THE EFFECTS OF CONDUCTOR FACIAL EXPRESSION ON MUSICAL EXPRESSIVITY IN MIDDLE SCHOOL BAND STUDENTS

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Abstract

The purpose of this study was to ascertain whether approving, disapproving, and neutral conductor facial expressions had an effect on middle school band students' perceived level of expression of wind ensemble performances. Middle school concert band students ($N = 23$) watched nine one-minute videos of three actors' varying facial expressions with accompanying band music. Students rated the expressivity of each one-minute performance on a scale of 1 (*not very expressive*) to 10 (*very expressive*). The experiment was conducted as an online survey. Survey data was gathered through Qualtrics (https://www.qualtrics.com) by a designated research administrator. Data were analyzed using a Friedman Two-Way Analysis of Variance by Ranks. Results indicated that conductor facial expressions significantly affected middle school concert band student ratings of ensemble expressivity, $X^2(3) = 27.29$, $p < 0.000$. Dunn-Bonferroni post hoc pairwise comparisons suggested approving facial expressions were perceived as significantly more expressive than neutral or disapproving facial expressions, with neutral facial expressions yielding the lowest participant ratings.

Chapter 1: Introduction

As musicians, we express ourselves through performing, composing, and listening alike, sharing in a communal musical act that has been cultivated beginning with our earliest ancestors. Emoting and conveying ideas through the manipulation of sound waves encapsulates a variety of different physical, emotional, and cultural elements, and the congealing of all these performance facets results in the universal sensation of music. While listening to music, we hear the melodies, harmonies, and rhythms that feed our own perception of musical expression (Davies, 2011). A large component of what generates the universal appeal of music is derived from our collective enculturation and underlying interpretation of musical moments (Trehub et al., 2015). Although expressivity is a purely subjective artistic feature, its perceived influence can be artificially enhanced through increasing volume, changing timbre, using words, changing harmonies, as well as other compositional devices. Surprisingly, a large component of musical expressivity relies on the visual perception by the audience and performer and not just the manipulation of the sound itself (Krahe et al., 2015). Conductors are at the forefront of capturing the ideas of composers and channeling a unified interpretation through movement to an ensemble. How a piece of music is interpreted and performed relies quite heavily on the conductor, and the ability to show expressive musical intent and clarity is at the heart of all good conducting (Wagner, 1897). The conductor is the pivot point for everything that musically transpires in a rehearsal, for better or for worse (Green, 1961). The more a conductor identifies with the composer and the intended emotions inspired through the piece, the more authentic and enriching the performance will be (Weingartner, 1906).

Expressive Conducting

Research on Expressive Conducting

A wealth of research on conducting expressivity exists for not just band but other ensembles, as well. Conductors have a wide array of movements and gestures at their disposal to convey musical expression. Hands, body gestures, eyes, and facial expressions also play a significant role in the visual representation of the music (Heath-Reynolds, 2014). Conductors who practice these skills still need the wisdom to apply these expressive tools in appropriate musical situations. Veteran conductors tend to conduct more expressively than novice conductors (Koerner & Silvey, 2016). According to Morrison et al. (2014), higher conducting expressivity yielded higher evaluations of a musical performance. Yet according to collegiate and professional assessments of middle school and high school concert band performances, it is unclear if there is a direct correlation between expressive conducting and expressive performances (Silvey, 2011b.). Despite the appropriate application of conducting and gestural techniques, conductors of all backgrounds struggle with the emotive aspects of conducting.

Gestures and Facial Expressions

Performers and conductors at the collegiate and professional level are often taught the mechanics and techniques of conducting without much mention of the emotional or expressive components involved (Mayne, 1992). However, the affective facets in the creating, rehearsing, and conducting of music have different applications to achieve the desired intent of the musical interpretation. Simple eye contact with a flute section about an incoming entrance could signify importance. Adding a smile to the same eye contact might connote acceptance, warmth, and security from the conductor (Heath-Reynolds, 2014). A conducting gesture may suggest the

desired tone, playing, and style of a section of music (Morrison et al., 2014). The use of minimal wrist motion could signify short note lengths, softer dynamics, or even a general sense of control between the ensemble and the conductor (Mayne, 1992). Although nonverbal conducting has been studied by researchers, verbal instruction integrated with appropriate gestures could benefit from extensive research to examine the effects of nonverbal behaviors on the expressivity of an ensemble's performance (Silvey, 2011b.).

Effective Conducting Strategies

A combination of both verbal and nonverbal strategies is the most effective in rehearsing for expressive ensemble performances (Baumgartner & Silvey, 2016). The traditional method for music rehearsal uses a combination of verbal commands and nonverbal gestures to create a balanced rehearsal experience. The fusion of verbal and nonverbal teaching behaviors found in the traditional method incorporates the best from both methods as a natural choice for modern conductors. In fact, traditional rehearsal methods elicit more favorable responses regarding perceived conductor effectiveness compared to verbal-only and nonverbal-only methods (Baumgartner & Silvey, 2016). Effective communication is paramount for quality performances. It is imperative for current and future professional conductors to train and refine the mechanics of clear conducting and the clarity and effectiveness of nonverbal gestures and facial features (Baumgartner & Silvey, 2016). The use and frequency of nonverbal behaviors has a strong positive correlation to perceived teacher effectiveness (Heath-Reynolds, 2014), demonstrating the importance of adding gestures and facial expressions to any teaching scenario.

The Visual Side of Music

Sight Affecting Perceived Sound

Concertgoers could stay home and listen to an audio recording, but doing so would impede the complete sensory experience of a live performance. The visual aspect of a musical ensemble's performance influences the perceived expressivity (Schutz, 2008). The macro movements of violinists or percussionists embellished impactful moments in the music and effect the perceived musical expression. The perceived loudness, timbre, and note duration were also affected by instrumentalist visuals accompanying the music (Schutz, 2008), demonstrating that expression levels and more subtle musical moods were understood much more easily when nonverbal information was viewable (Vines et al., 2005). In some instances, musical expression is strongly connected to visual movement. Long and short notes on the marimba have identical audio duration and are aurally indistinguishable. When a long visual stroke was added to the end of playing a pitch, the perceived note length was increased. Short stroke visuals, similarly, generated perceptions of a shorter sound duration despite having identical note length with a note struck with a long visual at the end (Schutz, 2008). In a similar vocal study, perceived intervals of a vocal performance were substantiated by the head movements, facial expressions, and eyebrow-raising the audience observed (Thompson & Russo, 2007).

Nonverbal Behaviors

Increased frequency of conductor nonverbal behaviors including proximity to students, changing facial expressions, and body language helped students maintain engagement (Heath-Reynolds, 2014). According to the research of Wollner (2008), the implementation of hands, arms, body language, face, and eyes all played a role in determining the information gleaned

from the score by the conductor. Yet the largest amount of expressive information obtained by ensemble musicians came from the conductor's use of facial expressions and eye contact (Wollner, 2008). Musicians yield most visual information from conductor face and eye contact, as the impact of changes in conductor facial behavior highlight the most perceived differences in musical expression (Baumgartner & Silvey, 2016).

Eye Contact

On a macroscopic level, eye contact is as prevalent in sophisticated human interactions as it is in our primate ancestors, and eye contact has been found to increase the effectiveness of communication in all social circumstances (Fredrickson, 1992). The power of eye contact could be utilized with increased frequency on the conducting podium if the responsibility of score study, score tracking, and student awareness were not constantly being juggled throughout a typical concert band rehearsal (Fredrickson, 1992). The directed gaze of a teacher was consistently the most prolific and influential nonverbal behavior when the clarity of the message and overall effectiveness was being judged (Heath-Reynolds, 2014). The eyes influence the perceptions of others, as well. For example, in a study by Boyanowsky and Griffiths (1982) examining perceptions of eye contact, police officers who wore reflective sunglasses received more negative rankings than those with visible eyes. Strategic and consistent eye contact increased the veracity and believability of a public speaker who stuttered according to a study by Tatchell, Van den Berg, and Lerman (1983). Although the speaker stuttered, consistent eye contact overshadowed any perceived weakness due to stutter-induced nervousness. The eyes created a feedback loop of positive director-student interaction, ensuring students that their efforts were being monitored and that on-task behavior was taking place (Frederickson, 1992). Similarly, the expressive intent of a specific performance was enhanced through meaningful

visual awareness in the eye contact of both audience, performer, and conductor (Vines et al., 2005).

