intelligent, less ambitious, and less responsible than younger adults…It was also demonstrated that older employees are believed to be less efficient than younger employees in various job-related. (2009, p. 1004)

Additionally, older adults may experience negative results of global attributions. These attributions generalize perceptions of an individual’s behavior across settings based on a group characteristic (e.g. age or gender). An example of a negative global attribution of age is the notion that errors in memory displayed by older adults are the result of negative effects of old age rather than more specific contexts such as the importance of the memory in question. Global attribution of errors to old age may be particularly problematic in work settings when the perceived shortcomings associated with older adulthood are viewed as permanent and pervasive. This may lead to evaluations that do not reflect the possibility of mitigating or temporary factors. Instead errors may be attributed to the permanent characteristic of old age. Additionally, older adult employees who perform poorly at work were more likely to receive harsher
criticism and more severe recommendations for consequences associated with poor performance than younger employees (Rupp, Vodanovich, & Crede, 2006).

Perceptions of the quality of the work performed by older adults is relevant to discussions of music perception. Performing ensembles at professional and amateur levels may be comprised of younger and older adults (Jansen, Helleman, Dreschler, & de Laat, 2009; & Mantie, 2012). The potential of facial features to imply older adulthood, the prevalence of negative stereotypes about the abilities of older adults, and the potential of performer appearance to influence listeners’ perceptions, stimulated an investigation of listeners’ evaluations of the quality of musical performances delivered by older adult concert bands. Harrington (2015) investigated the effect of advanced performer age on listeners’ perceptions of intermediate level concert band performances. Undergraduate music majors (n = 23), non-music majors (n = 17), and members of two older adult ensembles (n = 16) rated 30-second audio-recordings of intermediate skill level concert band performances. Audio recordings were presented in AO and AV formats. Performances presented under the AV condition paired audio recordings with digital images of middle school concert bands and older adult concert bands. Participants rated each performance on tone, rhythmic precision, and dynamic contrast. While not statistically significant, music majors’ ratings of AV presentations that featured digital images of the middle school concert bands were more favorable than ratings assigned to the older adult concert bands. Older adult musicians also demonstrated similar rating tendencies. Interestingly, non-majors rated older adult concert bands more favorably than middle school concert bands. These findings demonstrate further the need to examine the influence of implied performer age on perceptions of performance quality.
Purpose Statement and Research Questions

The purpose of the present study is to investigate the influence of implied performer age, implied performer gender, and performance quality level on listeners’ perceptions of a solo musical performance.

Primary Research Questions:

1. What are the effects of implied performer age (no age implied/older adulthood implied/younger adulthood implied) and performance quality level (good/poor) on college musicians’ ratings of seven performance quality categories (phrasing, dynamics, intonation, expressivity, vibrato, tone quality, rhythmic accuracy) and the overall rating of each performance?

2. What are the effects of implied performer gender (male/female) and performance quality level (good/poor) on college musicians’ ratings of six performance quality categories and the overall rating of each performance?

Secondary Research Question:

1. What is the effect of the performer’s implied age on college musicians’ ratings on the improvement capacity of the older adult soloists and the younger adult soloists over one-year period of time?
Statement of Hypotheses

The following hypotheses were generated prior to the onset of this study and were used in statistical testing.

1. *Research Hypothesis 1*: Implied performer age has an effect on musical evaluations completed by undergraduate music majors.

2. *Research Hypothesis 2*: Implied performer gender has an effect on musical evaluations completed by undergraduate music majors.

3. *Research Hypothesis 3*: The quality of the musical performance has an effect on musical evaluations completed by undergraduate music majors.

4. *Research Hypothesis 4*: Implied performer age has an effect on undergraduate music majors’ beliefs about performers’ musical improvement capacities.
CHAPTER 3

METHOD

The purpose of this study was to examine the effect of implied performer age, implied performer gender, and performance quality level on music majors’ ratings of solo saxophone performances. Six performances were presented in three different formats. The first format presented participants with audio-only (AO) recordings of a saxophone soloist. The second and third formats presented participants with audio-recordings of solo saxophone performances paired with digital images of both an older adult and a younger adult. The digital images featured the faces of either male or female performers appearing as older adults (OA) who were at least 65 years old or younger adults (YA) who were between the ages of 20 and 30 years old. The participants rated each performance by responding to seven musical evaluative statements. In addition, all participants were also asked to rate each performer’s capacity to improve musically over a one-year period and to describe their reasons for their choice.

Specific questions addressed in this study were (1) What are the effects of implied performer age (no age implied, older adulthood implied, younger adulthood implied) and performance level (good quality and poor quality) on college musicians’ ratings of seven performance quality categories (phrasing, dynamics, intonation, expressivity, vibrato, tone quality, rhythmic accuracy) and the overall rating of each the performances? (2) What are the effects of the performers’ implied gender and performance level on college musicians’ ratings on six musical performance quality categories and the overall rating of each of the performances? A secondary question asked: What is the effect of the
performer’s implied age on college musicians’ ratings of the improvement capacity of the older adult soloists and the younger adult soloists over a one-year period?

**Variables and Treatments**

Independent variables for this study included implied performer age (audio-only/older adulthood implied/younger adulthood implied), implied performer gender (male/female), and performance quality (good/poor). The within-subjects variable was implied performer age (audio-only/older adulthood implied/younger adulthood implied). Between-subjects variables included implied performer gender (male/female) and performance quality (good/poor). Participants were randomly assigned to one of four treatment cells. Participants in all cells evaluated a total of six performances: two solo saxophone performances that did not include any visual information (audio-only presentations) and four solo saxophone performances that were paired with a high quality digital images of performers (audio-visual presentations). Two of these audio-visual presentations were paired with a high quality digital image of an older adult face while two additional solo saxophone performances were paired with a high quality image of a younger adult performer. All solo saxophone performances were approximately one-minute in length. To prevent visual stimuli from influencing participant’s ratings of audio-only performances, all audio-only examples were presented before any of the audio-visual examples (Harrington, 2015; Ryan & Costa-Giomi, 2004). Further, a counterbalance design was used to control for order effects of visual and audio stimuli (See Figure 3.1).
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</tr>
<tr>
<td>CD 5</td>
<td>Good</td>
<td>2 3</td>
</tr>
<tr>
<td>CD 6</td>
<td>Good</td>
<td>6 3</td>
</tr>
<tr>
<td>CD 7</td>
<td>Poor</td>
<td>2 5</td>
</tr>
<tr>
<td>CD 8</td>
<td>Poor</td>
<td>3 4</td>
</tr>
</tbody>
</table>

Note: An * denotes the use of the repeated audio stimuli.

*Figure 3.1 Stimulus DVD Performance Orders and Accompanying Visual Stimuli*
While all participants evaluated OA and YA soloists, treatment cells differed in the gender of the soloists and the quality of the musical performances presented to the participants. Specifically, participants in two of the treatment cells viewed digital images that featured an older adult male and a younger adult male while participants assigned to the remaining two treatment cells viewed digital images that featured an older adult female and a younger adult female. The performance quality variable was treated similarly. Participants in two of the treatment cells listened to audio-stimuli that represented good quality saxophone playing while participants assigned to the two other treatment cells listened to audio-stimuli that represented poor quality saxophone playing. The resulting design allowed participants to rate an older adult soloist and a younger adult soloist of one gender (male or female) and one level of performance quality (good or poor). The design is presented in Figure 3.2.
\[ N = 124 \]

<table>
<thead>
<tr>
<th>Gender</th>
<th>AO</th>
<th>OA</th>
<th>YA</th>
</tr>
</thead>
<tbody>
<tr>
<td>Male</td>
<td>[ n = 30 ]</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Female</td>
<td>[ n = 32 ]</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Male</td>
<td></td>
<td>[ n = 32 ]</td>
<td></td>
</tr>
<tr>
<td>Female</td>
<td></td>
<td></td>
<td>[ n = 30 ]</td>
</tr>
</tbody>
</table>

- AO = no age (implied)
- OA = older adult (implied)
- YA = younger adult (implied)

*Figure 3.2 Dissertation Design*
Participants rated each performance in the seven categories (phrasing, dynamics, intonation, expressivity, vibrato, tone, and rhythmic accuracy) using a 7-point Likert-type scale where 1 = *Strongly Disagree* and 7 = *Strongly Agree*. Participants also used a 7-point Likert-type scale where 1 = *Poor* and 7 = *Excellent* to provide an overall rating for each solo saxophone performance. In his investigation of the evaluation of good and poor quality string ensemble performances, Pope (2012b) asked listeners to rate performance categories by responding to evaluative statements. These evaluation statements were adapted from previous performance evaluation research of Smith and Barnes (2007) and Zdzinski and Barnes (2002). The present study included evaluative statements taken from Pope (2012b) as well as additional evaluative statements influenced by Abeles (1973), Dressman (1991), and Saunders and Holahan (1997). The statements selected for use in this study were taken from or modeled after evaluation statements used in Pope (2012b). Statements used in this study include:

1. Soloist demonstrates melodic phrasing.
2. Soloist demonstrates dynamic contrast.
3. Soloist plays with consistent intonation.
4. Soloist plays expressively.
5. Soloists demonstrates appropriate use of vibrato.
7. Rhythms are precise and accurate.

**Perception of Capacity for Improvement**

Previous research indicates that undergraduate music majors and non-majors may not anticipate musical improvement from intermediate level older adult concert bands (Harrington, 2015). Undergraduate music majors’ perceptions of the improvement capacity of older adult soloist has yet to be investigated. In addition, the effects of
performance quality level (good/poor) and implied performer gender on perceptions of older adult solo performers’ potential for improvement are also currently unexplored. After rating two examples of solo saxophone playing paired with a single digital image, the participants were then asked to rate the soloist featured in the digital image using the Improvement Capacity Index (ICI). A second digital image was then paired with two additional examples of saxophone playing. The participants were again asked to rate the two musical performances and provide an ICI rating for the soloist featured in the second digital image. Specifically, participants used a 7-point Likert type scale where $1 = \text{little or no improvement}$ and $7 = \text{considerable improvement}$ to indicate their perceptions of each performers capacity to affect positive changes in his or her playing over a one year period. Participants were then prompted to write two to three sentences explaining their reasoning behind these predictions.

**Selection of Instrument Played in Audio Stimuli**

Due to the inclusion of digital images of both male and female performers, attention was given to relationships between instrumentation and gender. Music education research spanning multiple decades consistently indicates that “musical instruments are gendered” (Zervoudakes & Tanur, 1994, p. 58). While instrument-gender associations are stronger for some instruments and weaker for others, it is important to note that no wind band instrument has been consistently identified as gender neutral (Abeles, 2009; Delzell & Leppla, 1992; Graham, 2005; Griswold & Chroback, 1981; Zervoudakes & Tanur, 1994). Therefore, any wind band instrument chosen for use in the stimuli used in this study will imply some degree of masculinity or femininity.
Previously conducted studies have asked college students to rank a variety of band instruments from feminine to masculine. The instruments common across these studies include, flute, violin, clarinet, cello, saxophone, trumpet, trombone, and drums. Of these instruments, the cello and the saxophone occupy the most central positions and therefore elicit milder gender associations than instruments on either end of the continuum. Therefore, in an effort to control for the effects caused by violations of instrument-gender stratification norms, the alto saxophone was selected for use as the solo instrument featured in the present study.

**Audio Stimuli**

Audio stimuli were performed by a doctoral music student. Musical excerpts were selected from standard woodwind methods book and etude collections. These include Barret’s (1860, repr. 1869) *Complete Method for Oboe* and several collections edited by Voxman including *Selected Duets for Saxophone, Volume One* (1947), *Concert and Contest Collection for Alto Saxophone* (1959), and *Advanced Methods for Clarinet* (Ed. Voxman & Gower, 1939). All selected excerpts were in common time and in major tonalities. All excerpts were lyrical in nature, possessed some moderately technical passages, and were performed at approximately $\frac{3}{4} = 56 – 62$ bpm. Minor alterations were made to some excerpts to facilitate the uniform time of approximately one-minute in length. All excerpts were performed on a high quality alto saxophone and recorded in a school of music recital hall using a digital *Zoom Handy Recorder* H2 ®.

Each musical excerpt was recorded as both a good quality performance and as a poor quality performance. The recordings of good quality performances featured a
pleasing and characteristics tone, consistent intonation, were devoid of rhythmic inaccuracies, demonstrated a high level of melodic phrasing, contained skillfully executed dynamic contrasts, and were played with a high level of expressivity. Poor quality recordings featured a harsh tone quality, poor intonation, deliberate inclusions of rhythmic inaccuracies, demonstrated little or no melodic phrasing, maintained a static dynamic level, and were played with little or no expressivity.

Prior to the first recording session, the researcher and the soloists held four rehearsals. During these rehearsals, the researcher provided verbal directions and collaborated with the performer to create meaningful and precise score markings to achieve the desired musical effects. These score markings were then used to prepare one paper copy of each excerpt to be used in good quality performances and one paper copy of each excerpt to be used for the poor quality performances. Twelve audio recordings were made during two one-hour sessions. During the first session, the six examples of poor quality playing were recorded while the second session was devoted to recording the six examples of good quality playing. During both sessions the researcher and the performer listened to each completed recording. The examples were rerecorded as needed until all examples reflected the desired characteristics of either the good quality or the poor quality musical performance indicated in the scores. Marked copies of good and poor excerpts are provided in Appendix D.

The validity and reliability of the recorded audio stimuli were assessed by two professional music educators with a mean of 37.5 years of experience. These individuals listened to all 12 recordings independently and labeled each recording as either “good
quality” or “poor quality. There was a 100% agreement between the music educators that all recordings were either of good quality or poor quality.

Visual Stimuli

The visual stimuli included digital images of both male and female adults whose physical appearance implied that they can be readily classified as either older adults or younger adults. Close-up digital images of an older adult male, an older adult female, a younger adult male, and a younger adult female were generated using a Canon EOS, 40D, SLR digital camera. An F4 lens (70 – 20mm) and a 40 EX Flash unit were also used. A professional photographer shot all photographs used in this study in the same location in a single setting. All older and younger adult models gave written consent to use their likeness in this study before images were generated. The older adult models used in this study possess at least 3 of the 4 physical characteristics associated with advanced age. These characteristics include (1) white or grey hair, (2) wrinkles, (3) sagging skin around the eyes, (4) and decreased skin tone (coloring). An example of these facial characteristics can be seen in Figure 3.3. The images of younger adults exhibited little or no evidence of these physical changes associated with aging. Individuals with remarkable or unusual facial characteristics were not selected for use in this study. A separate group of undergraduates (N = 16) sorted the four digital images used in this study into age categories. All digital images were correctly sorted as either a younger adult (age 20 – 30) or an older adult (age 65 or older). The digital images used in this study are provided in Appendix E.
Figure 3.3 Visible signs of physical characteristics of aging in older adults
Materials

Eight compact discs (CD) were created for use in this study. Each CD contained six examples of solo saxophone performances burned as separate tracks. Each track functioned as one audio-stimulus. All examples were approximately one-minute in length and the order in which the 6 audio stimuli were presented was randomly assigned. CDs one through four contained good quality solo saxophone playing while CDs five through eight featured poor quality solo saxophone playing. Lastly, each CD was then paired with a PowerPoint presentation (described below). A counterbalance design was used in an effort to control for order effects generated by the audio and visual stimuli. This design and the associated CD and PowerPoint pairings are provided in Figure 3.1.