Engagement. It is critical to note that for eye contact to be perceived, multiple parties must be engaged simultaneously (Byo & Lethco, 2001). Engagement through eye contact fosters an integral part of the teacher/student relationship, benefitting the communication between the conductor and the musician (Fredrickson, 1992). According to Budde (2011), shared eye contact between conductor and ensemble was needed more during music performances with multiple starts and stops, mixed meter, or slower tempi. Eye contact was shared between performers and conductors more when performers truly relied on the temporal or musical guidance of the conductor. Moments where performers looked at the conductor were far more abundant with younger musicians, who may struggle with music that has fewer tempo changes, mixed meter, or slow sections (Budde, 2011). Looking up at the conductor not only gave the ensemble pulse security, it also communicated the interpretative messages from the conductor through nonverbal and facial gestures (Koerner & Silvey, 2016). High school band students responded to a perceived expressive conducting with expressive playing (Byo & Lethco, 2001), whereas middle school students responded with virtually no expressive alterations (Price & Winter, 1991). The lack of expressive alterations by younger players could signify the need for a defining of gestural behaviors, thereby increasing the effectiveness of shown expressions by a conductor (Roebke, 2005).

The Synergistic Effect of Nonverbal Behaviors

The direct or peripheral appearance of a conductor can portray information before gestures or eye contact. Eye contact is just one facet of facial expressions, albeit a very influential one. According to Silvey (2011a.), conductors that used expressive body movements, gestures, and facial behaviors demonstrated the importance of the introduction of visual expressivity to collegiate conducting students both on and off the podium. In a study by Schutz (2008), the ensemble or musician appearing professional or attractive to the audience had a positive bearing on perceived ability. On a mechanical level, musicians need a shared vehicle for pulse and the initiations of sounds and releases. Ensemble musicians who could only see the conductor and not hear the ensemble performed with similar accuracy to ensemble musicians who could only hear the ensemble (Fredrickson, 1994). Visual information alone can maintain ensemble pulse control, as a marching band watching the field conductor's hands provides a reliable visual for pulse control. A performer's visual awareness of the body motions of fellow performers and conductors becomes integral to maintaining pulse and musical intent (Fredrickson, 1992). The implementation of consistent, strategic eye contact to monitor student behavior, display interest, and to simply gauge the musical effectiveness of musicians lends itself to increasingly better, more engaged ensembles (Fredrickson, 1992). However, it is not always clear to the ensemble what the conductor's eyes are trying to convey. Conductors must work to visually articulate otherwise ambiguous elements of expression (Roebke, 2005).

Need for the Study

If all teachers understood and reflected upon the implications associated with specific nonverbal behaviors, they would teach more effectively (Heath-Reynolds, 2014). High school

students interpret and change their musical behaviors based on the expressivity demonstrated by the conductor (Silvey, 2011a.). Currently, very litte research into how middle school students modify their performances in responses to conductor expressivity has been done. In the original Silvey (2013) study, high school students were selected for their lack of instruction on rehearsal and conducting techniques when compared to college students studying music education or conducting (Silvey, 2011b.). Middle school students similarly lack educational training in conducting experiences. The most simplistic facial expressions with approving or disapproving features yielded higher expressivity ratings from high school students than ratings for neutral facial expressions, yet it is unknown if these facial expressions will similarly impact the musical expression perceived by middle school students (Silvey, 2013). By understanding what type of stimuli influences middle school band students' musical and expressive growth, music educators can assist administrators, parents, and local leaders in recognizing the expressive conducting best practices that will elicit more expressive performance in their middle school ensembles. Once facial expressivity is decoded by students, music teachers can use eye contact and facial expressions to engage students at all levels of music learning (Heath-Reynolds, 2014).

Purpose of the Study

The purpose of this study was to ascertain whether approving, disapproving, and neutral conductor facial expressions had an effect on middle school band students' perceived level of expression of wind ensemble performances. I created a replication of a study by Silvey (2013) that was designed to investigate the effects of facial expressivity on middle school students instead of high school students. I asked the following research questions:

Research Questions

1. Do perceived conductor facial expressions affect the perception of performed musical expressivity by middle school concert band students?
2. Which facial expression was perceived as the most expressive?

Definitions

- Expressivity – the quality of demonstrating visual or aural changes in a performance based on perceived musical intent, mood, style, or interpretation.
- Facial expressions – manipulations or behaviors of the face to convey various types of meaning in various contexts (Elliot & Jacobs, 2013).
- Middle School – Students enrolled in 6^{th} through 8^{th} grade.
- High School – Students enrolled in 9^{th} through 12^{th} grade.
- Wind Band Literature – Music that has been composed for wind band instruments; e.g., woodwinds, brass, and percussion (Wiggins, 2013).

Chapter 2: Review of Literature

In this chapter, I review literature that investigates the influence of visual conducting behaviors on perceived performance expression, the most expressive part(s) of the conductor's body, conductor facial expressivity, and the ability of middle school students to recognize and assess expression in music. In much of the following research, a performer or conductor uses increased, decreased, intensified, or altered body motions, eye contact, and facial expressions to convey varying levels of emotion. These traits will be referred to as "expressivity."

Visual Influence on Musical Performance

Visual information affects the perception of expression in musical performances (Vines et al., 2010; Krahe et al., 2015; Schutz & Lipscomb, 2007). The impact of visual stimuli on perceptions of musical expression is examined in the following studies.

In a study by Vines et al. (2010), researchers examined the effect performer body movements had on the assessment of perceived musical expressivity by music majors. The three visual styles of restrained, standard, and exaggerated body movements by the performer were recorded. Thirty participants from McGill University (mean age of 23.7 years) were randomly placed in one of three treatment groups: an auditory-only group that only heard the performances, the visual-only group that only watched the performances, and the visual and auditory group that experienced the complete video-audio performance. The six performances consisted of two professional clarinetists playing Stravinsky's *Second Piece for Clarinet Solo* three times each: with little body movement (*restrained*), standard body movement (*natural*), and excessively expressive body movement (*exaggerated*). Each group experienced all six performances only once in a random order. At the completion of each performance participants

used a Likert-type scale, 1 (*not very much*) to 5 (*very much*), to rate the performance on 19 different emotional qualities. Nineteen descriptive words drawn from the psychological literature on emotion and music cognition (e.g. amusement, anger) appeared on the survey document in random order. Data from the six performances were analyzed using a repeated-measures ANOVA (performance descriptors X treatment groups X performances). Results yielded main effects with between-subjects factors for auditory, visual, and audio-visual data and within-subjects factors for the chosen clarinetist, manner of presentation, and visual style ($F(72, 972) = 1.82$, $p < .001$). Results revealed seeing the performance, not just hearing the audio, affected the perception of the expressive elements in the performance. The influence expressivity had on an auditory performance, especially performances with exaggerated movements, intensified participant responses positively. The communication of emotion from performer to audience was influenced heavily by performances that were not only listened to but also viewed (Vines et al., 2010). This study by Vines et al. (2010) has implications on the current study by demonstrating the impact in which viewing a musical experience will affect the audience or performer perception of a conductor's musical interpretation.

Musical performances possess both visual and auditory stimuli, but it is unclear which elicits greater emotional responses from audiences. The research by Krahe et al. (2015) sought to determine whether visual or auditory information was more prevalent in generating emotive responses while observing a music performance. Seventy-two non-musician college students from Cardiff University served as participants for this study. Researchers used 33 descriptive words from the short version of the Geneva Emotional Music Scale (GEMS) derived by Vines et al. (2005) as a set of emotional descriptors to qualify the perceived intensity of music performance. Four of the words were chosen to measure a happy or sad quality of perceived and

felt emotion: “joyful,” “amused,” “sad,” and “tearful.” The remaining 29 words were used as filler items. Video clips of a college senior male music student playing the Beethoven Bagatelle on clarinet were shown. The piece consisted of two movements - “Lustig” (happy) and “Traurig” (sad). The performer’s body movements matched the printed mood. The clarinetist’s movements were bouncier and livelier during the “happy” movement and more subdued and subtle during the “sad” movement. The video clips were used to create four distinct condition groups using every permutation of happy/sad music and body movement to reflect the emotion (2 musical moods x 2 body movements). Participants were placed randomly in one of four condition groups: happy mood/happy movements, happy mood/sad movements, sad mood/happy movements, or sad mood/sad movements. After viewing the condition group’s matching recorded clarinet performance, participants rated each of the 33 descriptive words as they pertained to the performance’s perceived emotion on a five-point Likert-type scale (1 *not at all* to 5 *very much*). Additionally, the participants wrote a short paragraph to describe the performance and what it expressed using in their own emotive descriptive words. Participants repeated the process with an identical recorded performance, rating the 33 descriptive words as they pertained to the emotions felt, instead of perceived emotion, on the same 5-point Likert-type scale. Similarly, the participants wrote a short paragraph describing how the performance made them feel. In total, participants viewed the same recorded performance twice, rating and describing both perceived emotions and emotions felt. A Cronbach’s alpha was utilized to show reliability for the four critical words ($\alpha = .72$ for felt emotions and $\alpha = .74$ for perceived emotions). A 2 (musical mood) x 2 (body movements) ANOVA was implemented for both dependent variables - felt and perceived emotions ratings. There were main effects for both auditory materials (perceived emotion, $F(1, 68) = 23.67$, $p < .001$; felt emotion, $F(1, 68) = 12.37$, $p = .001$) and body

movement (perceived emotion, $F(1, 68) = 13.22$, $p = .001$; felt emotion, $F(1, 68) = 3.86$, $p = .054$) (Krahe, et. al, 2015). Simple effects tests for "sad" music clips resulted in significant differences between congruent and incongruent pairs, highlighting the perception of "sad" music as much happier when paired with happy body movements (perceived emotion, $F(1, 68) = 19.51$, $p < .001$, partial $\eta^2 = .22$); felt emotion ($F(1, 68) = 9.62$, $p = .003$, partial $\eta^2 = .12$). Happy music clips did not yield any significant between congruent and incongruent pairs (perceived emotion, $F(1, 68) = 0.52$, $p = .470$, partial $\eta^2 = .01$; felt emotion, $F(1, 68) = 0.10$, $p = .748$, partial $\eta^2 = .00$).

Combination of both visual and auditory information helped determine the emotions that were perceived and felt (Krahe et al. 2015). Happy body movements accompanied by sad music resulted in significantly happier perceived and felt emotions than when sad movements accompanied sad music. Happy music, however, generated high happiness ratings regardless of its pairing with either sad or happy visuals, as shown in the data for congruent and incongruent happy clips (perceived emotion, $F(1, 68) = 0.52$, $p = .470$, partial $n_2 = .01$; felt emotion, $F(1, 68) = 0.10$, $p = .748$, partial $n_2 = .00$). The findings in this study demonstrate the influence visuals provide when accompanying sad, mildly sad, or otherwise emotionally ambiguous music (Krahe et al., 2015).

Visual information effects the perceived note lengths of a marimba performance, according to a study by Schutz and Lipscomb (2007). Fifty-nine participants from a northwestern university listened to both audio-only and audio-visual recordings of a professional marimba artist playing long, short, and dampened notes (Schutz & Lipscomb, 2007). Each excerpt contained two of the following three stroke groups: dampened and long, long and short, or short and dampened. The relationship between demonstrated performance gestures on video and

perceived note duration were addressed using the questions: Does visual gesture length affect perceptual note length for the conditions of audio information only or audio-visual information? The participants were instructed to indicate perceived note length by moving an unlabeled 101-point slider with endpoints labeled “long” and “short” based on only auditory information from the audio-visual excerpt. A second question asked participants on the level of agreement between the visual and auditory components of the stroke using a different unmarked slider with endpoints labeled minimum agreement and maximum agreement. Perceptual-duration ratings were analyzed with separate ANOVAs for audio-alone and audio-visual conditions. An analysis threshold of $p < 0.05$ was used to assess statistical significance. Duration ratings in the audio alone category were assessed with a 3 (pitch) x 3 (auditory stroke type) repeated measures ANOVA with auditory stroke and pitch type as within-participants variables. There was a main effect for pitch level ($F(2,116) = 138.125$, $p < 0{:}0001$), demonstrating that lower pitched notes were perceived to have longer duration than higher pitch notes. Results indicated no meaningful distinction in the perception of short and long note durations with audio-only stimuli. However, results indicated meaningful distinctions between short and long note durations when accompanied by visual stimuli. Duration ratings for the audio-visual category were assessed with a 3 (pitch) x 3 (auditory stroke type) x 2 (visual stroke type) repeated-measures ANOVA (Schutz & Lipscomb, 2007). A main effect for visual stroke type ($F(1, 58) = 166.5$, $p < 0.0001$) indicated a strong visual influence on participant ratings for duration. A main effect for auditory stroke type ($F(2, 116) = 278.4$, $p < 0.0001$) was due to the distinction between damped and undamped stroke types. Results yielded the perception of long and short notes being influenced heavily by the visual stroke ($F(1, 116) = 767$, $p = 0.467$) (Schutz & Lipscomb, 2007). Dampened notes were perceived as shorter when accompanied by visual stimuli than short notes. Observing the audio-

only stimuli, participants perceived no difference in short and dampened note lengths. Implications of this study on the current study suggest that perceived musicality varies based on accompanying visual information. Although note length is a very precise facet of music, the relationship between visual and auditory information suggests the importance of strategic, congruent visuals and music.

The nuances of music, rich with complex emotions, were more clearly interpreted with a visual component. Experiencing the visual aspects of music performance changed emotional perceptions, as happy body movements paired with sad music were perceived by participants as happier than a performance of matching sad body movements and music (Krahe et al., 2015). Schutz and Lipscomb (2007) determined that arm gestures influenced the perceived note length of marimba notes. The significant impact that body movements had on the perception of emotion in music was quite pronounced as seen by the research of Schutz (2008). The specific degree to which different body parts influence the observed expressivity could inform our growing understanding of how conductors might best optimize visual behaviors. Schutz (2008) posits the following:

> Why do we buy concert tickets when the same sounds can be heard more cheaply and comfortably within our own homes? Why do popular music concerts often include elaborate lighting and staging effects for what is ostensibly an auditory event? Why can't orchestral musicians wear t-shirts and flip-flops? The answer to these and other similar questions is that visual information in fact plays an important role in shaping the musical experience. In addition to increasing overall excitement and interest performers use it strategically, harnessing its communicative power to supplement and augment their

acoustic output. Therefore, rather than a distraction, it is actually a tool useful for musical communication.

The Most Expressive Part of the Body

Eye contact is as ubiquitous in sophisticated human interactions today as it was in our primate ancestors and increases the effectiveness of communication within all social circumstances (Fredrickson, 1992). When working with younger players, eye contact between conductor and performers creates a feedback loop of positive conductor-performer interaction, ensuring performers their efforts are being monitored and on-task behavior is taking place. However, eye contact is one component of the facial package delivering a multitude of musical information to performers (Fredrickson, 1992). Facial expression then becomes an integral part of expressive intent when experiencing music live. Observations from the following research highlight the influence eye contact and/or facial expressions have on the perception of music expressivity.

A study by Thompson and Russo (2007) investigated the impact of singers' facial expressions and head movements on the perception of melodies. In this study researchers found a strong relationship between visual and auditory information (Thompson & Russo, 2007). Three trained female vocalists sang 13 ascending melodic intervals heard through headphones, using the syllable "la" for each note. Nineteen participants (8 females, 11 males) from the University of Toronto observed the video-based recordings of singers performing the recorded melodic intervals (3 singers x 13 melodic intervals) without audio. The participants' musical training varied from 0 to 8 years, with a mean of 2.29 years of training; and a range in age of 18 to 25 years, with a mean of 19.71 years. After viewing each sung melodic interval, participants were instructed to rate the pitch interval size based upon the singer's facial expressions on a scale of 1

(*small pitch interval*) to 7 (*large pitch interval*). An analysis of covariance with musical training labeled as a covariate revealed that the accuracy of the participants' ability to visually discern melodic interval size was statistically significant, $F(12, 180) = 15.8$, $p < .0001$. There was a significant interval-by-singer interaction where intervals were perceived higher or lower depending on the singers' facial behaviors, $F(24, 360) = 2.28$, $p < .001$.

A positive correlation was noted between melodic interval size and the perceived melodic interval size based on visuals alone. A high correlation occurred between pitch interval and mean interval ratings, $r(11) = .90$, .95, and .88, for singers 1, 2, and 3, respectively (Thompson & Russo, 2007). The participants' judgments of interval sizes varied based on the influence of the very natural, unrehearsed singer facial expressions and head motions. According to the results, conscious or unconscious facial features and head movements by singers influenced participant's perception of size in melodic intervals. The implementation of the strategic eyebrow, mouth, and head movements yielded a significant positive interaction with the music it accompanied according to the participant ratings. These facial behaviors used by the three vocalists aroused perceptions of intuitive vocal production to enhance the accuracy of perceiving and understanding intervals sung (Thompson & Russo, 2007). To an observer, facial features that align with changing pitches transferred congruent visual information.