PowerPoint presentations were shown to participants in all treatment cells. Four different PowerPoint presentations were created to counterbalance images of older and younger adults. Two PowerPoint presentations that featured both YA and OA male models were created. One presented the digital image of the OA male first followed by the image of the YA male. The additional PowerPoint presentation showed the digital image of the YA male first followed by the images of the OA male. Similar PowerPoint presentations featuring OA and YA females were also created. The presentations contained the following slides: (a) two slides showing the word “instructions”, (b) two slides that labeled the performances one and two, (c) two slides that featured the first soloist and labeled performances three and four respectively, (d) two slides that featured
the second soloist and labeled performances five and six respectively, (e) two slides showing the words “potential for improvement” (f) one final slide that showed the word “demographics.” PowerPoint presentations were each burned on to CDs and were paired with corresponding audio-stimuli CDs.

**Evaluation Packet**

All of the participants were provided with an evaluation packet that included the seven evaluative statements, the overall rating, a capacity for improvement index, and the 7-point Likert-type scales associated with each of the items. Open-ended response questions concerning the performers’ potential for improvement and a demographic questionnaire were also included. The total packet contained 4 double sided pages. Each performance and its corresponding evaluative statements and Likert-type scales were presented on a single page. Evaluative statements were accompanied by a 7-point Likert-type scale where an anchor of $1 = \text{strongly disagree}$ and an anchor of $7 = \text{strongly agree}$ were used. An additional 7-point Likert-type scale was provided for the overall performance ratings. A rating of $1 = \text{poor}$ and $7 = \text{excellent}$. No other numbers were paired with descriptors. The pages for performances four and six also included items that asked participants to rate the most recently viewed performer’s potential to make musical improvements over the next year on the ICI. A 7-point scale where $1 = \text{little or no improvement}$ and $7 = \text{considerable improvement}$ for use with these was used to make these ICI ratings. A prompt placed below these items directed participants to provide 2 to 3 sentences that explain their reasons for their decisions. The final portion of the packet requested participants’ demographic information. Demographic items included (1)
major, (2) classification, (3) primary instrument/voice, (4) years participating in a performing ensemble on major instrument/voice, (5) years of taking private lessons on major instrument/voice (6) and gender. The evaluation packet is provided in Appendix C.

Procedures

Prior to the administration of any treatments, IRB approval was granted and the approval protocol number 16-0197-P42 was assigned to this investigation. All procedures were explained to participants before the administration of any treatments and participants were reminded that they were free to discontinue their participation in the study at any time. Participants were then randomly assigned to one of the four treatment cells and were provided with individual response packets. Participants in each treatment cell were separated from one another prior to the administration of all conditions and remained separated while completing all portions of the response packets. This separation was accomplished by moving participants assigned to the different treatment cells to different classrooms. One treatment was administered per classroom. The stimuli were presented using high quality audio and audio-visual equipment in all classrooms. Research procedures required approximately 25 minutes to complete. Before data collection began, one faculty member and one doctoral student were trained to assist the researcher with the administration of the items. After the administration of all of the items, the participants at all data collection sites were provided with debriefing forms that explained the nature of the study. The participants then used the forms to indicate that they did or did not grant the researcher permission to use their response and information in the study.
The following instructions were read aloud before the three audio-only examples were presented.

Thank you for your assistance with this study. The purpose of this study is to investigate how people decide what is a good musical performance and what is not (Ryan & Costa-Giomi, 2004). Listen to each performance. You will have 30-seconds to rate the quality the performance by indicating your level of agreement with the seven evaluation statements and by assigning each performance an overall rating. Do not turn the page until you are directed to do so. Please do not talk or share your responses with others during this exercise. This exercise will take approximately 25 minutes. Are there any questions? Turn to the page marked “performance one” and listen to performance.

After the two audio-only examples have been administered a second set of instructions was read aloud.

During the remaining examples, look at the pictured performer and listen to the performance. You will have 30-seconds to rate the quality the performance by indicating your level of agreement with the seven evaluation statements and by assigning each performance an overall rating. You will also answer questions about the soloists’ potential to improve. Do not turn the page until you are directed to do so. Please do not talk or share your responses with others during this exercise. Are there any questions? Turn to the page marked “performance three” and listen to performance while looking at the picture.

Two performances consisting of one visual image of either an older adult or a younger adult soloist were then presented. These performances paired one digital image of a soloist with two audio recordings. After participants responded to the evaluative statements and assigned an overall rating for both of the performances the following instructions were then read aloud.

Consider the two performances you heard. How much improvement, if any, do you believe the performer is capable of making over the next year? Indicate your response on the scale provided where 1 = little or no improvement and 7 = considerable improvement. Please write two to three sentences explaining your decision.

The same sequence of events was repeated for the next two audio-visual presentations.

An image of a single performer was shown while two separate examples of solo
saxophone performances were presented. After these two performances were evaluated, the instructions were repeated (see above) and participants indicated their perceptions of the second performer’s capacity to improve over a one-year period and provided written responses explaining their decisions.

The participants were directed to complete the demographic section of the evaluation packet.

Turn to the final page of your packet. Please answer the demographic questions on the front and back of the page. When you are finished you may place your completed evaluation pack in the box at the front of the room. Are there any questions?

After the participants completed the demographic section, debriefing forms (See Appendix B) were distributed to all participants and the following information was read.

The evaluation packets were collected, labeled by cell number and counterbalance number and placed in an appropriately labeled envelope. The chronological progress of procedural events is shown in Figure 3.4.
Note: Participants evaluated either good or poor quality performances and viewed images of either males or females. All participants viewed images of an older adult and a younger adult. All participants also evaluated audio-only performances that contained no visual information and did not visually imply performer age or gender.

Figure 3.4 Procedural Events
CHAPTER 4

RESULTS

The present study sought to investigate the effect of age, gender, and performance quality level on music majors’ perceptions of the quality of a solo musical performance. The primary research questions addressed in this study were (1) What are the effects of the performer’s implied age (no age implied/older adulthood implied/younger adulthood implied) and performance quality level (good/poor) on college musicians’ ratings of seven performance quality categories (phrasing, dynamics, intonation, expressivity, vibrato, tone quality, rhythmic accuracy) as well as the overall rating for each of the performances? (2) What are the effects of the performer’s implied gender (male/female) and performance level (good/poor) on college musicians’ ratings on seven musical performance quality categories as well as the overall rating for each of the performances? Additionally, a secondary question was: What is the effect of the performer’s implied age on college musicians’ ratings on the improvement capacity of the older adult soloists and the younger adult soloists over one-year period?

Participants

Participants in this study were (N = 124) music majors enrolled at four moderately sized universities in the southern and mid-western parts of the United States. The participants were randomly assigned to one of four treatment groups and a repeated counterbalance design was used to control for order effects of the stimuli (See Figure 3.1). Responses to demographic items (Table 3.1) indicated that 54% were males and 46% were females. Twenty-six percent of the participants were freshman, while 18% were sophomores, 34% were juniors, 18% were seniors, and 4% were second year
seniors. Thirty percent were 18 and 19 years of age while 43% were 20 and 21 years of age. Twenty-one percent were 22 and 23 years of age and 6% were over the age of 24 with only one participant over the age of 25. Responses to the item concerning primary performance area indicated that 82% of the participants were instrumentalists while 18% were vocalists. Ensemble participation in the primary performance area ranged from 0 -3 years to more than 11 years. Seven percent of the participants indicated that they had participated in a performing ensemble for no more than three years while only 13% had participated for 4 to 6 years. Fifty-three percent had participated for 7 to 10 years and 27% had participated in a performing ensemble in their primary performance area for at least 11 years. Participants also indicated the number of years during which they had taken private lessons on their primary instrument or voice. Nine percent of participants indicated that they had taken private lessons in their primary performance area for one year (or less). Twenty-three percent indicated that they had taken these lessons for 2 -3 years while 32% of the participants indicated that they had taken lessons for 4 – 5 years. The remaining 36% indicated that they had taken private lessons in their primary performance area for 6 or more years.
Participants listened to six recordings of solo saxophone performances and responded to seven evaluative statements by using a 7-point Likert-type scale where \( l = \)
strongly disagree and 7 = strongly agree and were asked to assign an overall rating of each performance using a scale where 1 = Poor and 7 = Excellent. Participants also assigned each performer a rating using the Improvement Capacity Index (ICI) to rate each performer’s capacity to improve his or her playing over a one year period. The ICI ratings were assigned by using a 7-point Likert-type scale where 1 = little or no improvement and 7 = considerable improvement. Participants also provided written responses that explained their rationales for the ICI ratings assigned to each soloist.

**Primary Data Analyses**

Data collected in this study were transformed and analyzed using Statistical Package for the Social Sciences (SPSS) (IBM SPSS Version 21.0, 2012). The raw data were first examined to ensure that the assumptions of the repeated-measures analysis (ANOVA) were met and an α = .05 was used to determine the rejection of the null hypothesis in all statistical tests. The raw data were used to compute a mean rating of each performance for each participant. Each participants’ mean ratings of a performance were generated by averaging the ratings assigned to the seven evaluative statements plus the overall rating. This treatment of the data resulted in two scores per implied age condition for each of the 124 participants. A mean rating of each level of the implied age condition (AO/OA/YA) was then generated for each of the participants. A mixed repeated-measures ANOVA was then used to analyze these generated scores. The within-subject variable was implied performer age (AO/OA/YA) and the between-subjects variables were implied performer gender (male/female) and performance quality (good/poor). Cohen’s (1988) benchmark values were used to interpret effect sizes.
Descriptive Statistics

SPSS (21) software was also used to compute means and standard deviations for each level of the independent variables. The means and standard deviations for each of the three levels of the implied age condition across all performance evaluation items are as follows: AO = 3.95 (SD = .95), OA 4.39= (SD =1.62), and YA = 3.89 (SD =1.45). The mean and standard deviation for good quality performances across all performance evaluation items was 5.37 (SD = .68) and the mean and standard deviation for poor quality performances across all performance evaluation items was 2.76 (SD = .73). The mean and standard deviation of all performance evaluation items assigned to male performers was 4.11 (SD = 1.39) and the mean and standard deviation of all performance evaluation items assigned to female performers was 4.02 (SD = 1.57).

The mean ratings of AO, OA, and YA performances were assigned to the good and poor quality performances were computed separately. Good quality performances were consistently rated higher than poor quality performances and most of the performances that contained both audio and visual stimuli were rated higher than AO performances. Good quality performances that featured the YA soloist were an exception to this statement and were rated lower than the good quality AO performances (see Table 4.2). Under the good performance quality condition the AO performances received a mean rating of 5.31 (SD =.81) while the OA performances received a mean rating of 5.77 (SD =.72), and the YA performances received a mean rating of 5.02 (SD =.89). Under the poor performance quality condition the AO performances received a mean rating of 2.58 (SD =.69) while the OA performances received a mean rating of 3.0 (SD =.94), and
the YA performances received a mean rating of 2.72 ($SD = .87$). Means and standard deviations for levels of the implied age condition by quality are listed in Table 2.

Table 4.2

*Means and Standard Deviations for Each Level of Implied Performer Age by Performance Quality*

<table>
<thead>
<tr>
<th>Performance Quality</th>
<th>AO</th>
<th>OA</th>
<th>YA</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>$M$</td>
<td>$SD$</td>
<td>$M$</td>
</tr>
<tr>
<td>Good</td>
<td>5.31</td>
<td>.81</td>
<td>5.77</td>
</tr>
<tr>
<td>Poor</td>
<td>2.58</td>
<td>.69</td>
<td>3.0</td>
</tr>
</tbody>
</table>

*AO = audio only/no age (implied)*  
*OA = older adult (implied)*  
*YA = younger adult (implied)*

Means and standard deviations were computed using ratings assigned to the male soloist and the female soloists in each level of the implied age condition (see Table 4.3). Again, good quality performances were consistently rated higher than poor quality performances and, with the exception of the good quality performance attributed to the male YA soloist, AO performances received lower ratings than performances that contained both audio and visual stimuli. Under the AO condition, the male soloists received a mean rating of 4.03 ($SD = 1.51$) while the female soloists received a mean rating of 3.87 ($SD = 1.62$). The mean rating of the male soloists under the OA condition was 4.44 ($SD = 1.53$) and the mean rating of the female soloist under the OA condition was 4.34 ($SD = 1.72$). Under the YA condition, the male soloists received a mean rating of 3.85 ($SD = 1.18$) while the female soloists received a mean rating of 3.90 ($SD = 1.56$).
Table 4.3

Means and Standard Deviations for Each Level of Implied Performer Age by Implied Performer Gender

<table>
<thead>
<tr>
<th>Performer Gender</th>
<th>AO M</th>
<th>AO SD</th>
<th>OA M</th>
<th>OA SD</th>
<th>YA M</th>
<th>YA SD</th>
</tr>
</thead>
<tbody>
<tr>
<td>Male</td>
<td>4.03</td>
<td>1.51</td>
<td>4.44</td>
<td>1.53</td>
<td>3.85</td>
<td>1.43</td>
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<tr>
<td>Female</td>
<td>3.87</td>
<td>1.62</td>
<td>4.34</td>
<td>1.72</td>
<td>3.90</td>
<td>1.56</td>
</tr>
</tbody>
</table>

Means and standard deviations were also computed separately for ratings assigned to the male soloists and the female soloists under good and poor performance quality conditions (see Table 4.4). Under the good performance quality condition the male soloists received a mean rating of 5.30 (SD = .78) while the female soloists received a mean rating of 5.44 (SD = .58). Under the poor performance quality condition the male soloists received a mean rating of 2.99 (SD = .75) while the female soloists received a mean rating of 2.54 (SD = .65).

Table 4.4

Means and Standard Deviations for Each Level of Implied Performer Gender by Performance Quality

<table>
<thead>
<tr>
<th>Performance Quality</th>
<th>Performer Gender</th>
<th>Male M</th>
<th>Male SD</th>
<th>Female M</th>
<th>Female SD</th>
</tr>
</thead>
<tbody>
<tr>
<td>Good</td>
<td>Male</td>
<td>5.30</td>
<td>.78</td>
<td>5.44</td>
<td>.58</td>
</tr>
<tr>
<td>Poor</td>
<td>Male</td>
<td>2.99</td>
<td>.75</td>
<td>2.54</td>
<td>.65</td>
</tr>
</tbody>
</table>
The means and standard deviations for ratings assigned to the male and the female performers in each level the implied age condition were computed for both good and poor quality performances. Under the good quality condition the male soloists were assigned the following mean ratings: AO = 5.34 (SD = .95), OA = 5.75 (SD = .71), YA = 4.81 (SD = .98) while the female soloists were assigned the following mean ratings: AO = 5.23 (SD = .67), OA = 5.78 (SD = .74), YA = 5.23 (SD = .75). Under the poor quality condition, the male soloists were assigned a mean rating of 2.79 (SD = .63) for AO performances, a mean rating of 3.21 (SD = .96) for OA performances, and a mean rating of 2.96 (SD = .96) for YA performances. Poor quality performances associated with the female soloists received a mean rating of 2.36 (SD = .69) for AO performances, a mean rating of 2.78 (SD = .88) for OA performances, and a mean rating of 2.48 (SD = .71) for YA performances. The means and standard deviations for ratings assigned to the male and the female performers in each level the implied age condition are listed in Table 4.5.