The research of Wollner (2008) demonstrated the effect different viewpoints of a conductor's body has on audience perceptions. Five young conductors, between the ages of 20 and 34 years, with varying levels of experience were video recorded with sound conducting contrasting areas of a Beethoven symphony. Each recording employed one of three experimental conditions: face alone, arms alone, or the whole body. One hundred twenty-seven high school students served as participants, 59.8% of which were musically trained. The participant mean age

was 17.2 years old (SD = 1.2). Participants watched 60 randomly ordered video sequences without sound; 5 conductors, 4 musical excerpts, and 3 experimental conditions each. The experimental conditions were face alone, arms alone, and peripheral full body with reduced image clarity. Participants were instructed to rate the conductor's general expressiveness using a 7-point scale (1 being *lowest expressivity*, 7 being *highest expressivity*), perceived musicality, the expressive arousal inspired by conductor movements, and the conductor's overall positive or negative intrinsic appeal. After rating the 60 video sequences participants were asked to rate 20 reference video sequences, 5 conductors and 4 musical excerpts with sound on and a complete body shot of the conductor. After watching each of the 20 reference videos, participants rated how much they liked the conductor, estimated the conductor's level of professional experience, and how much they would enjoy performing under this conductor on a 7-point scale. The experiment lasted between 65 and 80 minutes. Data for the three viewing conditions were assessed using a one-way ANOVA. Results indicated a significant main effect for the three experimental conditions. Two two-way ANOVA were used to analyze conductor x body part and conductor x musical excerpt, which yielded a significant main effect for body part, $F(2, 45) = 9.90$, $p < .001$. Post hoc comparisons showed within body parts, the head matched the reference ratings closer than arms or peripheral vision conditions. Musically untrained and trained participants' results showed no difference between evaluations of the conductors. With visual information alone, intended expressiveness and the correct level of arousal were clearly communicated by the conductors. Results clearly suggested intended expressiveness in conducting is largely perceived by facial behavior (Wollner, 2008). Furthermore, the amount of information perceived by audiences from arm gestures was greatly magnified with the presence

of facial expressions. Participants consistently preferred conductors that achieved the highest scores in facial expression over those that perceived lower facial expression (Wollner, 2008).

In a study examining brain stimuli, happy or sad faces were paired with happy or sad musical excerpts to determine the influence of facial expressions on perceived musical mood (Kamiyama et al., 2012). Audio stimuli consisting of 12 "happy" and 12 "sad" musical excerpts was created from a pilot study. Visual stimuli included twelve happy and sad facial images randomly chosen from the pilot study's original 24 sets of each facial image. Ninety-six congruent and ninety-six incongruent audio/visual pairs were created from the audio stimuli and facial stimuli. Participants ($N = 24$) from Japan ages 18-49 years experienced 192 facial-music pairs. Participants rated each visual/audio pairing on a 9-point scale, with 1 being *very sad* and 9 being *very happy*. For each pairing, participants rated the musical excerpts as congruent or incongruent with the facial expressions shown using a right (congruent) or left (incongruent) thumb. Each participant was hooked up to EEG topographical equipment used to determine the speed in which the decision was made by the brain. EEG topographical data revealed the effects of facial expressions regarding the emotional processing of music. Results show the recognition between matching pairs of faces and music to be much faster than those that differed in emotional quality. Results suggested that the relationship between facial and musical expression is integrated deeply in the way we as human beings process music. Not only did participants respond behaviorally to the emotional congruence between facial and musical expressions more quickly, but the reaction was also apparent on an electrophysiological level (Kamiyama et al., 2012).

Facial gestures such as smiling, frowning, and raising eyebrows clarify and enhance the perceived expressiveness of the musical source more accurately than the conductors' arms alone,

signifying the emotive capabilities the face offers to its viewers. The face also contains the focal feature of most human interactions–the eyes. Observations and neuroscience align on the shared principle that the features of the face powerfully shape the landscape of our understanding of music performances.

Conductor Facial Expressivity

The core of what the conductor seeks to achieve is nonverbal, influenced greatly by the information-soaked nature of waving arms (Wagner, 1897). Yet crystallizing which expressive behaviors precisely yield the highest returns on music learning while simultaneously achieving composer and conductor intent is vital in understanding how to make novice and even veteran conductors more effective on the podium.

The research of Morrison et al. (2014) investigated the effects of conductor gestures on the evaluations of ensemble expressivity. Four musical excerpts, 2 with high levels of dynamic contrast and 2 with high levels of articulation contrast, were recorded by a string chamber ensemble twice – once performed with high expression, and once performed with low expression. The 8 audio excerpts were combined with videos of expressive and non-expressive conducting from one of four conductors (2 males, 2 females), creating a total of 64 combined segments–8 audio excerpts x 2 expressions x 4 conductors. To reduce test duration only 32 of the 64 combined segments were selected and divided into two equivalent 16-item test forms, comprising two items from each condition–expressive and unexpressive playing, expressive and unexpressive conducting. Participants (N = 285) were college music majors and non-majors. Participants were asked to watch the 16 items and rate the perceived articulation, dynamics, expressivity, tempo, and ensemble technique using a 10-point Likert-type scale, with 1 being poor expressive playing and 10 being excellent expressive playing for each separate element.

The areas of interest for the study focused upon articulation, dynamics, and expressivity while other areas were added to obfuscate the study's intent. Mean scores were calculated for participant evaluation of articulation, dynamics, and expressivity. A repeated measures ANOVA was used to compare expressivity scores to the four conductor/ensemble expressivity pairings. There was a significant main effect for expressivity with strong effect size, $F(3,279) = 144.97$, $p < 0.001$), signifying the impact expressive conducting had on participant ratings. Results indicated a lack of difference between responses of music majors and non-music majors.

A Pearson correlation was used to measure the connection between articulation and expressivity scores. Articulation scores were found to be positively correlated with expressivity scores (Pearson's $r = 0.72$, $p < .001$). Similarly, a positive correlation between scores for dynamics and expressivity occurred ($r = 0.85$, $p < 0.001$). Across all items, dynamics, and articulations, a significant positive correlation between expressivity scores and evaluations of dynamics ($r = 0.84$, $p < 0.001$) and articulation ($r = 0.73$, $p < 0.001$) was shown. Results also suggested a strong positive correlation between auditory and visual information, highlighting the relationship expressive conducting has on an ensemble's perceived expressivity. Episodes with identical music were also perceived as more expressive when accompanied by high gestural activity (Morrison et al., 2014).

The perception of ensemble expression to the performer and audience, while enhanced by conductor gestures, is not the actual expressivity generated from a particular performance. The performers create the perception of expression with the visual guidance of the conductor. At the crux of the research by Morrison et al. (2014), conductor's utilized a tool that created both the perception of expression and further motivated performers to play or sing expressively, and so

the performer assessment of such conductor expressivity was critical in understanding what nonverbal conductor behaviors facilitate the most impact.

In a study focused on the conductor's ability to use facial expressions to convey common musical conducting gestures, the research of Mayne (1992) found facial expressions enhance the intensity of the intended expressions. Research questions addressed the following: (1) how do conductor facial expressions affect the ability of "instrumental performers to interpret musical conducting gestures?" and (2) Was there a variance in interpretation levels of specific conducting gestures used between the three student grade levels (Mayne, 1992). Participants included 45 middle school instrumental students, 186 high school instrumental students, and 71 college students. Two videotapes (tape 1 and 2) were created showcasing 53 conducting gestures–one with facial expressions and conducting gestures, the other with only conducting gestures. A panel of three collegiate instrumental conducting experts served as judges of conducting accuracy for the 53 conducting gestures. The judges' mean score for the 53 conducting gestures was 4.3 on the scale from 1 (*not accurate*) to 5 (*very accurate*). The judges' responses were analyzed with Cronbach's Alpha for inter-judge reliability, producing a coefficient of $\alpha = .974$ (Mayne, 1992). For the main portion of the study participants were divided into 2 equal groups to view either tape 1 or 2. After viewing each of the 53 conducting gestures, participants were given 15 seconds to identify the conducting gesture by selecting the statement on the evaluation sheet that most closely described the gesture. Composite scores were created from participants' answers to show interpretation of gestural accuracy, with the highest score being 53 out of 53 (1 point for each correct identification). The mean of the junior high composite scores was 29.53 for group 1 (without facial expression) and 32.69 for group 2 (with facial expression). The mean of the high school composite scores was 34.84 for group 1 (without facial expression) and 35.44

for group 2 (without facial expression). The mean of the college composite scores was 43.42 in both groups. These results demonstrated the effect experience level had on the musician's ability to interpret information based on conducting gestures. The attributions of expressive elements were greater with facial expression (tape 2) over those examples without facial expressions (tape 1). Junior high students, who understand less of the gestural vocabulary than their high school or college counterparts, benefitted the most from facial expressions and had the highest frequencies from tape 2 over any other demographic (Mayne, 1992). An understanding of conductor's intent through arm gestures remained straightforward when dictating basic cues like tempo changes, fermati, and accented entrances. However, the clarity, intensity, and degree of such gestures on a much more human level can be amplified through the incorporation of congruent, intuitive facial expressions (Mayne, 1992).