<table>
<thead>
<tr>
<th>Performance Quality</th>
<th>Performer Gender</th>
<th>Performer Age</th>
<th>AO</th>
<th>M</th>
<th>SD</th>
<th>OA</th>
<th>M</th>
<th>SD</th>
<th>YA</th>
<th>M</th>
<th>SD</th>
</tr>
</thead>
<tbody>
<tr>
<td>Good</td>
<td>Male</td>
<td>5.34</td>
<td>.95</td>
<td>5.75</td>
<td>.71</td>
<td>4.81</td>
<td>.98</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Female</td>
<td>5.23</td>
<td>.67</td>
<td>5.78</td>
<td>.74</td>
<td>5.23</td>
<td>.75</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Poor</td>
<td>Male</td>
<td>2.79</td>
<td>.63</td>
<td>3.21</td>
<td>.96</td>
<td>2.96</td>
<td>.96</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Female</td>
<td>2.36</td>
<td>.69</td>
<td>2.78</td>
<td>.88</td>
<td>2.48</td>
<td>.71</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Table 4.5

Means and Standard Deviations for Implied Age Conditions and Implied Gender Conditions by Performance Quality
Interactions

Two statistically significant two-way interactions were found. A significant two-way interaction for implied age condition and performance quality $F(1.9, 227.50) = 2.30, p < .001$ (see Figure 4.1). A medium effects size of partial $\eta^2 = .06$ was found for this interaction. A significant interaction was also found for implied performer gender and performance quality $F(1, 120) = 5.43, p < .05$ (see Figure 4.2). A small effect size of partial $\eta^2 = .04$ was found for this interaction. No significant interaction was found for implied performer age and implied performer gender and no significant three-way interaction was found. Significant two-way interactions and associated effect sizes are shown in Table 4.6.

Table 4.6

*Significant Two-Way Interactions ($\alpha = .05$)*

<table>
<thead>
<tr>
<th>Interaction</th>
<th>$Df$</th>
<th>$F$</th>
<th>partial $\eta^2$</th>
<th>$P$</th>
</tr>
</thead>
<tbody>
<tr>
<td>Age X Performance Quality</td>
<td>1.9, 227.50</td>
<td>8.26</td>
<td>.06</td>
<td>&lt; .001</td>
</tr>
<tr>
<td>Performer Gender X Performance Quality</td>
<td>1, 120</td>
<td>5.43</td>
<td>.04</td>
<td>&lt; .05</td>
</tr>
</tbody>
</table>

*Note.* Because data in the implied age condition violated the assumption of sphericity, a Greenhouse-Geisser correction was applied.
Figure 4.1 Significant Interaction of Implied Age and Performance Quality.

\( a \) AO = audio only/no age (implied)
\( b \) OA = older adult (implied)
\( c \) YA = younger adult (implied)
Figure 4.2 Significant Interaction of Implied Performer Gender and Performance Quality.
Main Effects

A repeated measures ANOVA was used to test the null hypothesis that there would be no statistically significant difference between the mean ratings assigned to each level of the implied age condition (AO/OA/YA). Mean ratings of the levels of the implied age condition were found to be statistically significantly different at \( \alpha = .05 \) and the null hypothesis was rejected. A significant main effect was found for the implied age condition \( F(1.90, 227.50) = 36.46, p < .001 \) with a large effect size partial \( \eta^2 = .23 \).

Maulchy’s test of sphericity indicated that assumptions of sphericity were violated and the Greenhouse-Geisser correction was applied and the degrees of freedom for the implied age variable were adjusted accordingly. The repeated measures ANOVA was also used to test the null hypothesis that the mean ratings of the two levels of the performance quality condition (good/poor) would not be statistically significantly different from one another. Mean ratings of the levels of the performance quality conditions were found to be statistically significantly different at \( \alpha = .05 \) and the null hypothesis was rejected. A statistically significant main effect was found for the performance quality condition \( F(1, 120) = 438.06, p < .001 \) with a large effect size of partial \( \eta^2 = .79 \). The repeated measures ANOVA was also used to test the null hypothesis that the mean ratings of each level of the implied performer gender condition would not be statistically significantly different from one another. Mean ratings of the levels of the implied performer gender condition were not found to be statistically significantly different at \( \alpha = .05 \) resulting in a failure to reject the null hypothesis. As a result, no statistically significant main effect was found for implied performer gender \( F(1,120) = 1.54, p > .05 \). Statistically significant main effects are listed in Table 4.7.
### Table 4.7

**Statistically Significant Main Effects (α = .05)**

<table>
<thead>
<tr>
<th></th>
<th>Df</th>
<th>$F$</th>
<th>partial $\eta^2$</th>
<th>$P$</th>
</tr>
</thead>
<tbody>
<tr>
<td>Performer Age</td>
<td>1.89, 227.50</td>
<td>36.46</td>
<td>.23</td>
<td>&lt;.001</td>
</tr>
<tr>
<td>Performance Quality</td>
<td>1, 120</td>
<td>438.06</td>
<td>.79</td>
<td>&lt;.001</td>
</tr>
</tbody>
</table>

*Note.* Because data in the implied age condition violated the assumption of sphericity, a Greenhouse-Geisser correction was applied.

Mean ratings of the levels of the implied age condition were compared using a *post hoc* Bonferroni procedure. The means and standard deviations for each of the three levels of the implied age condition across all performance evaluation items are as follows: AO = 3.95 ($SD = .95$), OA = 4.39 ($SD = 1.62$), and YA = 3.89 ($SD = 1.45$). The mean ratings of the OA condition were statistically significantly higher than the mean ratings of the AO (p < .001) condition. The mean ratings of the OA condition was also statistically significantly higher than the mean ratings of the YA condition (p < .001). No significant differences between the AO and the YA condition were found. Additionally, an examination of the statistically significantly different mean ratings of the good quality performances, 5.37 ($SD = .68$), and the poor quality performances, 2.76 ($SD = .73$), indicates that the good quality performances were rated statistically significantly higher than the poor quality performances (p < .001).
Evaluation Categories

Means and standard deviations were also computed for each of the seven evaluation statements and the overall rating of the performances (see Table 4.8). The evaluation category of rhythm received the highest mean rating of 4.67 (SD = 1.35) while the evaluation category vibrato received the lowest mean rating of 3.39 (SD = 1.91).

Arranged from highest to lowest, the evaluation categories received the following mean ratings: rhythm = 4.67 (1.35), phrasing = 4.41 (1.37), overall = 4.18 (1.44), expressivity = 4.16 (1.56), tone = 4.06 (1.60), intonation = 3.97 (1.60), dynamics = 3.73 (1.65), vibrato = 3.39 (1.91).

Table 4.8

<table>
<thead>
<tr>
<th>Evaluative Statements</th>
<th>M</th>
<th>SD</th>
</tr>
</thead>
<tbody>
<tr>
<td>Rhythm</td>
<td>4.67</td>
<td>1.35</td>
</tr>
<tr>
<td>Phrasing</td>
<td>4.41</td>
<td>1.37</td>
</tr>
<tr>
<td>Overall</td>
<td>4.18</td>
<td>1.44</td>
</tr>
<tr>
<td>Expressivity</td>
<td>4.16</td>
<td>1.56</td>
</tr>
<tr>
<td>Tone</td>
<td>4.06</td>
<td>1.60</td>
</tr>
<tr>
<td>Intonation</td>
<td>3.97</td>
<td>1.60</td>
</tr>
<tr>
<td>Dynamics</td>
<td>3.73</td>
<td>1.65</td>
</tr>
<tr>
<td>Vibrato</td>
<td>3.39</td>
<td>1.91</td>
</tr>
</tbody>
</table>

Evaluation Categories by Implied Age Condition. Ratings assigned to each of the evaluation categories and the overall rating were examined by implied age condition. Means and standard deviations of each of the seven evaluation categories and the overall
rating were generated using ratings assigned in the AO condition, the OA condition, and the YA condition respectively. The highest mean score was found in the OA condition in \( \text{rhythm} = 4.91 \) (\( SD = 1.43 \)). The lowest mean score was found in the YA condition in \( \text{vibrato} = 3.17 \) (\( SD = 1.90 \)). Additionally, the OA condition received the highest mean rating in all of the seven evaluation categories and the overall rating. When the implied age conditions are considered separately, the following order of evaluation categories from highest to lowest occurred in the AO condition: \( \text{rhythm} = 4.67 \) (\( SD = 1.56 \)), \( \text{phrasing} = 4.29 \) (\( SD = 1.51 \)), \( \text{overall} = 4.02 \) (\( SD = 1.56 \)), \( \text{expressivity} = 3.98 \) (\( SD = 1.75 \)), \( \text{tone} = 3.90 \) (\( SD = 1.73 \)), \( \text{intonation} = 3.84 \) (\( SD = 1.74 \)), \( \text{dynamics} = 3.51 \) (\( SD = 1.66 \)), \( \text{vibrato} = 3.35 \) (\( SD = 1.98 \)). Arranged from highest to lowest, the evaluation categories received the following mean ratings in the OA condition: \( \text{rhythm} = 4.91 \) (\( SD = 1.43 \)), \( \text{phrasing} = 4.73 \) (\( SD = 1.51 \)), \( \text{intonation} = 4.60 \) (\( SD = 1.73 \)), \( \text{overall} = 4.51 \) (\( SD = 1.56 \)), \( \text{tone} = 4.35 \) (\( SD = 1.80 \)), \( \text{expressivity} = 4.24 \) (\( SD = 1.78 \)), \( \text{dynamics} = 4.13 \) (\( SD = 1.91 \)), \( \text{vibrato} = 3.64 \) (\( SD = 2.13 \)). Arranged from highest to lowest, the evaluation categories received the following mean ratings in the YA condition: \( \text{rhythm} = 4.41 \) (\( SD = 1.41 \)), \( \text{phrasing} = 4.22 \) (\( SD = 1.42 \)), \( \text{overall} = 4.00 \) (\( SD = 1.43 \)), \( \text{tone} = 3.92 \) (\( SD = 1.64 \)), \( \text{expressivity} = 3.90 \) (\( SD = 1.53 \)), \( \text{intonation} = 3.83 \) (\( SD = 1.58 \)), \( \text{dynamics} = 3.54 \) (\( SD = 1.70 \)), \( \text{vibrato} = 3.17 \) (\( SD = 1.90 \)). Means and standard deviations of each category are ranked from highest to lowest and listed by implied age condition in Figure 4.3.
<table>
<thead>
<tr>
<th>Evaluative Statements</th>
<th>AO</th>
<th>Evalative Statements</th>
<th>OA</th>
<th>Evalative Statements</th>
<th>YA</th>
</tr>
</thead>
<tbody>
<tr>
<td>Rhythm</td>
<td>4.67 (1.56)</td>
<td>Rhythm</td>
<td>4.91 (1.43)</td>
<td>Rhythm</td>
<td>4.41 (1.41)</td>
</tr>
<tr>
<td>Phrasing</td>
<td>4.29 (1.51)</td>
<td>Phrasing</td>
<td>4.73 (1.51)</td>
<td>Phrasing</td>
<td>4.22 (1.42)</td>
</tr>
<tr>
<td>Overall</td>
<td>4.02 (1.56)</td>
<td>Intonation</td>
<td>4.60 (1.73)</td>
<td>Overall</td>
<td>4.00 (1.43)</td>
</tr>
<tr>
<td>Expressivity</td>
<td>3.98 (1.75)</td>
<td>Overall</td>
<td>4.51 (1.56)</td>
<td>Tone</td>
<td>3.92 (1.64)</td>
</tr>
<tr>
<td>Tone</td>
<td>3.90 (1.73)</td>
<td>Tone</td>
<td>4.35 (1.80)</td>
<td>Expressivity</td>
<td>3.90 (1.53)</td>
</tr>
<tr>
<td>Intonation</td>
<td>3.84 (1.74)</td>
<td>Expressivity</td>
<td>4.24 (1.78)</td>
<td>Intonation</td>
<td>3.83 (1.58)</td>
</tr>
<tr>
<td>Dynamics</td>
<td>3.51 (1.66)</td>
<td>Dynamics</td>
<td>4.13 (1.91)</td>
<td>Dynamics</td>
<td>3.54 (1.70)</td>
</tr>
<tr>
<td>Vibrato</td>
<td>3.35 (1.98)</td>
<td>Vibrato</td>
<td>3.64 (2.13)</td>
<td>Vibrato</td>
<td>3.17 (1.90)</td>
</tr>
</tbody>
</table>

*a AO = audio only/no age (implied)  
*b OA = older adult (implied)  
*c YA = younger adult (implied)  

Note: Ratings assigned to the OA condition were significantly higher than ratings assigned to the AO condition or the YA condition in all evaluative statements and the overall rating. Ratings assigned to the AO condition were not significantly different from
Evaluation Categories by Performance Quality. Means and standard deviations for each evaluative statement and the overall rating were also computed separately for both good quality performances and poor quality performances. Good quality performances were rated significantly higher ($p < .001$) higher than poor quality performances in all evaluative categories and in the overall rating. When good quality performances were examined, rhythm was assigned the highest average rating of 5.67 (.77) while the evaluative statement concerning vibrato received the lowest average rating of 5.13 (.90). Arranged from highest to lowest, the evaluation categories received the following mean ratings for good quality performances: rhythm = 5.67 (.77), expressivity = 5.41 (.82), overall = 5.38 (.71), tone = 5.38 (.85), intonation = 5.30 (.82), phrasing = 5.23 (.67), dynamics = 5.17 (.74), vibrato = 5.13 (.90). When ratings of the poor quality performances were examined, tone receiving the highest average rating of 3.74 (.97) and vibrato receiving the lowest average rating of 1.65 (.65). Arranged from highest to lowest, the evaluation categories received the following mean ratings for poor quality performances: tone = 3.74 (.97), rhythm = 3.66 (.101), phrasing = 3.30 (.89), overall = 2.98 (.86), expressivity = 2.91 (1.01), intonation = 2.64 (.94), dynamics = 2.28 (.85), vibrato = 1.65 (.65). Means and standard deviations computed for each of the seven evaluative statements and the overall rating are listed by performance quality in Table 4.9.
Table 4.9

*Ranking of Mean Ratings and Standard Deviations for Evaluation Statements of Good and Poor Quality Performances*

<table>
<thead>
<tr>
<th>Evaluative Statements</th>
<th>Good Quality</th>
<th>Poor Quality</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>M</td>
<td>SD</td>
</tr>
<tr>
<td>Rhythm</td>
<td>5.67</td>
<td>.77</td>
</tr>
<tr>
<td>Expressivity</td>
<td>5.41</td>
<td>.82</td>
</tr>
<tr>
<td>Overall</td>
<td>5.38</td>
<td>.71</td>
</tr>
<tr>
<td>Tone</td>
<td>5.38</td>
<td>.85</td>
</tr>
<tr>
<td>Intonation</td>
<td>5.30</td>
<td>.82</td>
</tr>
<tr>
<td>Phrasing</td>
<td>5.23</td>
<td>.67</td>
</tr>
<tr>
<td>Dynamics</td>
<td>5.17</td>
<td>.74</td>
</tr>
<tr>
<td>Vibrato</td>
<td>5.13</td>
<td>.90</td>
</tr>
</tbody>
</table>

*Evaluation Categories by Gender.* Means and standard deviations for each evaluative statements and the *overall* rating were also computed for each level of the implied performer gender condition (male/female). With the exception of the evaluation category expressivity, the male soloists received somewhat higher ratings than the female soloists. An examination of the ratings assigned to performances that featured the male soloists indicated that *rhythm* received the highest average rating of 4.77 (1.27) while *vibrato* received the lowest average rating of 3.40 (1.83). Arranged from highest to lowest the evaluation categories received the following mean ratings for the male soloists: *rhythm* = 4.77 (1.27), *phrasing* = 4.42 (1.26), *overall* = 4.21 (1.35), *tone* = 4.15 (1.57), *expressivity* = 4.13 (1.47), *intonation* = 4.01 (1.55), *dynamics* = 3.76 (1.50), *vibrato* = 3.40 (1.83). An examination of the ratings assigned to performances that featured the female soloists indicated that *rhythm* received the highest average rating of
4.56 (1.42) and vibrato received the lowest average rating of 3.37 (2.01). Arranged from highest to lowest, the evaluation categories received the following mean ratings for the female soloists: rhythm = 3.37 (2.01), phrasing = 4.41 (1.58), expressivity = 4.18 (1.65), overall = 4.16 (1.53), intonation = 3.93 (1.66), tone = 3.91 (1.65), dynamics = 3.70 (1.80), vibrato = 3.37 (2.01). Means and standard deviations for the male and female soloists are listed in Table 4.10.

Table 4.10

<table>
<thead>
<tr>
<th>Evaluative Statements</th>
<th>Males</th>
<th></th>
<th>Females</th>
</tr>
</thead>
<tbody>
<tr>
<td>M</td>
<td>SD</td>
<td></td>
<td>M</td>
</tr>
<tr>
<td>Rhythm</td>
<td>4.77</td>
<td>1.27</td>
<td>Rhythm</td>
</tr>
<tr>
<td>Phrasing</td>
<td>4.42</td>
<td>1.26</td>
<td>Phrasing</td>
</tr>
<tr>
<td>Overall</td>
<td>4.21</td>
<td>1.35</td>
<td>Expressivity</td>
</tr>
<tr>
<td>Tone</td>
<td>4.15</td>
<td>1.57</td>
<td>Overall</td>
</tr>
<tr>
<td>Expressivity</td>
<td>4.13</td>
<td>1.47</td>
<td>Intonation</td>
</tr>
<tr>
<td>Intonation</td>
<td>4.01</td>
<td>1.55</td>
<td>Tone</td>
</tr>
<tr>
<td>Dynamics</td>
<td>3.76</td>
<td>1.50</td>
<td>Dynamics</td>
</tr>
<tr>
<td>Vibrato</td>
<td>3.40</td>
<td>1.83</td>
<td>Vibrato</td>
</tr>
</tbody>
</table>

**Evaluation Categories by Implied Age Condition and Performance Quality.**

Ratings of both the good quality performances and the poor quality performances were examined at each of three levels of the implied age condition (AO/OA/YA). Means and standard deviations were computed for each evaluative category and the overall rating. When ratings of good quality performances were examined, the OA condition received the highest mean rating in all evaluative categories as well as in the overall rating while
the YA condition received the lowest mean rating in all evaluative categories as well as in the overall rating. The means and standard deviations for ratings of good quality performances in the AO, OA, and YA conditions are listed in Table 4.11. Figure 4.4 shows the ratings assigned to each evaluative statement and the overall rating in good quality performances for AO, OA, and YA conditions. When the mean ratings of the poor quality performances were examined, the OA condition received the highest mean rating in all evaluative categories and in the overall rating. With the exception of the evaluation category of rhythm, the YA condition received higher mean ratings than that AO condition. The means and standard deviations for ratings poor quality performances in the AO, OA, and YA conditions are listed in Table 4.12. Figure 4.5 shows the ratings assigned to each evaluative statement and the overall rating in poor quality performances.

Table 4.11

*Mean Ratings and Standard Deviations for Evaluation Statements of Good Quality Performances by Implied Age Condition*

<table>
<thead>
<tr>
<th>Evaluative Statements</th>
<th>Good Quality Performances</th>
<th>AO</th>
<th>OA</th>
<th>YA</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Phrasing</td>
<td></td>
<td>5.47</td>
<td>.88</td>
<td>5.90</td>
</tr>
<tr>
<td>Dynamics</td>
<td></td>
<td>5.80</td>
<td>1.05</td>
<td>5.84</td>
</tr>
<tr>
<td>Intonation</td>
<td></td>
<td>5.29</td>
<td>.91</td>
<td>5.68</td>
</tr>
<tr>
<td>Expressivity</td>
<td></td>
<td>5.33</td>
<td>1.15</td>
<td>5.90</td>
</tr>
<tr>
<td>Vibrato</td>
<td></td>
<td>5.10</td>
<td>1.17</td>
<td>5.50</td>
</tr>
<tr>
<td>Tone</td>
<td></td>
<td>5.31</td>
<td>1.01</td>
<td>5.81</td>
</tr>
<tr>
<td>Rhythm</td>
<td></td>
<td>5.79</td>
<td>.92</td>
<td>5.88</td>
</tr>
<tr>
<td>Overall</td>
<td></td>
<td>5.32</td>
<td>.86</td>
<td>5.79</td>
</tr>
</tbody>
</table>

* AO = audio only/no age (implied)
* OA = older adult (implied)
* YA = younger adult (implied)
Figure 4.4 Mean Ratings of Good Quality Performances by Implied Age Condition
Table 4.12

*Mean Ratings and Standard Deviations for Evaluation Statements of Poor Quality Performances by Implied Age Condition*

<table>
<thead>
<tr>
<th>Evaluative Statements</th>
<th>Poor Quality Performances</th>
<th></th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>AO</td>
<td>OA</td>
<td>YA</td>
<td></td>
</tr>
<tr>
<td>Phrasing</td>
<td>3.11</td>
<td>1.02</td>
<td>3.56</td>
<td>1.12</td>
</tr>
<tr>
<td>Dynamics</td>
<td>2.13</td>
<td>1.77</td>
<td>2.52</td>
<td>1.11</td>
</tr>
<tr>
<td>Intonation</td>
<td>2.39</td>
<td>0.96</td>
<td>2.81</td>
<td>1.70</td>
</tr>
<tr>
<td>Expressivity</td>
<td>2.62</td>
<td>1.05</td>
<td>3.30</td>
<td>1.36</td>
</tr>
<tr>
<td>Vibrato</td>
<td>1.60</td>
<td>0.61</td>
<td>1.78</td>
<td>0.97</td>
</tr>
<tr>
<td>Tone</td>
<td>2.49</td>
<td>1.01</td>
<td>2.89</td>
<td>1.16</td>
</tr>
<tr>
<td>Rhythm</td>
<td>3.59</td>
<td>1.26</td>
<td>3.94</td>
<td>1.22</td>
</tr>
<tr>
<td>Overall</td>
<td>2.73</td>
<td>0.85</td>
<td>3.23</td>
<td>1.10</td>
</tr>
</tbody>
</table>

*a AO = audio only/no age (implied)

*b OA = older adult (implied)

*c YA = younger adult (implied)*
Figure 4.5 Mean Ratings of Poor Quality Performances by Implied Age Condition
Evaluation Categories by Implied Performer Gender and Performance

Quality. Ratings of the good quality performances and the poor quality performances were examined for the male soloists and the female soloists. Means and standard deviations were computed for each evaluative category and the overall rating. When ratings of good quality performances were examined, mean ratings assigned to the female soloists were higher than mean ratings assigned to the male soloists in the evaluation categories of phrasing, dynamics, intonation, expressivity, vibrato, and the overall rating. Mean ratings assigned to the male soloist were higher for the evaluation categories of tone, and rhythm. When poor quality performances were examined by gender, mean ratings assigned to the male soloists were higher than mean ratings assigned to female soloists in all evaluative categories and the overall rating. Means and standard deviations assigned to the male soloists and the female soloists in good and poor performance quality conditions are listed in Table 4.13.
Table 4.13

<table>
<thead>
<tr>
<th>Evaluative Statements</th>
<th>Good Quality Performances</th>
<th>Poor Quality Performances</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Male</td>
<td>Female</td>
</tr>
<tr>
<td>Phrasing</td>
<td>5.42</td>
<td>.78</td>
</tr>
<tr>
<td>Dynamics</td>
<td>5.02</td>
<td>.83</td>
</tr>
<tr>
<td>Intonation</td>
<td>5.23</td>
<td>.95</td>
</tr>
<tr>
<td>Expressivity</td>
<td>5.28</td>
<td>.87</td>
</tr>
<tr>
<td>Vibrato</td>
<td>5.08</td>
<td>.97</td>
</tr>
<tr>
<td>Tone</td>
<td>5.38</td>
<td>.98</td>
</tr>
<tr>
<td>Rhythm</td>
<td>5.70</td>
<td>.83</td>
</tr>
<tr>
<td>Overall</td>
<td>5.29</td>
<td>.83</td>
</tr>
</tbody>
</table>

Mean Ratings and Standard Deviations for Evaluation Statements by Implied Performer Gender and Performance Quality.

**Improvement Capacity Index**

To answer the secondary research question concerning soloists’ potential for musical improvement, a dependent *t*-test was used to determine differences between Improvement Capacity Index (ICI) scores assigned to the OA soloists and the YA soloists. Statistically significant differences *t*(123) = 4.41, *p* < .001 were found between ICI scores assigned to the OA performers and the YA performers at *α* = .05. A small effect size *d* = .33 was observed (Cohen, 1988). Possible ICI scores ranged from *I* = *little or no improvement* to *7 = considerable improvement*. The OA soloists received a mean ICI rating of 4.86 (*SD* =1.45) and the YA soloists received a significantly higher mean ICI rating of 5.32 (*SD* =1.32). The ICI scores were also compared in good and poor performance quality levels. In both good and poor performance quality conditions, the YA soloists received higher ICI ratings than the OA soloists. Means and standard
deviations of ICI total ratings of the OA and the YA soloists and ICI ratings of the OA and the YA soloists in the good quality performance condition and the poor quality performance condition are listed in Table 4.14.

Table 4.14

Improvement Capacity (ICI) Rating Means and Standard Deviations

<table>
<thead>
<tr>
<th>Quality</th>
<th>OA</th>
<th>YA</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>M</td>
<td>SD</td>
</tr>
<tr>
<td>Good</td>
<td>4.50</td>
<td>1.56</td>
</tr>
<tr>
<td>Poor</td>
<td>5.23</td>
<td>1.29</td>
</tr>
<tr>
<td>Combined good and poor</td>
<td>4.86</td>
<td>1.45</td>
</tr>
</tbody>
</table>

*OA = older adult (implied)
YA = younger adult (implied)

Note: ICI ratings were assigned using a 7-point scale were 1 = little or no improvement and 7 = considerable improvement.

Participants provided their rationales for the ICI scores that they assigned to each performer through written responses. During the research procedures, the participants wrote these rationale statements immediately after assigning a performer an ICI score. The prompt “In the space below, use two or three sentences to describe the reasons for your decision” was used to elicit their written responses. Participants’ rationale statements were then coded by the researcher. Open coding of all rationale statements resulted in the creation of 14 categories: (a) age, (b) general quality, (c) tone, (d) intonation, (e) vibrato, (f) prescriptive suggestions, (g) musicality, (h) rhythm, (i)
technique, (j) everyone can improve, (k) the soloist’s improvement (l) evidence of prior musical skill development, (m) room to improve. The frequency with which categories were mentioned in ICI rationales and the nature of these comments (positive, negative, or neutral) is shown in Table 4.15.

Table 15

*Frequency of Positive, Negative, and Neutral ICI Rationale Statements by Category*

<table>
<thead>
<tr>
<th>Category</th>
<th>Positive</th>
<th>Negative</th>
<th>Neutral</th>
<th>Total</th>
</tr>
</thead>
<tbody>
<tr>
<td>Age</td>
<td>6</td>
<td>11</td>
<td>1</td>
<td>18</td>
</tr>
<tr>
<td>General Quality</td>
<td>19</td>
<td>17</td>
<td>0</td>
<td>36</td>
</tr>
<tr>
<td>Tone</td>
<td>14</td>
<td>60</td>
<td>2</td>
<td>76</td>
</tr>
<tr>
<td>Intonation</td>
<td>7</td>
<td>55</td>
<td>0</td>
<td>62</td>
</tr>
<tr>
<td>Vibrato</td>
<td>2</td>
<td>27</td>
<td>0</td>
<td>29</td>
</tr>
<tr>
<td>Prescriptive Suggestion</td>
<td>1</td>
<td>2</td>
<td>35</td>
<td>38</td>
</tr>
<tr>
<td>Musicality</td>
<td>12</td>
<td>69</td>
<td>0</td>
<td>81</td>
</tr>
<tr>
<td>Rhythm</td>
<td>4</td>
<td>22</td>
<td>0</td>
<td>26</td>
</tr>
<tr>
<td>Technique</td>
<td>4</td>
<td>10</td>
<td>1</td>
<td>15</td>
</tr>
<tr>
<td>Everyone Can Improve</td>
<td>26</td>
<td>6</td>
<td>4</td>
<td>36</td>
</tr>
<tr>
<td>Anticipated Improvement</td>
<td>60</td>
<td>11</td>
<td>1</td>
<td>72</td>
</tr>
<tr>
<td>Evidence of Prior Musical Skill Development</td>
<td>44</td>
<td>5</td>
<td>0</td>
<td>49</td>
</tr>
<tr>
<td>Room to Improve</td>
<td>4</td>
<td>2</td>
<td>3</td>
<td>9</td>
</tr>
<tr>
<td>Total</td>
<td>203</td>
<td>293</td>
<td>47</td>
<td>543</td>
</tr>
</tbody>
</table>
The participants’ rationale comments were also grouped by the implied age of the performer. The participants were more likely to make negative comments about the YA soloists than the OA soloists. Frequencies of positive and negative comments for the OA soloists and the YA soloists are listed in Table 4.16.