A study by Silvey (2013) explored whether the use of a conductor's facial expression affected the expressivity ratings assigned to musical excerpts by high school band students. Silvey tested the effects of conductors' approving (*happy*), disapproving (*sad*), and neutral facial expressions on ratings of music ensemble expressivity. The study sought to identify whether approving, disapproving, or neutral facial expressions would have an impact on high school band students' perceived expressivity ratings of wind band music excerpts (Silvey, 2013). Three opera college students were videotaped with approving, disapproving, and neutral facial expressions. These videotapes were superimposed over one-minute audio excerpts of grade 3 wind band literature (see Appendix B), employing slow tempi and homorhythmic melodies with predictable climax. Participants (N = 133) included Midwestern high school concert band students that had not participated in a rehearsal technique or conducting course. Participant demographics were as follows: N = 27 freshmen, 41 sophomores, 27 juniors, and 38 seniors. All participants viewed

one of three presentation orders, and evaluation forms were distributed and prefaced with the following instructions read aloud:

> You will be listening to nine 1-minute musical excerpts as you view different conductors. Please rate how expressively you feel each ensemble performed the music you heard by circling a number from 1 (*not expressive*) to 10 (*very expressive*) on your evaluation sheet (Silvey, 2013).

Data were analyzed using a one-way ANOVA, with three different modes for each actor (*neutral, approving and disapproving*). Performances of concert band pieces at a grade level 3 were interpreted as more expressive when accompanied by both approving and disapproving facial features. Conversely, neutral facial expressions showed a less expressive interpretation by the participants of this study. The differing faces between three actors allowed for the plausible differentiation necessary to obfuscate any unintended correlation between any participant biases towards one set of facial expressions over others. However, Silvey suggests the need for understanding the demonstrated efficacy of facial expressions at the middle school level for the betterment of amateur conductors at all grade levels. If facial expressions influence the perceived expressiveness of high school students, then perhaps the replication of this method on a middle school environment should be tested (Silvey, 2013).

There are many testimonials and studies that show the significance of a conductor's musical expressiveness (Wollner, 2008). Research indicates that the eyes and general facial expressions reveal more about musical intent than even the most elaborate arm gestures (Rudolf, 1995). Quality of music education is enhanced by teacher expertise and his or her incorporation of pedagogically refined teaching techniques (Heath-Reynolds, 2014). However, teacher passion

also plays a significant part in student learning, as the skill of delivery and the student interest in the classroom is increased with apparent teacher passion for the subject material. Even without subject-matter passion, perceived teacher enthusiasm correlates to teacher effectiveness when measuring nonverbal expressions and gestures (Heath-Reynolds, 2014), and the connection of meaningful gestures with verbal instruction attributes to increased perceptions of teacher/conductor effectiveness (Roebke, 2005). Effective use of conducting gestures brings all musical behaviors into one cohesive whole (Kelly, 1999). The impact of changes in conductor facial behavior highlight the most perceived differences in musical expression (Baumgartner & Silvey, 2016). Young conductors strive to develop conducting skills that yield the most benefits. Despite not affecting the mechanical interpretation of conducting gestures, facial expressivity influences perceived teacher effectiveness and musical interpretation (Mayne, 1992).

Processing Musical Expression by Middle School Instrumentalists

According to Silvey (2013), students at the high school level and above understand expression. A middle school student's ability to judge music expression properly is influenced by experiences over development (Braun, 2012). It is unclear whether middle school students can understand expressivity to a similar capacity. The following literature demonstrates middle school students' capabilities for recognizing, describing, and assessing expression in music, addressing the concerns regarding middle school students' understanding of music expression.

A research study by Braun (2005) examined middle school student descriptions of expressivity based on music performances. Braun's study sought to answer the following additional questions: Does private study affect a middle school student's ability to perceive expression? Does the instrument played by the participant have any bearing on the perception of expression? What are the precise qualities middle school students associate with an expressive

performance? Participants (n = 69) included seventh (n = 31) and eighth (n = 38) grade students from a middle school in southeastern Ohio (Braun, 2005). A background questionnaire asked students to provide information about age, gender, instrument played, years of private study, type of music most preferred for listening, and amount of time spent each day listening to music. The survey instructed students to listen to ten 20-25 second excerpts taken from professional instrumental recordings of pieces deemed idiosyncratic to each respective instrument. Students were asked to rate each excerpt for expressivity on a scale of 1(*less expressive*) to 5 (*most expressive*). For each excerpt, the students were also asked to select 3 out of 13 statements that fit the perceived expressivity or lack thereof. Statements included "the performance grabbed my attention," "I like the tone quality of the instrument," and "the performer played with a lot of heart." A final 11th question asked about the student's practice habits. Results showed each student rated performances made on his or her own instrument more expressively. Results also indicated middle school students have the ability to recognize expressive elements in dynamics and when expressive moments in musical performances were more attention-grabbing than others (Braun, 2005).

In a more recent study, Braun (2012) investigated the perception of musical expression by the middle school instrumentalist. Specifically, Braun explored the language middle school students used to describe and compare performances. The following questions were pursued: how do middle school students use language to describe music? Do these descriptions carry enough meaning to define the music when compared with the recordings in this study? How effectively do middle school pianists convey expressive elements from music analytic or figurative language? (Braun, 2012). A pilot that employed mixed methods included 5th grade band students (N = 18), who listened to and described 5 common practice era piano music

recordings in random order. Three categories for language were used: metaphor/imagery, temporal, and music terminology. The pilot study was used to determine whether the audio recordings were appropriate. Results determined that the 3 commercial recordings were appropriate stimuli. After a successful pilot study, phase one commenced with $N = 60$ middle school band students from a program in southeastern Ohio (6th grade, $n = 14$; seventh grade, $n = 32$; eighth grade, $n = 14$). Participants listened to six recordings of common practice era piano music that were 51-64 seconds in length. Two of these 6 recordings came from the pilot study, while the other 4 were taken from the late Classical era through early 20th century. Participants wrote their own short descriptions for each excerpt, with music/analytic terms being the most commonly used descriptors (41.5%). Metaphor/imagery consisted of 36.1% of responses, while temporal (*meter, tempo*) language used the least (22.4%). The usage of each type of language in these descriptive responses were not significantly more or less prevalent in any of the middle school age groups. A selected group of four expert musicians took these descriptive responses after phase one and after listening to all six recordings matched them with the original excerpts 67.4% of the time, showcasing a relatively accurate level of descriptive accuracy between written description and the musical excerpt itself. The second phase involved a smaller group of seven middle school students who also played piano as well as their band instrument. These students were randomly given a piece of music with one of four different types of instructions. Of these four types of instructions, 2 used music analytic language (*loud, soft, accented, legato*) and 2 used figurative language (*sad feeling, happy and bouncy, lively*). This smaller group of seven piano students were given 15 minutes to practice with these random instructions, after which they performed following the same guidelines. In these performances, expert musicians could match the performances back to the intended instructions with 82.86% accuracy.

Despite a limited vocabulary, middle school students demonstrated an understanding about the musical analytic terms and the implicit nuances of music through their descriptions of music recordings (Braun, 2012). Furthermore, the description of musical content did not inhibit the identification and awareness of expressive occurrences in music. Middle school students, despite a limited vocabulary, can effectively describe music, which may or may not be a residual effect of exposure to a music program or ensemble experience (Braun, 2012).

The research of Budde (2011) investigated the best methods for teaching articulation to middle school band students. Participants ($N = 353$) were seventh-grade wind players. The study transpired in Fall 2010 near Minneapolis, Minnesota. The participants were assigned to one of five teaching conditions: control group, articulation guide group, practice group, audio model group, and visual model group. The control group ($N = 71$) took part in the pretest and posttest only. The articulation guide group ($N = 72$) received recommendations for articulation from pedagogical sources, research on phonetics (which syllables affect tongue placement and articulation agility the most), and the impact of the student's native language (which languages naturally facilitate easier articulation on wind instruments). These materials were referenced and practiced over the spanning 10-week period. The practice group ($N = 79$) received the same materials as the articulation guide group. Additionally, they received articulation practice during warm-ups of band rehearsal throughout the treatment period. These sessions consisted of audio accompaniment tracks with synthesized versions of the participant's instrument demonstrating the desired pitch and rhythm of each exercise. The audio model group ($N = 70$) performed the exact same tasks as the practice group with the inclusion of professional instrumental recordings instead of synthesized models for each rhythmic exercise. The visual model group ($N = 61$) operated identically to the audio model group with the addition of a visual waveform image of

the professionals' model performances. The treatment period for the five groups was implemented over the course of 10 weeks. A pretest and posttest were performed by each participant. The pre/post-test consisted of a performed articulation exercise, which was performed at 60, 80, 100, and 120bpm. The researcher recorded and assessed each performance at each tempo and rated each of the performances on an 8-point Likert-type scale. Sums of the four performances (scored 1 to 8 each) for each participant resulted in a final score of 4 to 32 for the combined pretest and posttest scores and served as the dependent variable. The sum of the scores during the pretest and posttest constituted the covariate. A one-way ANCOVA was used to determine the level at which participants accurately executed articulations across all four tempi (Budde, 2011). There was a significant main effect for group score and degree of articulation clarity and accuracy. The visual model group, audio model group, and practice group outscored the control group ($p < .001$; $p < .001$; $p = .025$, respectively). These results showcase the importance of guided practice, aural, and visual models in learning and understanding articulations. The visual model group and audio model group also outscored the articulation guide group ($p < .007$; $p < .001$). These results showcase the importance that visual and/or aural models had in understanding not only articulation precision, but expressivity as well (Budde, 2011). Visual models like facial expressions can directly impact the perceptions and performance-habits of middle school students, which has a direct impact on the current study.

Middle school students, when presented with both visual information and a model tend to maximize the amount of improvement possible (Budde, 2011). The methods for teaching articulation that benefited the performance of an ensemble of middle school band students used a mixture of aural models, articulation guide sheets, and a regimen of articulation practice during rehearsal at varied tempi. The most effective method to instruct middle school learners

incorporated multiple senses and teaching practices. So, conductors must model most appropriately using the tools most readily available–voice, arms, and face. So much of articulation teaching is a reaction to problems that arise, not proactive measures to instruct music in advance. Articulation is rarely seen and typically only heard through external conventions, which makes such an abstraction difficult to teach. (Budde, 2011). Fortunately, correct and pedagogically appropriate aural modeling on individual instruments seems most ideal for young learners, although largely impractical. Middle school learners gravitate towards strong, emotive modelling, making facial expressions and the implicitly dramatic nature of the face a naturally strong medium for expressive communication (Budde 2011). The need for investigation of all visual models remains extensive and would provide more insight into the best practices for educating middle school students on expressive playing on a whole, not just articulation.

Conclusion

In the literature review, I investigated influence of visuals on perceived expression, the most expressive part of the body, conductor facial expressivity, and the ability of middle school students to recognize and assess expression in music. In the current study, I examined the following premise: do facial visuals affect perceived expression? Since visual expression can be achieved in a broad manner, the current researcher focused on a specific, prolific visual that garner the most expression: the eyes/face. I asked the following research questions: (1) Do conductor facial expressions affect middle school students' perception of performance expression? and (2) Which of the three facial expressions is perceived as the most expressive? In the following chapter, I outline the current study's method for addressing these research questions.

Chapter 3: The Method

The purpose of this study was to ascertain whether approving, disapproving, and neutral conductor facial expressions had an effect on middle school band students' perceived level of expression of wind ensemble performances. I designed this study as a replication of Silvey's study "The Role of Facial Expression in Students' Evaluation of Ensemble Expressivity" (2013), changing the participant demographic from high school concert band students to middle school concert band students. In order to control for extraneous variables, there were minimal methodological changes from Silvey's study (2013). I contacted Brian Silvey, who graciously allowed me access to his audio-visual stimulus recordings. By using the same video/audio stimuli as Silvey, I could focus on direct comparisons between results. Research questions included the following: (1) Do conductor facial expressions affect middle school students' perception of performance expression? and (2) Which of the three facial expressions is perceived as the most expressive?

Silvey Audio-Visual Stimulus

The original audio-visual stimulus acquired from Silvey portrayed three college students demonstrating approving, disapproving, and neutral facial expressions while wind band literature was performed. These specific college students were chosen based on their ability to portray varied facial characteristics from their experience as operatic actors. Silvey modeled the actors' facial features on a study by Yarbrough (1975) that focused on appropriate magnitude of conductor facial expressions, which helped Silvey define approving, disapproving, and neutral facial expressions. According to Silvey, "approving facial expressions included smiling, raising eyebrows, and widening lips, whereas disapproving facial expressions incorporated frowning, a

knitted brow, pursed lips, and narrowed eyes" (2013, p. 4). The neutral facial expression involved neither emotions nor contortions, simply evoking a blank expression with little to no emotion (Silvey, 2013). The actors demonstrated these facial expressions in three, 1-minute excerpts, and then digitally paired them with recorded wind band music. The music selections were classified as grade 3 on the grade ½ - 6 scale from the *Teaching Music Through Performance in Band* series (Miles et al., 2009), and all pieces shared similar tempo, style, and tonality. Each excerpt reached a forte climax through tutti ensemble growth, and subsequently diminished to a piano resolution. Silvey (2013) selected these pieces for their alignment with research on conductor and ensemble expressivity (Morrison et al., 2009; Price, 2006; Silvey, 2011a.).

Silvey created three presentation groups of videos for the participants to watch using the recorded audio-visual stimuli. Each group of videos featured three instances of disapproving, approving, and neutral facial expressions. The three actors were featured equally throughout each order (3 times each). The order in which disapproving, approving, and neutral facial expressions are featured was randomized within each group (Appendix C). While Silvey utilized multiple presentation orders in his 2013 study, he found no presentation order effect or significant order x facial expression interaction. Given this finding, I deemed it acceptable to utilize only one presentation group in this replication study.

The musical elements in the selected excerpts were not subtle in their perceived textural and dynamic contrasts, ideal for a middle school audience due to more subtle musical nuances being harder for middle school students to detect (Braun, 2005). The implementation of clear, distinct sections of growth and decay with very distinctly varying facial expressions allowed for a middle school audience to more easily recognize and discriminate between differences in

perceived expression (Silvey, 2011a.), similar to what Silvey found with high school students in his original study (2013). Given these discernable qualities, the original excerpts were deemed appropriate for a middle school audience and thus not altered for this study.

Validity Panel

In order to minimize variables (e.g., distracting backgrounds, external factors, etc.), Silvey (2013) instructed the actors to maintain eye contact, wear plain black T-shirts, remove eyeglasses, and stay close enough to the camera to show only their faces. Silvey organized a six-person panel to watch all 27 paired facial expression/music videos (3 actors x 3 music excerpts x 3 facial expressions) with no sound and in a randomized order. The panel identified which facial expressions were approving, disapproving, and neutral and unanimously agreed upon the intended facial expressions for each video clip. This measure established both validity for the identity of each facial expression as well as interrater reliability (Silvey, 2013). The best, most natural examples that portrayed approving, disapproving, and neutral facial expressions were selected by Silvey to serve as the audio-visual stimuli.

Recruitment and Subjects - Current Study

Participants ($N = 23$) were middle school concert band students at a suburban middle school in northeast Oklahoma. These participants provided their gender, instrument type (woodwind, brass, or percussion), and grade level during the survey. These students were beginning band 6th graders ($n = 9$), intermediate band 7th graders ($n = 8$), and advanced band 8th graders ($n = 6$, 34.8%). A majority of participants were female ($n = 15$, 65.2%), with only 8 males participating in the study. Participants identified their primary instrument in concert band, with brass ($n = 11$, 47.8%) and woodwind ($n = 11$, 47.8%) chosen most commonly, while only 1

participant selected percussion (4%). Although 46 students were granted access to the study by assenting parents, only 27 students attempted the study. Of the 27 surveys, 23 were finished to completion.

A research administrator unaffiliated with the study recruited the participants for this study. The students' parents were contacted first via email through the school's Canvas account. The email contained the link to the Qualtrics (https://www.qualtrics.com) parental assent form. Parents had one week to return the forms back to the research administrator via email. After receiving the appropriate consent forms from the students' parents, the research administrator sent the Qualtrics child assent form/survey to students whose parents gave consent to have their child participate in the current study. If the student gave consent to participate in the study, then the survey link and video/audio link were provided to the student automatically on the next page. The current study's procedure was explained to the participants and their parents on the assent/consent forms. The study's intent remained hidden to the participants until the completion of the study. This deception was utilized so that participant ratings were not influenced by knowledge of the current study's research questions. Upon completion of the study participants were informed of the study's intent, which was to determine the effects conductor facial expressions had on the expressivity ratings of middle school concert band students. Participants were also informed of the rationale for the deceptive methods imposed on the students. A raffle for a $20 Starbucks gift card was performed for all students who completed the survey.

Procedure

Similar to Silvey's study, the Qualtrics (https://www.qualtrics.com) survey for this study (Appendix D) requested demographic data including gender, instrument type (woodwind, brass,

or percussion), and grade level. Unlike Silvey's original study and due to the online distribution of the survey, the following instructions were printed above the experiment's video as follows:

> You are about to watch nine, one-minute videos. Please rate each ensemble's expressivity from 1 (not very expressive) to 10 (very expressive).

For purposes of replication, the language chosen for the script and measurement instrument resembled the original. In Silvey's (2013) study, the high school students did not require a definition for expressive. According to Braun (2012), middle school students can describe and understand dynamically predictable music; therefore, a definition of expressive was omitted from the current study. Due to the wind ensemble literature featuring predictable crescendos to a forte climax following a piano resolution, middle school participants in the current study were not given a definition of expressive.