<table>
<thead>
<tr>
<th></th>
<th>Positive Comments</th>
<th>Negative Comments</th>
<th>Total Comments</th>
</tr>
</thead>
<tbody>
<tr>
<td>OA Soloists</td>
<td>119</td>
<td>131</td>
<td>250</td>
</tr>
<tr>
<td>YA Soloists</td>
<td>86</td>
<td>160</td>
<td>246</td>
</tr>
<tr>
<td>Total</td>
<td>205</td>
<td>291</td>
<td>496</td>
</tr>
</tbody>
</table>

The total number of positive comments made concerning soloists associated with good quality performance was 112 while the number of positive comments made about soloists associated with poor quality performances was 93. The total number of negative comments made concerning soloists associated with good quality performances was 151 while the number of negative comments made concerning soloists associated with poor quality performances was 140. The frequency with which these comments were made by the OA soloists and the YA soloists associated with good and poor quality performances is listed in Table 4.17. The positive and negative comments were also examined by performance quality levels (good/poor) associated with the OA soloists and the YA soloists. The frequencies of positive and negative comments for the OA and YA soloists by performance quality are listed in Table 4.18.
Table 4.17

*Frequency of Positive and Negative Comments for Good and Poor Quality Performances*

<table>
<thead>
<tr>
<th>Quality</th>
<th>Positive</th>
<th>Negative</th>
<th>Total</th>
</tr>
</thead>
<tbody>
<tr>
<td>Good</td>
<td>112</td>
<td>151</td>
<td>263</td>
</tr>
<tr>
<td>Poor</td>
<td>93</td>
<td>140</td>
<td>233</td>
</tr>
<tr>
<td>Total</td>
<td>205</td>
<td>291</td>
<td>496</td>
</tr>
</tbody>
</table>

Table 4.18

*Frequency of Positive and Negative Comments by Performance Quality and Implied Performer Age*

<table>
<thead>
<tr>
<th>Quality</th>
<th>Positive Comments</th>
<th>Negative Comments</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>OA</td>
<td>YA</td>
</tr>
<tr>
<td>Good</td>
<td>68</td>
<td>45</td>
</tr>
<tr>
<td>Poor</td>
<td>51</td>
<td>41</td>
</tr>
</tbody>
</table>

\(^a\) OA = older adult (implied)
\(^b\) YA = younger adult (implied)

Comments listed in each of the 14 categories were compared to the question asked in the open ended response items and the most salient categories were selected. The categories deemed most pertinent by the researcher included: (a) *general quality*, (b) *anticipated improvement* (c) *age*, and (d) *evidence of prior musical skill development*. These categories demonstrated the participants’ overarching perceptions of the performances, the improvement the participants anticipated from the soloists, the influence of the soloists’ ages on participants’ expectations of improvement, and the
assumption of prior learning or musical skill acquisition demonstrated by the soloists. The frequencies of positive, negative, and neutral comments were examined by age in the four selected categories. Participants addressed the quality of the performance through 36 comments about the general quality of the performance. Fourteen positive comments and six negative comments were made about the OA soloists in this category. The YA soloists received five positive comments and 11 negative comments about the general quality of the performance. Participants made 72 comments that directly addressed a soloist’s ability to improve. Twenty-eight positive comments were made about the OA soloists’ potential to improve while nine negative comments were made about the OA soloists’ potential to improve. The YA soloists received 31 positive comments about potential improvement and 3 negative comments about potential improvement. Participants also made 18 comments that addressed the age of the performer. Forty-four comments indicated that the participants observed prior musical skill development in several of the performances. Of these comments, one positive comment and nine negative comments concerned the OA soloists. Six positive age related comments were also made the YA soloists and two negative age related comments were made about the YA performer. Participants indicated that they saw musical skill development in several of the performances. The OA soloists received 25 positive comments and three negative comment about their prior learning while the YA soloists received 19 positive comments and two negative comment in this category. Frequencies of both positive and negative comments made about the OA soloists and the YA soloists in these selected categories are listed in Table 4.19. Examples of positive participant comments associated with the four selected categories are presented in Table 4.20 and examples of negative participant
comments associated with the four selected categories are presented in Table 4.21.

Examples of comments made about the OA and YA soloists were taken from good and poor performances. Comments concerning male and female soloists were also included.

Table 4.19

Frequencies of Positive and Negative Comments Concerning the OA Soloists and the YA Soloists in Selected Categories

<table>
<thead>
<tr>
<th>Category</th>
<th>Positive Comments</th>
<th>Negative Comments</th>
<th>Total Comments</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>OA</td>
<td>YA</td>
<td>OA</td>
</tr>
<tr>
<td>General Quality</td>
<td>14</td>
<td>5</td>
<td>6</td>
</tr>
<tr>
<td>The soloist’s improvement</td>
<td>28</td>
<td>31</td>
<td>9</td>
</tr>
<tr>
<td>Age</td>
<td>1</td>
<td>6</td>
<td>9</td>
</tr>
<tr>
<td>Evidence of Prior Musical Skill</td>
<td>25</td>
<td>14</td>
<td>3</td>
</tr>
<tr>
<td>Development</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

a OA = older adult (implied)
b YA = younger adult (implied)
<table>
<thead>
<tr>
<th>Category</th>
<th>OA Soloists</th>
<th>YA Soloists</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>General Quality</strong></td>
<td>“Que bella! This player is already great and needs little improvement.”</td>
<td>“The performer did a decent job”</td>
</tr>
<tr>
<td></td>
<td>“Overall, the performance had a lot of good musical aspects.”</td>
<td>“The performer did well.”</td>
</tr>
<tr>
<td></td>
<td>“Both performances seemed very mature and well played”</td>
<td>“The musician played well at times”</td>
</tr>
<tr>
<td>The Soloist’s</td>
<td>“I heard a few hints of good things happening – not enough to say for sure if</td>
<td>“I definitely heard a lot of potential from the performer so I believe she could make considerable improvements in the next year.”</td>
</tr>
<tr>
<td>Improvement</td>
<td>there will be considerable improvement but enough that I can’t that there won’t be any”</td>
<td></td>
</tr>
<tr>
<td></td>
<td>“She seems like she could improve with time if she wanted to.”</td>
<td>“This performer could improve tremendously in 5 minutes with the right teacher.”</td>
</tr>
<tr>
<td></td>
<td>“The performer could greatly improve over the next year because she is already developing strong basics.”</td>
<td>“All the things that weren’t so good are fixable. He just needs to realize they aren’t good and have a method of working on them”</td>
</tr>
<tr>
<td>Age</td>
<td>“Her age does not matter, I believe”</td>
<td>“He looks young and sounds like he has a good foundation to build on.”</td>
</tr>
<tr>
<td></td>
<td></td>
<td>“Age is always a factor in improvement. Based on his age and current ability he is more likely to succeed than the other [older] performer.”</td>
</tr>
<tr>
<td>Evidence</td>
<td>“The musician has played for a long time. This is why he has mastered his</td>
<td>“The player has a good basis of sound and musicality. She can take her playing to the next level.”</td>
</tr>
<tr>
<td>of Prior Learning</td>
<td>instrument.”</td>
<td></td>
</tr>
<tr>
<td></td>
<td>“I feel like the performer already has an understanding of the instrument”.</td>
<td>“She is already playing at a high level and could use more difficult music.”</td>
</tr>
</tbody>
</table>
Table 4.21

Negative Participant Comments Concerning the Selected Categories

<table>
<thead>
<tr>
<th>Category</th>
<th>OA Soloist</th>
<th>YA Soloist</th>
</tr>
</thead>
<tbody>
<tr>
<td>General Quality</td>
<td>“The performance lacked in all areas.”</td>
<td>“The performance was not good. There are many areas that need to be fixed.”</td>
</tr>
<tr>
<td></td>
<td>“The performer seemed to be struggling to get through the piece.”</td>
<td>“Even on things he does well, he is not consistent at executing them.”</td>
</tr>
<tr>
<td></td>
<td>“The performer lacks skills that are fundamental to musicians.”</td>
<td>“I personally did not enjoy his performance.”</td>
</tr>
<tr>
<td>The Soloist’s Improvement/Age</td>
<td>“Old dogs can learn new tricks, but not easily.”</td>
<td>“She is already older than most beginners. “If she started in beginning band and hasn’t gotten any better than she probably isn’t going to”</td>
</tr>
<tr>
<td></td>
<td>“Improvement could happen but probably not much considering the age of the performer.”</td>
<td></td>
</tr>
<tr>
<td></td>
<td>“With focus on breath and embouchure you could fix your issues – if you live that long.”</td>
<td>“The performer appears young and has considerably difficulty closing out phrases. She needs to work on musicality if she want to improve.”</td>
</tr>
<tr>
<td></td>
<td>“I don’t think he could improve a lot because of his age”</td>
<td></td>
</tr>
<tr>
<td>Evidence of Prior Musical Skill Development</td>
<td>“The student has not put in the requisite time to improve.”</td>
<td>“She obviously hasn’t practiced enough.”</td>
</tr>
<tr>
<td></td>
<td>“The performer has quite a few bad habits, like biting the mouthpiece and not trying to play in tune”</td>
<td>“The performer seems to play fairly well but still really needs to polish his abilities.”</td>
</tr>
<tr>
<td></td>
<td>“Looks older, has probably reached the peak of his abilities.”</td>
<td></td>
</tr>
</tbody>
</table>
Summary of Results

The raw data were used to compute each participant’s mean rating of the AO presentations, the presentations that featured the OA soloists, and the presentations that featured the YA soloists. Individual means were then used in a mixed repeated-measures ANOVA. A significant two-way interaction for implied age condition and performance quality $F(1.9, 227.50) = 2.30, p < .001$ (see Figure 5). A medium effects size of partial $\eta^2 = .06$ was found for this interaction. An examination of mean ratings assigned to the different levels of the implied age condition showed that the OA soloists were rated higher than the YA soloists and the AO performances in both good and poor performance quality conditions. The YA soloists were rated higher than the AO condition during poor quality performances. However, the YA soloists were rated lower than the AO condition during good quality performances. A significant interaction was also found for implied performer gender and performance quality $F(1, 120) = 5.43, p < .05$ and small effect size of partial $\eta^2 = .04$ was found for this interaction. The male soloists were rated higher than the female soloists during the poor quality performances while the female soloists were rated higher than the male soloists during the good quality performances. No significant interaction was found for implied performer age and implied performer gender and no significant three-way interaction was found. A statistically significant main effect was found for the implied age condition $F(1.90, 227.50) = 36.46, p < .001$ with a large effect size partial $\eta^2 = .23$. The OA soloists were rated higher than the YA soloists and the AO condition. The ratings assigned to the YA soloists were not statistically significantly different from the ratings assigned to the OA condition. A statistically significant main effect was found for the performance quality condition $F(1, 120) =
An examination of means for each performance quality condition indicates that good quality performances were rated higher than poor quality performances.

Ratings assigned to each of the evaluation categories and the overall rating were examined by implied age condition. The OA soloists received the highest mean rating in all of the seven evaluation categories and the overall rating. When the ratings of good and poor performances were considered separately, the ratings assigned to the OA soloists were higher than ratings assigned to the YA soloists and the OA condition during both good and poor quality performances. Means and standard deviations for each evaluative statement and the overall rating were also computed separately for both good quality performances and poor quality performances. Good quality performances were rated higher than poor quality performances in all evaluative categories and in the overall rating. Also, Means and standard deviations for each of the evaluative statements and the overall rating were also computed for each level of the implied performer gender condition (male/female). With the exception of the evaluation category expressivity, the male soloists received somewhat higher ratings than the female soloists. Ratings of the good quality performances and the poor quality performances were examined for both the male soloists and the female soloists. During good quality performances, the ratings assigned to the female soloists were higher than mean ratings assigned to the male soloists in the evaluation categories of phrasing, dynamics, intonation, expressivity, vibrato, and the overall rating while the ratings assigned to the male soloist were higher for the evaluation categories of tone, and rhythm. However, when poor quality performances were examined by gender, the ratings assigned to the male soloists were
higher than ratings assigned to the female soloists in all evaluative categories as well as the overall rating.

Statistically significant differences $t(123) = 4.41, p < .001, 2$ were also found between ICI ratings assigned to the OA soloists and the YA soloists. The ICI ratings assigned to the YA soloists were higher than the ICI ratings assigned to the OA soloists. When ICI ratings assigned to soloists associated with good and poor quality performances were considered separately, the YA soloists received higher ICI ratings than the OA soloists for both good quality and poor quality performances. Additionally, the participants’ written explanations for their ICI ratings of the OA soloists indicated negative attitudes toward the OA soloists’ abilities to improve musically over a one-year period.

Comparison of Results with the Pilot Study

The results of the current study are consistent with the pilot study results reported in Appendix F (Harrington, 2016). Statistically significant interactions were found in the pilot study between implied performer age and performance quality and between implied performer gender and performance quality. The current study also found statistically significant interactions between implied performer age and performance quality and between implied performer gender and performance quality. No statistically significant three-way interactions were found in either study. The statistically significant main effects observed in the pilot study for implied performer age and performance quality level were also observed in the present study. The results of both the pilot study and the
current study did not find a statistically significant main effect for implied performer gender. Additionally, examinations of mean ratings for each level of the implied age condition showed that the OA soloists were rated more favorably than both the YA soloists and the AO presentations in both the pilot study and in the current study. Both the studies also found that the mean ratings of good quality performances were statistically significantly higher than the mean ratings of poor quality performances. Overall, the results from both studies suggest similar trends.
CHAPTER 5

DISCUSSION AND SUGGESTIONS

The present study sought to investigate the effect of implied performer age, implied performer gender, and performance quality level on music majors’ perceptions of the quality of a solo musical performance. The specific questions addressed in this study were (1) What are the effects of the soloist’s implied age (no age implied/older adulthood implied/younger adulthood implied) and performance quality level (good/poor) on college musicians’ ratings of seven performance quality categories (phrasing, dynamics, intonation, expressivity, vibrato, tone quality, rhythmic accuracy) as well as the overall rating for each of the performances? (2) What are the effects of the soloist’s implied gender (male/female) and performance level (good/poor) on college musicians’ ratings on seven musical performance quality categories as well as the overall rating for each of the performances? In addition, what is the effect of the soloist’s implied age on college musicians’ ratings on the improvement capacity of the older adult soloists and the younger adult soloists over one-year period.

Participants listened to solo saxophone recordings and responded to seven evaluative statements by using a 7-point Likert-type scale where 1 = strongly disagree and 7 = strongly agree and assigned an overall rating of each performance. Participants also provided a rating on the Improvement Capacity Index (ICI) by rating each performer’s capacity to improve his or her playing over a one year period. Additionally, the participants also provided written responses that explained their rationales for the ICI ratings assigned to each soloist.
Summary of Results and Discussion

Research Question 1: Effects of implied performer age and performance quality on music majors’ perceptions of the quality of a musical performance.

Similar to previous investigations, the results of this study indicate that performance quality affected music majors’ ratings of musical performances (Byo & Brooks, 1994; Geringer & Johnson, 1997; Johnson & Geringer, 1997; Pope, 2012a; 2012b; Pope & Barnes, 2015; Madsen & Geringer, 1999). The mean rating of all good quality performances was higher than the mean of all poor quality performances. When each of the seven evaluative statements and the overall rating were examined separately, the good quality performances were rated higher than the poor quality performances in all of the evaluative categories as well as for the overall rating. These tendencies were consistent across all levels of the implied age condition.

The findings reported in the present study are also consistent with the results of previous research concerning presentation format. Specifically, some examples of previous research have indicated that AO performances received less favorable ratings than performances that were presented in audio-video formats that featured the performers (Madsen, Geringer, & Madsen, 2009; Morrison & Selvey, 2014; Ryan & Costa-Giomi, 2004; & VanWeelden, 2004). Higher ratings of audiovisual conditions found in the present suggest that, in most instances, the participants’ perceptions of the quality of the musical performances were positively affected by the inclusion of visual images of the performers. Although the ratings of the YA soloist associated with good quality performances presents an exception to these finding, the positive affect of
including visual performer information on the ratings assigned to all poor quality performances, and the OA good quality performances warrants some consideration.

Visually implied performer age was found to affect music majors’ perceptions of the quality of a musical performance. Previous research suggests that viewing facial features that imply old age, may activate negative attitudes toward older adults (Harrington, 2015; Hummert, 1994; Hummert & Shaner 1997). However, the results of the present study suggest that the facial features associated with old age may have encourage more favorable ratings of the OA soloists’ performances. The mean of the ratings assigned to the OA soloists was higher than the mean of the ratings assigned to the YA soloists. The mean of the ratings assigned to the OA soloists was also higher than the mean of the ratings assigned to the AO performances. This trend was consistent across both performance quality conditions. The OA soloists received the highest ratings in good quality performances and poor quality performances. These results may indicate that the OA soloists’ facial features that implied old age afforded them an advantage over the YA soloists and the AO performances.

One possible explanation for the more favorable rating of the OA soloists is the influence that expectation may have on the listeners’ perceptions of a musical performance. Previous research has suggested that performer prestige and listeners’ expectations of a performer’s musical ability can influence listeners’ perceptions of the quality of a musical performance (Duerksen, 1972; Fredrick, Johnson, & Robinson, 1998; VanWeelden, 2002). In the context of this study, the facial features of the OA soloists may have implied not only old age but also a higher degree of competence. The ICI rationale comments found in the category of evidence of prior musical skill development
suggest that several participants associated the advanced age of the OA soloists with greater accumulations of experiences and skills. Multiple participants commented on the evidence of prior musical skill development that they observed in the positive aspects of the performances associated with the OA soloists. In contrast, the participants made comparatively fewer positive comments about the evidence of prior musical skill development observed in performances associated with the YA soloists. This finding suggests that the participants did not associate the YA soloists with the comparable amounts of musical experiences and skills as the OA soloists. This possible explanation may also, in part, account for the participants’ scoring of the good quality YA soloists less favorably than the AO performances. Therefore, facial features of the OA soloists’ that implied old age may have also implied a greater degree of developed knowledge and skills. These expectations may have favorably influenced the participants’ perceptions of the aural elements of the OA soloists’ musical performances.

The explanation of the elevated ratings assigned to the OA soloists provided above is most compelling when the OA soloists’ advantage is considered in conjunction with the good quality performances. It is important to note that the participants’ ratings of the poor quality performances also favored the OA soloists. When the ratings of the OA soloists are considered in the context of both the good and the poor quality performances, alternate explanations may be more attractive. For example, the higher ratings assigned to the OA soloists in the both performance quality conditions may be the result of the participants’ positive attitudes toward music making by older adults. This explanation is supported by the nature of the participants’ written responses. When comments about the OA soloists and the YA soloists were compared, the OA soloists
received more positive comments than the YA soloists. The OA soloists also received fewer negative comments than the YA soloists. However, it is also possible that the OA soloists’ facial features, that implied old age, activated negative age-related stereotypes which may have lowered the participants’ expectations of the OA soloists’ musical abilities. This interpretation suggests that the higher ratings assigned to the OA soloists resulted from the OA soloists surpassing the participants’ initially low expectations engendered by negative associations with old age. Both possible explanations are similar to those discussed in Cassidy and Sim’s (1991) investigation of the effect of special education labels on ratings of musical performance quality. The authors reported that adults and middle school students who were informed that a performing ensemble was “made up of children with physical and mental handicaps” rated the performance more favorably than participants who were not provided with information about the members of the choir (p. 27). The authors provided the following discussion:

The tendency of subjects to be more generous in the ratings of the performances when the performers’ handicaps were identified may reflect positive attitudes toward the musical efforts of handicapped people. Some ratings, however, may have been higher because the performers exceed initially low rater expectations; previous research states that handicapping labels may bias expectations unfavorably. (p.32)

In the context of the present study, it is possible that the participants expressed genuine positive attitudes toward the musical efforts of highly skill OA and less skilled OA musicians. It is also possible that the negative stereotypes associated with old age caused the participants to have initially low expectations of the OA soloists’ musical abilities. Therefore, when the OA soloists surpassed these unfavorable expectations, the participants were inclined to assign somewhat inflated ratings of their musical performances.
Implied Performer Age and Performance Quality Interaction. The statistically significant two-way interaction between implied performer age and performance quality also suggests that the visual component of the performances affected participants’ perceptions of the OA soloists and the YA soloists. The OA soloists were consistently rated more favorably than the YA soloists and the AO performances in both performance quality conditions. These results suggest that the OA soloists benefited from the visual aspect of the AV performances in both the good and poor performance quality conditions. The YA soloists received somewhat higher ratings than the AO performances during the poor quality performances but were rated somewhat lower than the AO when during the good quality performances. As such, the YA soloists appeared to benefit from the visual aspect of the AV performances exclusively during the poor quality performances.

The results of this study suggest that participants may have considered advanced chronological age and subsequent previous experiences to be associated with better musical performances. The YA soloists lacked visual signs of advanced chronological age and therefore may not have been associated with musical skill levels similar to those attributed to the OA soloists and, in the context of the good quality performances, the YA soloists more youthful appearance may have contributed to the less favorable performance ratings. Conversely, the association of OA soloists with knowledge and skills that are conducive to high quality music performances appear to have benefited the OA soloists. These age based findings may be related to the concept of “prototype matching”. Research concerning the evaluation of job applications has indicated that prototype matching occurs when the characteristics of potential candidates are compared to characteristics of the “person-in-job” prototype (Perry, 1994, p. 1443). In workplace
literature, investigations concerning the practice of prototype matching suggest that positions and tasks that are associated with high energy levels and adaptability are considered ideal for younger workers while positions or tasks that require more experience and responsibility are considered more appropriate for older workers (Kunze, Boehm, & Bruch, 2011). Participants’ may have assumed that the YA soloists lacked the requisite experience needed for the exemplary playing that they appeared to associate with the OA soloists. It is possible that the participants considered the prototype of a highly skilled musician to be older than the YA soloists featured in the visual stimuli. This explanation is supported by the comparative lack of open response comments that address the YA soloists’ evidence of prior musical skill development and an increase in the total number of negative comments concerning the quality of the YA soloists’ performances. The combination of the participants’ associations of advanced chronological age with evidence of prior musical skill development and their tendency to assign less favorable ratings to the YA soloist’s suggests that the prototype of skilled instrumental soloist may be an adult musician who appears to be older than 20 – 30 year old individuals featured visual stimuli used in this study. Therefore, music performance may be a profession in which greater chronological age is considered to be an important characteristic of the skilled performer or prototype. In this study, the YA soloists’ inability to align with the chronological age of the prototype may have adversely affected the participants’ perceptions of the YA soloists’ good quality musical performances. This explanation may also account for the participants’ ratings of the YA soloists below not only the OA soloists but also the AO performances.
Interestingly, the poor quality performances that featured a YA soloist were rated somewhat higher than the AO performances. An explanation for this difference is suggested by the participants’ open response comments. Several participants stated that they assumed that the YA soloists were beginners. It is possible that the participants were inclined to be somewhat more generous in their scoring of the YA soloists in that they believed to be beginning their musical training. It is important to note that the differences between the mean ratings of the AO performances and the mean ratings of the YA performances were not large in either performance quality setting. In the good quality setting the difference between the AO performances and the YA performances was .29 and favored the AO performances while the difference between the AO performances and the YA performances in the poor quality setting was .14, favoring the YA performances. The relatively small differences between the AO performances and the YA performances coupled with the medium effect size (.06) suggests that, although the interaction, was statistically significant, the positive influence of the visual information supplied in VA performances may have limited practical application.

Research Question 2: Effects of implied performer gender and performance quality on music majors’ perceptions of the quality of a musical performance. As previously stated, performance quality was found to affect music majors’ ratings of solo saxophone performances and these findings are consistent with previous literature (Byo & Brooks, 1994; Geringer & Johnson, 1997; Johnson & Geringer, 1997; Pope, 2012a; 2012b; Pope & Barnes, 2015; Madsen & Geringer, 1999). Participants rated the good quality performances more favorably than the poor quality performances across gender
conditions. The ratings of the good quality performances of the male soloists and the female soloists were rated higher than the poor quality performances of the male soloists and the female soloists. When each of the seven evaluative statements and the overall rating were examined separately, the good quality performances of the male soloists and the female soloists were rated higher than the poor quality performances of the male soloists and the female soloists in all of the evaluative statements and in the overall rating.

*Implied Performer Gender and Performance Quality Interaction.* A statistically significant two-way interaction was observed between performance quality and performance gender. The male soloists were rated more favorably during the poor quality performances and the female soloists were rated more favorably during the good quality performances. When the evaluative statements and the overall rating of poor quality performances were examined, the male soloists received higher ratings than the female soloists in all evaluative categories and the overall rating. The largest difference between ratings assigned to the male and female soloists in the poor quality performance condition was .5 or one-half of a point. This difference was found in the evaluation category of *tone* and favored the male soloists (See Table 11). During the good quality performances, the female soloists were rated more favorably in the evaluative categories of *phrasing, dynamics, intonation, expressivity, vibrato,* and in the overall rating. The largest difference between ratings assigned to the male and the female soloists in the good quality performance condition was .29. This difference was found in the evaluative category of *dynamics* and favored the female soloists (See Table 11.). The differences between ratings of the male and female soloists in both good and poor quality conditions
are small. The size of these differences suggests that, the effect of implied performer
gender on the participants’ perceptions of performance quality may be inconsequential
and may have limited practical application.

Due to the small effect size (partial $\eta^2 = .04$) and small differences between mean
ratings of the male and female soloists, conclusions concerning the statistically
significant two-way interaction of performance quality and implied performer gender are
tentative. However, it is possible that the lyrical nature of the good quality performances
influenced participants’ more favorable ratings of the female soloists. This idea is
supported by previous results reported by Behne and Wöllner (2011). The authors found
that identical piano performances were rated differently for males and females.
Specifically, the male soloist was perceived as more precise while female soloist was
perceived as more dramatic. When participants rated the poor quality performances, the
male soloists received higher ratings than the female soloists. Previous research in
workplace evaluation suggests that gender may influence perceptions of the quality of
work completed by an individual. Specifically, workplace literature suggests that male
and female employees who perform at similar levels may not receive the same
performance ratings. Often, differences in ratings have favored male employees
(Castilla, 2005). In the context of the present study, the male soloists who were
associated with poor quality performances were perceived more favorably than their
female counter parts. One possible explanation is that gender bias resulted in more
critical ratings of poor quality female soloists. Another possible explanation is that the
poor quality performances did not sufficiently convey the lyrical quality demonstrated in
the good quality performances. Without the overt demonstration of this stylistic
characteristic, the female soloists may not have benefited from the aural elements of lyricism and sensitivity.

_Evaluative Statement Rankings._ The participants rated the musical performances by responding to seven evaluative statements and by assigning an overall rating to the performances. The means of these ratings were then ranked from highest to the lowest. The category of _rhythm_ most frequently received the highest ratings in both performance quality conditions. It is possible that the participants’ skill at detecting rhythmic errors contributed to the higher ratings assigned to this evaluative category. Previous research suggests that music majors’ have a strong tendency for detecting errors in the category of _rhythm_ (Byo, 1993; Cavitt, 2003; Decarbo, 1982; Ramsey, 1979; Schlegel, 2010; Sheldon, 1998; Waggoner, 2011). The participants’ ability to distinguish between correct and incorrect performed rhythmic figures and the frequency with which rhythmic errors were made, may have contributed to the more favorable ratings of the evaluative category of _rhythm_. Specifically, the good quality performances contained little or no rhythmic errors. The participants’ abilities to distinguish between correct and incorrect performances of the rhythmic figures and low frequency of rhythmic errors found in the good quality performances may have dually contributed to the more favorable scores assigned in this evaluative category. The poor quality performances contained at least two instances of deliberate rhythmic inaccuracies. However, the rhythmic errors were not continuously demonstrated throughout the performance. Unlike the musical elements portrayed in the other evaluative categories, the rhythmic errors were confined to one or two instances while musical elements such as _tone_ and _intonation_ were unfavorably
altered throughout the entirety of the poor quality performances. Therefore, participants who listened to poor quality performances had less exposure to rhythmic errors than other types of undesirable attributes. The comparative lower frequency of rhythmic errors may have contributed to the participants’ more favorable rating of the evaluative category of rhythm.

An examination of the participants’ ratings of the evaluative statements indicated that the evaluative category of vibrato received the lowest mean ratings in both the good and poor performance quality conditions. The poor quality performances contained little or no vibrato while the good quality performances contained vibrato on all notes that were sustained for at least two beats. However, comments from the ICI open ended response items suggest that many of the participants found the amount of vibrato used in both performance quality conditions to be insufficient. The participants’ responses frequently cited a need for more vibrato in both good and poor performance quality conditions. These results suggest that the participants’ have a distinct preference for the frequent use of vibrato throughout the lyrical solo saxophone performances as a 20th century performance practice.

Secondary Research Question: The Effects of Implied Performer Age on ICI Ratings and Participants’ Rationale Statements

The mean ICI rating of all the YA soloists was higher than the mean ICI rating of all the OA soloists. The YA soloists were also rated more favorably than the OA soloists when ICI ratings in good and poor quality performance conditions were examined separately. Therefore, regardless of the performance quality condition, the participants
anticipated less musical improvement from the OA soloists than from the YA soloists. Insight into this tendency is provided by the participants’ written rationales for their ICI ratings. Participants made more positive comments about the YA soloists in the category of the soloist’s ability to improve. Additionally, comments about the YA soloists that addressed the category of age were also frequently positive. In contrast, participants made more negative comments about the OA soloists’ ability to improve. Often these negatively worded comments were related to the age category. Therefore, while participants rated the performances of the OA more favorably than the YA soloists, the participants also appear to consider the musical abilities of the OA soloists to be more static than those of the YA performer.