Upon assenting to participate in the study and providing demographic information, each participant viewed the survey's nine performance excerpts. After each one-minute performance the participant rated the perceived expressivity on a Likert-type scale of 1 (*not very expressive*) to 10 (*very expressive*). The participant continued this process until all nine performances were completed. After completing the survey, a link was provided to redirect the student to separately enter the first and last name for a $20 Starbucks gift card raffle.

Data Collection

Recruitment letters and parent consent forms were sent by the research administrator through Canvas email. Data for the parent consent form and the participant assent form/survey were collected automatically by Qualtrics (https://www.qualtrics.com) prior to the participant gaining access to the survey questions. The research administrator granted the current researcher access to the Qualtrics data after the students' final band grades for the spring semester of 2020

were posted. The data were added to offline spreadsheets for analysis by the current researcher. Surveys were anonymous to protect participant identity and the results stored using password protection in Qualtrics to secure privacy of the study.

Data Analysis

Raw data for each of the facial expression ratings were summed creating three expression variables. I used SPSS 26 to find means, medians, and standard deviations for the sum of the participant ratings in each facial expression category. Given the small sample size, data were first analyzed using a Shapiro-Wilk test to determine normality. Results indicated that the assumption of normality was broken, removing the possibility of an exact replication of the Silvey (2013) study. I intended to additionally compare groups based on gender, instrument type, and grade level, but due to the breach in normality, I was unable to statistically investigate differences between these groups due to a low sample size. The Friedman Two-Way Analysis of Variance by Ranks, a nonparametric equivalent to a one way repeated-measures ANOVA, was carried out instead (Marshall, E., & Marquier, B., n.d.). The Friedman test was executed using SPSS version 26 to compare mean scores of all three facial expressions. Results of the Friedman test indicated a statistically significant difference in the ranking of the three facial expressions, so a Dunn-Bonferroni post hoc test was used to determine which pairwise sets demonstrated significant differences in ratings. Kendall's Coefficient of Concordance was used to determine agreement among raters and effect size.

Chapter 4: Results

The purpose of this study was to determine whether approving, disapproving, and neutral conductor facial expressions had an effect on middle school concert band students' perceived level of expression of wind ensemble performances. Participants ($N = 23$) were middle school concert band students at a suburban middle school in northeast Oklahoma. These students ranged from beginning band 6th graders ($n = 9$), intermediate band 7th graders ($n = 8$), and advanced band 8th graders ($n = 6$). The ages of the participants ranged from 11–15 years old.

All parts of the research method were carried out online during the COVID-19 pandemic of 2020. The members of my band program were used as a convenience sample. I abstained from participating in any data collection so that students did not feel any pressure to participate; a colleague at the same middle school was enlisted to serve as the research administrator. The research administrator sent out emails on April 20, 2020 containing the parental permission form to parents of students in the current researcher's band program. Parents had one week to respond, and the research administrator gave them a reminder two days before the deadline. Parents responded with consent to allow their child to participate in the current study ($N = 46$). The research administrator electronically distributed participant assent forms to the emails of the 46 students whose parents consented. After completing the assent form, participants completed the survey instrument, which directly followed. Only 27 of the 46 students allowed to participate signed-in to complete the survey. Of the 27 surveys, 23 were finished to completion and used in the following analysis. The Qualtrics (https://www.qualtrics.com) participant assent form and survey (see Appendix D) went live on April 27th, and it remained active for three weeks. Participant ratings were recorded between April 27, 2020 and May 13, 2020.

After completing the assent form participants entered demographic information including gender, grade level, and instrument type: woodwind, brass, or percussion. Participants were then directed to the current study's experiment page featuring an embedded video of the nine, 1-minute videos. Each 1-minute video featured one of three actors portraying approving, neutral, or disapproving facial expressions (3 actors x 3 facial expressions) over wind band music. Participants were asked to rate each of the nine performances on a scale of 1 (*not very expressive*) to 10 (*very expressive*). Participant expressivity ratings were analyzed for the three approving, disapproving, and neutral facial expressions. The following research questions were addressed: (1) Do conductor facial expressions affect middle school students' perception of performance expression? and (2) Which of the three facial expressions is perceived as the most expressive?

Descriptive Analysis

Participant Demographics

Gender, Instrument Played, and Grade Level. Participants ($N = 23$) identified their gender as follows: 15 female (65.2%) and 8 male (34.8%). I chose a binary option for gender selection for replication purposes. Participants indicated which instrument they played in the concert band. Eleven brass instrumentalists participated (47.8%) and eleven woodwind instrumentalists participated (47.8%). One percussionist participated (4.3%). Participants represent all three of the middle school bands. A total of nine students identify as 6th-graders (39.1%), eight as 7th-graders (34.8%), and six (26.1%) as 8th-grade band members (see Table 4.1).

Table 4.1

Participants' Gender, Instrument Played, and Grade Level

	Frequency	%
Gender		
Male	8	34.8
Female	15	65.2
Instrument Played		
Woodwind	11	47.8
Brass	11	47.8
Percussion	1	4.3
Grade Level		
6th	9	39.1
7th	8	34.8
8th	6	26.1

Note: N = 23.

Descriptive Statistics of Expressivity Ratings

In the original study by Silvey (2013) ratings for each facial expression were combined to form a sum. In the current study ratings for facial expressivity excerpts were similarly combined to form sums for approving, neutral, and disapproving facial expressions. Participants rated all nine excerpts on a 1 (*not very expressive*) to 10 (*very expressive*) Likert-type scale. The range of possible scores for each facial expression sum was 9 (lowest) to 30 (highest). Participants rated approving facial expressions as most expressive ($\bar{X}$ = 17.2174), with disapproving facial expressions rated second most expressive ($\bar{X}$ = 12.8698). Participants rated neutral facial expressions ($\bar{X}$ = 6.3478), far less expressively than approving or disapproving facial expressions. The minimum score for neutral facial expressions (3.00) also was significantly lower than the minimum for disapproving (7.00) and approving (9.00). The 25th, 50th, and 75th percentiles were all higher for approving facial expressions than both disapproving and neutral facial expressions. Neutral facial expressions remained low for the 25th (3), 50th (4), and 75th (4) percentiles (see Table 4.2).

Table 4.2

Descriptive Statistics of Expressivity Ratings

	N	Mean	Std. Deviation	Min.	Max.	Percentiles (Median) 25th	50th	75th
Approving	23	17.2174	4.14462	9.00	23.00	13	19	20
Neutral	23	6.3478	5.98186	3.00	24.00	3	4	4
Disapproving	23	12.8698	5.11063	7.00	24.00	9	11	16

Research Question 1

Test of Normality

In Silvey's original study (2013), a one-way repeated measures ANOVA was used to determine whether approving, disapproving, and neutral facial expressions significantly affected participant ratings of perceived expressivity. Due to the current study's small sample size, a Shapiro-Wilk Test was used to determine if the data were normally distributed before using the one-way repeated measures ANOVA (see Table 4.3). Results showed a significant departure from normality for both neutral, $W(23) = 0.60$, $p < 0.00$, and disapproving, $W(23) = 0.90$, $p = 0.03$. I rejected the null hypothesis that the sample was normally distributed. Instead, I used a non-parametric equivalent to the one-way repeated measures ANOVA.

Table 4.3

Tests of Normality

	Shapiro-Wilk		
	Statistic	df	Sig.
Approving	.941	23	.187
Neutral	.599	23	.000
Disapproving	.904	23	.030

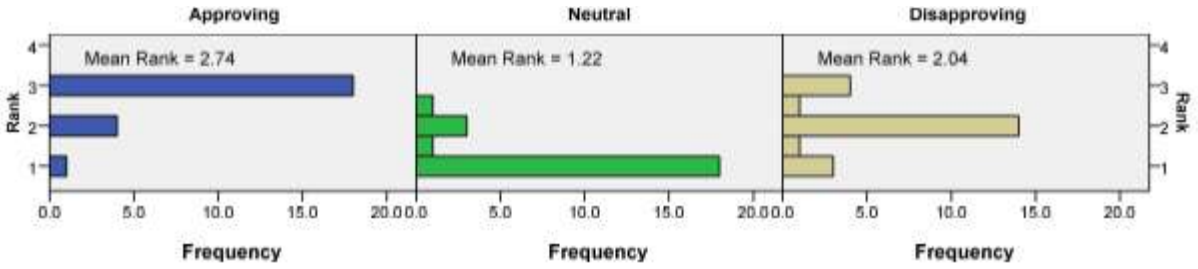
Note: $p < .05$

Friedman Two-Way Analysis of Variance

ANOVA tests require the assumption of normality. Due to the small sample size that was not normally distributed, I could not use the same analytical methods used in Silvey's original (2013) study. The Friedman Two-Way Analysis of Variance was used as a non-parametric alternative to the one-way ANOVA with repeated measures. The Friedman test provides differences and compares means in ordinal (e.g., a Likert-type scale) data across multiple attempts or answers (Marshall & Marquier, n.d.). I found the mean participant expressivity ratings for facial expressions as follows: approving ($M = 2.74$), neutral ($M = 1.22$), and disapproving ($M = 2.04$) (see Figure 4.1). Results indicated a significant difference between the three facial expressivity ratings, $X^2(3) = 27.29$, $p < 0.000$ (see Table 4.4).