The association of the OA soloists with stable or continuous performance factors is supported by workplace evaluation research. However, workplace literature typically links static ability levels with older adults who performed poorly (Rupp, Vodanovich, & Crede, 2006). The results of the present study indicate that the participants’ perceived both the good and poor quality work of the OA soloists to be stable in quality and therefore less likely to improve than the work of the YA soloists. This attitude can be seen in participants’ comments about the older adults such as “[he] looks older, has probably reached the peak of his abilities” and “[o]ld dogs can learn new tricks, but not easily [underlined in original].” One participant also addressed the OA soloists ability to improve in the context of chronological age and mortality: “With a focus on breath and embouchure you could fix both issues – if you live that long.” These and several additional age related comments suggest that the age of the OA soloist contributed to participants’ lower expectations of future musical improvement.
Implications for Music Education

The potential of music education to enact positive changes in older adults’ quality of life is well documented. As summarized in Lehmberg and Fung’s (2010) cross-disciplinary literature review (see chapter 1) participation in music making may have a positive effect on the quality of life experienced by older adults, increase feelings of wellness, encourage resistance to cognitive decline, provide enjoyment and feelings of pride, bolster feelings of social connectedness, and shape personal identity. Improved understandings of undergraduates’ perceptions of the musical efforts of older adults may facilitate successful interactions between future music educators and older adult musicians of all ability levels.

The call for current and future music educators to engage older adults in lifelong learning through active music participation and community music making has been articulated by the National Association for Music Teacher Education (NAfME) through the work of the Adult and Community Music Education Special Research Interest Group (ACME SRIG) (2015). This portion of NAfME actively promotes efforts of music educators who facilitate and research community music making across the lifespan. More recently, Vision 2020: The Housewright Declaration, NAfME’s guiding document encompassing the years from 2000 to 2020, charged professional music educators with the task of providing leadership in facilitating music making opportunities beyond traditional school ensembles (Bell, et al., 2000). In order to prepare future music educators to foster the lifelong music cycle of school music, collegiate music, and community music, increased attention must be given to adult and community music education during pre-service training (Rohwer, 2011).
The participants’ perceptions of the OA soloists’ abilities to improve should also be considered in the training of future music educators. While the OA soloists were rated more favorably than YA soloists, the OA soloists were considered to be less likely to improve than the YA soloists. Participant comments such as “at her age, the brain isn’t well adapted to make changes as much as a younger person” and “I don’t think the man pictured could make a great deal of improvement due to his age…It is harder for us to improve skills as we get older” suggest a bias against older adults’ ability to advance their musical skills. For beginning and novice musicians a bias against OA performers could manifest in the belief that OA instrumentalists would not progress through fundamental and intermediate levels of music performance as readily as their younger counterparts. For advanced and professional musicians, this bias may suggest that advanced chronological age could impede OA instrumentalists’ abilities to master advanced techniques and learn new repertoire. Although the improvement capabilities of OA musicians have yet to be empirically tested, both manifestations of a bias against the improvement abilities of OA instrumentalists may affect OAs who engage in music making and also affect the YAs may benefit from interacting with OA musicians musically and socially. Increased understandings of the rationale behind pre-service music educators’ perceptions of OA performers of multiple ability levels are needed to inform music teacher trainers’ efforts to reduce negative stereotypes about OA instrumentalists.
Suggestions for Future Research

Few studies have focused on the effect of implied performer age on listeners’ perceptions of performance quality. Additional investigations of this nature will expand visual stimuli and could include digital images of adolescent and middle aged performers. Future research concerning perceptions of older adult performers could also include music of contrasting styles and tempos. The inclusion of large and small groups of performers also warrants further investigation. In the previous study (Harrington, 2015), intermediate level wind band performances paired with images of OA concert bands were rated less favorable than performances of similar quality that were paired with images of middle school aged concert bands. However, in the present study, performances paired with digital images of the OA soloists were rated more favorable than performances of similar quality that were paired with digital images of the YA soloists. Two possibilities for this discrepancy warrant further research. It is possible that the differences between the findings reported by these studies result from rating a full ensemble and rather than rating an individual. To explore the effect of ensemble size on listeners’ ratings of older adult instrumentalists, small ensembles, and large ensembles could be compared. The use of audio-recordings rather than digital images could also be used in future studies to further this line of inquiry. Lastly, this study was limited to a single unaccompanied woodwind instrument. Future investigations could feature solo performances that feature different instrument families and solo vocal performances. Accompanied performances delivered by both instrumentalists and vocalists could also be investigated in the context of implied performer age.
Limitations

The following limitations should be considered when interpreting the results of the present study. In an effort to avoid rater fatigue, the musical selections did not include a variety of styles, tempi, or instrumentation. The participants evaluated musical performances of only one style and one tempo. Similarly, only one instrument, the alto saxophone, was featured in these recordings. Future investigations could include musical examples of contrasting styles and tempi and could include different instrumentation. Additionally, the present study investigated the effects of the selected variables on participants’ perceptions of a solo woodwind performance. To more fully understand the effect of implied performer age, implied performer gender, and performance quality on participants’ perceptions of the quality of a musical performance, a variety of instruments, voices, and ensemble sizes may be used in similar investigations. Also, the current study only included undergraduate music majors. In order to develop insight into the evaluative tendencies of other groups of listeners, future investigations may present graduate music students, non-majors, in-service music educators, elementary school aged students, middle school students, high school students, and older adult musicians with similar stimuli. The inclusion of these groups may offer more insight into the role of implied performer age, performance quality, and implied performer gender in the perceptions of the quality of a musical performance. Lastly, although the audio and visual components of the stimuli used in this study were of high quality, the stimuli were limited to audio recordings and digital images rather than audio-video recordings. The use of high quality audio-video recordings would provide participants with additional visual information that may influence their perceptions of the quality of the musical performances.
APPENDICES
APPENDIX A

IRB Approval
TO: Ann Harrington
Music Education
105 Fine Arts Bldg. 0022
Phone #: (601) 594-6074

FROM: Chairperson/Vice Chairperson
Non-medical Institutional Review Board (IRB)

SUBJECT: Approval of Protocol Number 16-0197-P4S

DATE: March 25, 2016

On March 23, 2016, the Non-medical Institutional Review Board approved your protocol entitled:

The Effect of Performer Age, Performer Gender, and Performance Quality on Music Majors' Evaluations of Musical Performances

Approval is effective from March 23, 2016 until March 22, 2017 and extends to any consent/assent form, cover letter, and/or phone script. If applicable, attached is the IRB approved consent/assent document(s) to be used when enrolling subjects. [Note, subjects can only be enrolled using consent/assent forms which have a valid "IRB Approval" stamp unless special waiver has been obtained from the IRB.] Prior to the end of this period, you will be sent a Continuation Review Report Form which must be completed and returned to the Office of Research Integrity so that the protocol can be reviewed and approved for the next period.

In implementing the research activities, you are responsible for complying with IRB decisions, conditions and requirements. The research procedures should be implemented as approved in the IRB protocol. It is the principal investigator's responsibility to ensure any changes planned for the research are submitted for review and approval by the IRB prior to implementation. Protocol changes made without prior IRB approval to eliminate apparent hazards to the subject(s) should be reported in writing immediately to the IRB. Furthermore, discontinuing a study or completion of a study is considered a change in the protocol's status and therefore the IRB should be promptly notified in writing.

For information describing investigator responsibilities after obtaining IRB approval, download and read the document "PI Guidance to Responsibilities, Qualifications, Records and Documentation of Human Subjects Research" from the Office of Research Integrity's IRB Survival Handbook web page [http://www.research.uky.edu/ori/IRB-Survival-Handbook.html#PIresponsibilities]. Additional information regarding IRB review, federal regulations, and institutional policies may be found through ORI's web site [http://www.research.uky.edu/ori]. If you have questions, need additional information, or would like a paper copy of the above mentioned document, contact the Office of Research Integrity at (859) 257-9428.

N. Van Tuluagan, Ph.D.
Chairperson/Vice Chairperson

An Equal Opportunity University

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APPENDIX B

Forms Associated with the Study

1. Letter to Professors at Each Data Collection Site
2. Debriefing Form
Dear Professor____,

I am a PhD candidate in music education at the University of Kentucky where I am working on my dissertation research under the guidance of Drs. David Sogin. For my dissertation research, I am interested in examining the effects of performer age, performer gender, and performance quality on college musicians’ perceptions of solo woodwind performance.

I am writing to request permission to administer my research procedures to undergraduate music education majors at your university. If you and/or a colleague teach a course for music education majors, I would truly appreciate the opportunity to include them as participants in my dissertation research project. These students will be an ideal group for this study because as music education majors, they all have declared an interest in future music teaching. Additionally, they all have the requisite musical experiences and the educational background to complete this perception task successfully.

For the research procedures, students will complete some demographic questions, listen to a recorded solo 6 saxophone performances (ca. 6 minutes in total length), rate each performance in categories in standard music performance evaluation categories such as tone, intonation, etc., and indicate their opinions about the soloists’ ability to make musical improvements. The total administration time will be approximately 20-25 minutes, and this can be accomplished in one sitting. I will administer the procedures to intact classes using a projector, screen, and audio playback equipment.

In the event that two eligible classes meet at the same time, I would request that a designated individual from your university (e.g., faculty member or graduate student) to administer the procedures for the other classroom. This arrangement will allow both groups to complete the procedures simultaneously. The responsibilities of the administrator will simply be to read an instructional script aloud, advance the PowerPoint presentation to a new slide for each recording, and to press play/stop on the audio playback equipment. I will supply all playback equipment.

With your approval, I would like to schedule this at a convenient time for you and your classes. I can administer the test at the beginning or end of your class, as you wish. Your instruction time with your classes is very important, so I will make every effort to minimize disruptions to your schedule.

I have already completed a pilot test to refine the research procedures, evaluate the clarity of the response forms, and check for preliminary data trends. College musicians who participated in the pilot test responded that they enjoyed the experience and expressed an interest in the project and asked several questions about the performers. This experience will likely be enjoyable for your students as well, and it could be a beneficial experience for them. The ability to listen carefully to a musical performance and to evaluate its quality is a beneficial skill for music educators at all levels.

Please feel free to contact me if you have any questions or would like any additional information. Thank you for your time and consideration. I look forward to hearing from you at your earliest convenience.

Respectfully,

Ann M. Harrington

Doctoral Candidate and Teaching Assistant
University of Kentucky
105 Fine Arts Building
Lexington, KY 40506
Harrington.ann@uky.edu
(601) 818 - 4579
Debriefing Form

This study is designed to investigate how performer appearance (specifically performer age and performer gender) may influence how people rate the quality of musical performances. Please feel free to ask any questions you might have about the study or about this form at this time.

PLEASE CHECK THE APPROPRIATE BOX.

☐ I give the researcher permission to include the responses and information I provided in my evaluation packet in this study.

☐ I do not give the researcher permission to include the responses and information I provided in my evaluation packet in this study. I choose to have my information and responses withdrawn from this study.

PLACE THIS FORM BEHIND THE FIRST PAGE OF YOUR EVALUATION PACKET.

PLACE YOUR PACKET (AND THIS FORM) IN THE COLLECTION BOX AT THE BACK OF THE ROOM.
APPENDIX C

Evaluation Packet
In this study, you will evaluate six solo saxophone performances. At the end of each performance, rate each evaluation statement on the 7-point Likert-type scales. Notice that “1” represents that you “Strongly Disagree” with the statement, and “7” represents that you “Strongly Agree” with the statement. For the overall rating of the performance, note that “1” represents a “Poor” performance and “7” represents an “Excellent” performance.

PERFORMANCE 1

Circle Your Ratings Below

<table>
<thead>
<tr>
<th>Statement</th>
<th>Strongly Disagree</th>
<th>Strongly Agree</th>
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<tbody>
<tr>
<td>The soloist demonstrates melodic phrasing.</td>
<td>1 2 3 4 5 6 7</td>
<td></td>
</tr>
<tr>
<td>The soloist demonstrated a wide range of Dynamics</td>
<td>1 2 3 4 5 6 7</td>
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</tr>
<tr>
<td>The soloist played with consistent intonation.</td>
<td>1 2 3 4 5 6 7</td>
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</tr>
<tr>
<td>The soloist played expressively.</td>
<td>1 2 3 4 5 6 7</td>
<td></td>
</tr>
<tr>
<td>The soloist used vibrato to enhance his performance.</td>
<td>1 2 3 4 5 6 7</td>
<td></td>
</tr>
<tr>
<td>The soloist performs with pleasant tone.</td>
<td>1 2 3 4 5 6 7</td>
<td></td>
</tr>
<tr>
<td>The rhythms performed by the soloist were precise and accurate.</td>
<td>1 2 3 4 5 6 7</td>
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</table>

Overall rating of performance.

1 2 3 4 5 6 7
Poor   Excellent
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<tr>
<th>PERFORMANCE 2</th>
<th>Circle Your Ratings Below</th>
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<tr>
<td></td>
<td>Strongly Disagree</td>
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<tr>
<td>The soloist demonstrates melodic phrasing.</td>
<td>1 2 3 4 5 6 7</td>
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<td>The soloist demonstrated a wide range of Dynamics</td>
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<tr>
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<tr>
<td>The rhythms performed by the soloist were precise and accurate.</td>
<td>1 2 3 4 5 6 7</td>
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<tr>
<td>Overall rating of performance.</td>
<td>1 2 3 4 5 6 7</td>
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<tr>
<td>Poor</td>
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## PERFORMANCE 3

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<tr>
<td>The soloist demonstrates melodic phrasing.</td>
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<tr>
<td>The soloist demonstrated a wide range of Dynamics</td>
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<tr>
<td>The soloist played with consistent intonation.</td>
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<tr>
<td>The soloist played expressively.</td>
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<tr>
<td>The soloist used vibrato to enhance his performance.</td>
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<tr>
<td>The soloist performs with pleasant tone.</td>
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<tr>
<td>The rhythms performed by the soloist were precise and accurate.</td>
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<tr>
<td><strong>Overall rating of performance.</strong></td>
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<td>Poor</td>
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<td><strong>Excellent</strong></td>
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### PERFORMANCE 4

**Circle Your Ratings Below**

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<tr>
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<th>Strongly Agree</th>
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<td>3</td>
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<td>5</td>
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<tr>
<td>7</td>
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</table>

**The soloist demonstrates melodic phrasing.**

**The soloist demonstrated a wide range of Dynamics.**

**The soloist played with consistent intonation.**

**The soloist played expressively.**

**The soloist used vibrato to enhance his performance.**

**The soloist performs with pleasant tone.**

**The rhythms performed by the soloist were precise and accurate.**

**Overall rating of performance.**

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<tr>
<td>Poor</td>
<td>Excellent</td>
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</table>

**How much improvement do you think this performer could make to his/her playing over the next year?**

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<tr>
<td>Little or no Improvement</td>
<td>Considerable Improvement</td>
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**In the space below, use two to three sentences to describe the reasons for your decision?**
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<th>Statement</th>
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<th>4</th>
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<tr>
<td>The soloist demonstrates melodic phrasing.</td>
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<td></td>
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<tr>
<td>The soloist demonstrated a wide range of Dynamics</td>
<td></td>
<td></td>
<td></td>
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<td></td>
<td></td>
</tr>
<tr>
<td>The soloist played with consistent intonation.</td>
<td></td>
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<td></td>
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<td></td>
</tr>
<tr>
<td>The soloist played expressively.</td>
<td></td>
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<tr>
<td>The soloist used vibrato to enhance his performance.</td>
<td></td>
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</tr>
<tr>
<td>The soloist performs with pleasant tone.</td>
<td></td>
<td></td>
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<td></td>
<td></td>
</tr>
<tr>
<td>The rhythms performed by the soloist were precise and accurate.</td>
<td></td>
<td></td>
<td></td>
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<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Overall rating of performance.</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
<td>5</td>
<td>6</td>
<td>7</td>
</tr>
<tr>
<td>Poor</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Excellent</td>
<td></td>
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<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
**PERFORMANCE 6**

*Circle Your Ratings Below*

<table>
<thead>
<tr>
<th>Strongly Disagree</th>
<th>Strongly Agree</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>2</td>
</tr>
</tbody>
</table>

1. **The soloist demonstrates melodic phrasing.**
2. **The soloist demonstrated a wide range of Dynamics**
3. **The soloist played with consistent intonation.**
4. **The soloist played expressively.**
5. **The soloist used vibrato to enhance his performance.**
6. **The soloist performs with pleasant tone.**
7. **The rhythms performed by the soloist were precise and accurate.**

**Overall rating of performance.**

<table>
<thead>
<tr>
<th>1</th>
<th>2</th>
<th>3</th>
<th>4</th>
<th>5</th>
<th>6</th>
<th>7</th>
</tr>
</thead>
<tbody>
<tr>
<td>Poor</td>
<td>Excellent</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

**How much improvement do you think this performer could make to his/her playing over the next year?**

<table>
<thead>
<tr>
<th>1</th>
<th>2</th>
<th>3</th>
<th>4</th>
<th>5</th>
<th>6</th>
<th>7</th>
</tr>
</thead>
<tbody>
<tr>
<td>Little or no Improvement</td>
<td>Considerable Improvement</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

**In the space below, use two to three sentences to describe the reasons for your decision?**
Dear Participant,

Thank you for agreeing to participate in this study. Before you turn in your evaluation packet please complete the following demographic questions.

**What is your major? (Circle one)**
- Music Education
- Music Performance
- Other ______________________

**What is your classification? (Circle one)**
- Freshman
- Sophomore
- Junior
- Senior
- 2ND Year Senior

**What is your primary instrument/voice?**

**How many years (including this one) have you participated in a performing ensemble on your major instrument/voice? (Circle one)**
- 0 – 3 years
- 4 – 6 years
- 7 – 10 years
- 10+ years

**How many years (including this one) have you taken private lessons your major instrument/voice? (Circle one)**
- One year or less
- Two – three years
- Three to five years
- More than five years

**What is your current age?**

_______________________________________________________

**Please circle your gender.**
- Male
- Female
- Prefer not to respond
APPENDIX D

Score Quality Examples
Score

\[ \mathbf{d} = 5\text{8} \]

Alto Sax

\text{with lots of swell}

A. Sax.

\text{with lots of swell}

A. Sax.

\text{with vibrato}

\text{with vibrato}
Alto Sax

Melodie

\( \text{\textit{Good Quality}} \)

Simon Poulain

\( d = 60 \)
Poor Quality Score Examples

Score

Always Forte - Novibrato No. 1

J = 60

Alto Sax

\( \text{P.S. attack} \)

A. Sx.

\( \text{P.S. attack} \)

A. Sx.

\( \text{[Rush]} \)

A. Sx.

\( \text{P.S. attack} \)

A. Sx.

\( \text{P.S. attack} \)

A. Sx.

\( \text{[Rush]} \)

\( x = \text{poor air focus with widened embouchure} \)

\( \text{P.S. = pair shaped attack} \)

\( \downarrow = \text{lower pitch by dropping jaw} \)
Score

L = 60

Number 2 Berr

Poor Quality

Alto Sax

sempre forte - no vibrato

\[\text{P.S. attack} \quad \text{P.S. attack}\]

A. Sax

\[\text{P.S. attack}\]

A. Sax

\[\text{too long} \quad \text{too long}\]

A. Sax

\[\text{P.S. attack;} \quad \text{P.S. attack}\]

A. Sax

\[\text{P.S. attack;} \quad \text{P.S. attack}\]

P.S. = poor shaped

\[\text{=} \quad \text{poor air flow with wider embouchure}\]

\[\text{=} \quad \text{one more fingering}\]

\[\text{=} \quad \text{lower pitch by dropping jaw}\]
Score
*Always Forte - No vibrato

\[ j = 56 \]

Romance

Poor Quality

Alto Sax

A. Sax

A. Sax

P.S. = pair shaped attack
\* = poor air flow + wide emb.
\( \checkmark \) = lower pitch by jaw drop
1+1 = one + one fingering
Always Forte - No Vibrato

\( \text{\textit{d}} = 58 \)

Alto Sax

\( \text{P.S. attack} \)

A. Sax.

\( \text{P.S. attack} \)

\( \text{hold too long} \)

\( \text{\textit{r}ush} \)

\( \text{P.S. attack} \)

A. Sax.

\( \text{P.S. attack} \)

\( \text{hold too long} \)

\( \text{\textit{r}ush} \)

\( \text{\textit{d}rag} \)

\( \text{P.S. attack} \)

\( \text{P.S. attack} \)

\( \text{\textit{X} = poor air flow \& widened embouchure} \)

\( \text{\textit{t} = one \& one fingering} \)

\( \text{\textit{X} = delayed \& played almost like a glissando not} \)

\( \text{T = overly forceful tongue} \)
Alto Sax

\( d = 60 \)

Sempre forte - no vibrato

PS = pair shaped attack

↓ = drop jaw to somewhat lower pitch

* = for air flow not widened embouchure

1+1 = one more fingering
Score

\[ \text{\textbf{Melodie}} \]

\[ \text{\textit{sempre forte}} \]

Simon Poulain

Alto Sax

A. Sx.

\[ \text{\textit{P.S. attack}} \]

\[ \text{\textit{T= overly forceful tongue}} \]

\[ \text{\textit{\textbf{\( \downarrow \)= lower pitch by dropping jaw}} \]}

\[ \text{\textit{P.S. = pair shaped attack}} \]
APPENDIX E

Digital Images of Older Adult and Younger Adult Models
APPENDIX F

Summary of the Pilot Study
Summary of the Pilot Study

The purpose of this pilot study was to examine the effect of performer age, performer gender, and performance quality level on college musicians’ ratings of solo saxophone performances. The participants (N = 35) were sampled from two moderately sized regional universities in the southern and mid-western United States. The participants were randomly assigned to one of four experimental conditions (a) good quality musical performances with digital images of male performers, (b) good quality musical performances with digital images of female performers, (c) poor quality musical performances with digital images of male performers, and (d) poor quality musical performances with digital images of female performers. All experimental conditions contained high quality digital images of the faces of both older adults (OA) and younger adults (YA).

The participants were asked to rate the quality of nine examples of solo saxophone performance by responding to seven evaluative statements as well as by assigning each performance an overall rating. A 7-point Likert-type scale where 1 = strongly disagree and 7 = strongly agree and assigned an overall rating of each performance using a scale where 1 = Poor and 7 = Excellent. Three performances were presented in an audio-only format (AO), three performances were presented in an audio-visual (AV) format that featured a digital image of an older adult, and three performances were presented in an AV format that featured a digital image of a younger adult. This
design allowed participants in all experimental conditions to rate the soloists featured in all three levels of the implied age condition: AO with no age implied, AV with older age implied, AV with younger age implied. To prevent the AO performances from being associated with a digital image, the three AO examples were prevented before the AV examples. A counterbalance design was used to control for order effects involving both digital images and musical performances. Additionally, one audio recording was presented verbatim in all three levels of the implied age condition. The participants were also asked to rate each soloist’s potential to improve musically over one year on the ICI and to provide written comments explaining their rationale for these ratings. Lastly, the participants indicated which soloist they thought was capable of making the most improvement and which soloist was capable of making the least improvement. The participants were then asked to provide written comments explaining their rationale for these choices.

The raw data were used to compute a single score for each excerpt per participant. These scores were computed by averaging the ratings assigned to the seven evaluative statements plus the overall rating. Each participant’s scores on the three AO performances were then averaged together. The same process was repeated first with AV performances that featured the OA soloists and then with the AV performances that featured the YA soloists. These computations generated a mean AO score, a mean OA score, and a mean YA score for each participant. These means were then used in a mixed repeated-measures ANOVA. The results of this test showed statistically significant interactions between performer age and performance quality $F(2,62) = 5.34, p < .05$, partial $\eta^2 = (.26)$ and between performer gender and performance quality $F(1,31) = 4.34$,.
No statistically significant three-way interactions were found. A statistically significant main effect was observed for performer age $F(2,62) = 13.05, p < .001$, partial $\eta^2 = (.12)$ and for performance quality $F(1,31) = 66.18, p < .001$, partial $\eta^2 = (.681)$.

Significant differences were found between $t$-test $t(17) = -2.75, p = .009$, $d = .51$ found that ICI ratings of the OA soloists were statistically significantly different from ICI ratings of the YA soloists and this difference favored the YA soloists. Additionally, the participants’ written explanations for their ICI ratings of the OA soloists indicated negative attitudes toward the OA soloists’ abilities to improve musically over a one-year period. Sixty-nine percent of participants indicated that they believed that the YA performer was likely to make more improvement over a one-year period. Only 11% of the participants indicated that they believed that the OA performers were more likely to make improvements during the same time period. Twenty percent of participants stated that they believed there to be no difference between the capabilities of the two performers to improve over a one year period. Coding and analysis of the participants written explanations for their choices indicated that while several individuals express that the YA soloists could make more musical improvements over a one-year period, they also felt that the YA soloists’ performances demonstrated a greater need for musical improvement.

Based on the results of this pilot study, the following changes were proposed and used in the main study:
1. Remove the repeated musical stimuli. – When repeated musical elements were analyzed there were no significant differences and ratings tended to decrease (though not significantly) with repeated listening.

2. Remove the comparison of performer improvement items. These items are somewhat redundant and added very little meaningful information that was not already provided in the ICI and ICI rationale items.

3. Reduce the time provided for the rating of each performance. A reduced time of 45-seconds would be cautious while a reduced time of 30-seconds would likely be sufficient.

4. Use a larger sample size. Gpower was used to generate suggested sample sizes. The number of participants suggested for a desired power level of .95 ($\alpha = .05$) with an effect size of .15 was 116. The total number of anticipated is approximately 120. Every effort will be made to balance the number of participants in each group.

5. Due the necessity of withholding of some information from participants (e.g. the intention of the study to investigate possible biases associated with performer appearance) a short debriefing session will be held after treatments are completed.
Equipment List

The following pieces of equipment were used in (a) the preparation for this study, (b) the administration of research procedures, (c) and the analysis of collected data.

1. Toshiba Satellite P745 laptop computer
2. Microsoft Word 2013
3. Microsoft PowerPoint
4. Windows Media Player
5. IBM SPSS Statistics version 21
6. GPower version 3.1
7. SMART Board SB480i6
8. Sony CFD-S70 portable CD player
9. Canon EOS 40D SLR digital camera with an F4 lens (70 – 20mm) and a 40 EX Flash
10. Digital *Zoom Handy Recorder* H2
11. Verbatim CDRs
12. Flash drives
REFERENCES


VITA
ANN MARIE HARRINGTON

EDUCATION AND CERTIFICATIONS

Kodaly Certification Training 2014
Level I

AOSA Certified Instructor 2010
Level 1 Recorder

Orff Schulwerk Teacher Training 2004
Level 1
Level 2 2007
Advanced Course: Curriculum Development 2008
Advanced Course: Orff and Elemental Drama 2008
Level 3 2009

Louisiana Teaching Certification 2008
K-12 Music (Instrumental)

University of Kentucky, Lexington, KY 2008
M.M., Music Education

Mississippi Teaching Certification/Licensure 2006
K-12 Music (Instrumental)

University of Southern Mississippi, Hattiesburg, MS 2006
B.M.E., Bachelor of Music Education (Instrumental, K – 12)

PROFESSIONAL POSITIONS HELD

University of Louisiana at Monroe 2016 – 2017
Music Education Instructor

University of Kentucky, School of Music, Lexington, KY 2013 – 2016
Course Instructor

Orff Schulwerk Small Group Instruction 2013 – 2015
General Music Teacher
Dubard School for Language Disorders, Hattiesburg, MS  
General Music Teacher  
2012 – 2013

Orff Schulwerk Teacher Training: Recorder Instructor Level I  
2012

Orff Schulwerk Teacher Training: Special Topics Instructor  
2012

Cathedral Academy, 820 Dauphine St. New Orleans, LA 70016  
General Music Teacher  
2008 – 2012

University of Kentucky, School of Music, Lexington, KY  
Course Instructor  
2007 – 2008

**SCHOLASTIC AWARDS AND HONORS**

School of Music Teaching Assistantship  
*University of Kentucky*  
2015 – 2016

School of Music Teaching Assistantship  
*University of Kentucky*  
2014 – 2015

School of Music Teaching Assistantship  
*University of Kentucky*  
2013 – 2014

The Honor Society of Phi Kappa Phi  
*University of Southern Mississippi*  
*(Induction)* 2014

**PEER REVIEWED CONFERENCE PRESENTATIONS**


Harrington, A. M. (2016, March). *The effects of the performers’ age on evaluating musical performances by music majors, non-music majors, and New Horizons Members.* Presented at the National Association for Music Education (NAfME) Research Conference, Atlanta, GA.

Harrington, A. M., & Dillion, C. M. (2016, February). *An exploration of undergraduate music majors’ and non-music majors attitudes toward older adults.* Presented in the research poster session of the Kentucky Music Educators Annual Clinic Conference (KMEA), Louisville, KY.

Ray, A. W., & Harrington, A. M. (2016, February). *Undergraduate elementary education majors’ self-perceptions of readiness to include music of multiple genres in future teaching.* Presented in the research poster session of the Kentucky Music Educators Annual Clinic Conference (KMEA), Louisville, KY.


Harrington, A. M. (2015, February). *Assessing pre-service educators’ aural and visual skills in recognizing correct and incorrect recorder performance.* Presented as a spoken paper and poster at the International Symposium on Assessment in Music Education (ISAME), Williamsburg, VA.

Harrington, A. M. (2014, February). *Characteristics of effective teaching as perceived by undergraduate education majors*. Presented in the poster session of the Kentucky Music Educators Association (KMEA), Louisville, KY.

**SOCIETIES AND AFFILIATIONS**

Adult and Community Music Education Special Research Interest Group  
College Music Society  
International Society for Music Education  
Society for Music Teacher Education  
Society for Research in Music Education  
The Honor Society of Phi Kappa Phi

__________________________  
Ann Marie Harrington  
Student’s Signature

__________________________  
11/30/2016  
Date