Figure 4.1

Mean Ranks for Facial Expressions



Note: Rank frequencies for approving, neutral, and disapproving were generated from the Friedman's Two-Way Analysis of Variance by Ranks.

Effect Size

Kendall's Coefficient of Concordance (*W)* is a non-parametric statistic used to measure agreement among raters, an indication of effect size strength. The score (*W)* can range from 0 (no agreement) to 1 (complete agreement). Kendall's W showed a strong agreement amongst participants, *W*= 0.593 (see Table 4.4).

Table 4.4

Related-Samples Friedman's Two-Way Analysis of Variance by Ranks

Statistic	Result
Total N	23
Kendall's W	0.593
Test Statistic	27.289
Degrees of Freedom	2
Asymptotic Sig. (2-sided test)	0.000

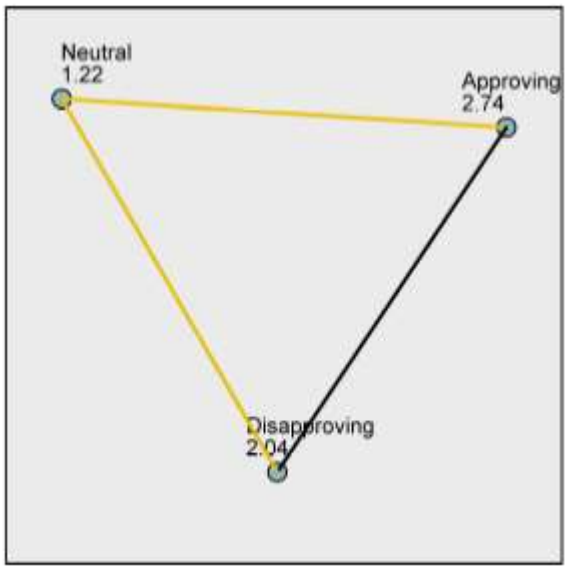
Research Question 2

Post Hoc Analysis

A Dunn-Bonferroni post hoc test was used to determine which pairwise sets of data were significant (see Figure 4.2). Results indicated significant differences in ratings between neutral-disapproving ($p < 0.015$) and neutral-approving ($p < 0.000$). Pairwise comparisons use the mean ranks.

Figure 4.2

Significance Between Pairwise Mean Ranks



Note: Yellow lines connote significance between facial expressions.

Mean ranks for approving (2.74), neutral (1.22), and disapproving (2.04) facial expressions were produced from the Friedman's Two-Way Analysis of Variance by Ranks (see Figure 4.1).

Table 4.5

Pairwise Comparisons

Sample1-Sample2	Test Statistic	Std. Error	Std. Test Statistic	Sig.	Adj. Sig.
Neutral-Disapproving	-.826	.295	-2.801	.005	.015
Neutral-Approving	1.522	.295	5.160	.000	.000
Disapproving-Approving	.696	.295	2.359	.018	.055

Conclusion

In this chapter, I provided descriptive statistics for participant demographics and expressivity ratings. A Shapiro-Wilk test was used to determine if the variables were normally distributed. Results indicated a breach in normality, allowing the Friedman Two-Way Analysis of Variance to be used as a non-parametric equivalent to a one-way repeated measures ANOVA. Significant differences in facial expressivity ratings were found. A Dunn-Bonferroni post hoc test was used to determine which of the pairs were significantly different. Differences between neutral-disapproving and neutral-approving facial expressions were significant. In the Chapter 5, I will discuss implications with these findings as they relate to the Silvey (2013) study, relevant research, and music education practices.

Chapter 5: Discussion

Middle school students possess the capabilities of critically assessing various stimuli (Budde, 2011). Teachers have questioned whether middle school instrumentalists possess the ability to assess facial expressivity and its influence on perceived music expression. In a 2013 study by Silvey, high school students demonstrated their ability to perceive approving and disapproving facial expressions as more expressive than neutral or absent facial expressions. The current extension to this research asks if middle school students possess the same ability to perceive conductor facial expressivity as high school students. The ideas, talents, and opinions of all young learners are integral to the future of music education, as it is vital to empower learners with the critical tools necessary to teach themselves and take responsibility for their education and experiences. It is imperative that we as music educators seek to understand what influences the expressive musical choices of students at any grade level. With a stronger knowledge of what drives students to greater understanding and better performance, conductors can better incorporate facial expressions in rehearsals and performances so students have a more enriched, and, ultimately, enjoyable music ensemble experience.

The purpose of this study was to ascertain whether approving, disapproving, and neutral conductor facial expressions had an effect on middle school band students' perceived level of expression of wind ensemble performances. The participants were middle school band students (6-8th grade) from a suburb of Tulsa, Oklahoma. These participants were asked to rate the expressivity of nine videos of conductors' facial expressions synchronized to brief wind ensemble performances using a Likert-type rating scale of 1 (*not very expressive*) to 10 (*very expressive*). Research questions included the following: (1) Do conductor facial expressions

affect middle school students' perception of performance expression? and (2) Which of the three facial expressions is perceived as the most expressive?

I collected data from middle school band students ($N = 23$) via an online survey. The instrument included a participant assent form, followed by a questionnaire asking for participant gender, grade level, and instrument type played; the nine-question, video excerpt survey followed. Upon completion of the survey, participants were redirected to a separate link where they could provide their name for a chance to win a $20 Starbucks gift card. I presented descriptive analyses for the survey data, followed by an analysis of variable interactions in Chapter 4. A Shapiro-Wilk test showed a breach in normality, so a Friedman Two-Way Analysis of Variance was used as a non-parametric alternative to one-way repeated measures ANOVA. A Dunn-Bonferroni post hoc test was used to determine significance between each facial expression type pair (neutral-disapproving, neutral-approving, and disapproving-approving). What follows is a detailed look at the data analysis that addresses each research question, as well as study implications and limitations, and recommendations for future research.

Summary of Results

Descriptive Analysis

Participant demographics for the current study generally resemble the band program of the school. Participants' self-identified genders were skewed slightly female, with 65.2% of students identified as female ($n = 15$) and 34.8% identified as male ($n = 8$). Interestingly, these participant demographics represent the overall ensemble demographics for the school's band program, with 85 females (54%) and 72 males (46%). Brass ($n = 11$, 47.8%) and woodwind ($n = 11$, 47.8%) instruments were the most commonly played instrument types, with only 1

participant selecting percussion (4%). This instrumental distribution also represents the ensemble demographics for the school's band program: 63 brass (40%), 74 woodwind (47%), and 20 percussion (13%). Most participants identified as sixth graders (n = 9, 39.1%); 8 identified as seventh graders (34.8%), and 6 identified as eighth graders (26.1%). These findings closely match the school's band program, with 60 6th graders (38%), 54 7th graders (34%), and 43 8th graders (27%). Overall, participation in the current study generally reflects the demographics of the school's band program.

Interactions Between Variables

Participant expressivity ratings were analyzed using the sums of the three approving, disapproving, and neutral facial expressions. The current researcher found the mean participant expressivity ratings for facial expressions as follows: approving (2.74), neutral (1.22), and disapproving (2.04). According to these means, participants perceived approving facial expressions as the most expressive, followed by disapproving and neutral, respectively. These findings align with Silvey's research (2013), where approving facial expressions were perceived as the most expressive by high school band students as well, followed by disapproving and neutral, respectively. I also found significant main effects to support these findings. Results indicated a significant difference between the three facial expressivity ratings, $X^2(3) = 27.29$, $p <$ 0.000. This significance directly addresses research question 1, as middle school band students' ratings of music expressivity differed based on conductor facial expressions in this study. Similarly, Silvey (2013) also found a significant difference between the three facial expressivity ratings as shown by high school band students' ratings. Reinforcing Budde's research (2011), the current study indicates that middle school students possess the capabilities of discerning expressivity when a visual model is presented.

A Dunn-Bonferroni post hoc test was used to determine which pairwise sets of data were significant. Results indicated that differences in ratings between neutral-disapproving ($p < 0.015$) and neutral-approving ($p < 0.000$) were significant. According to this finding, approving and disapproving facial expressions were both perceived as significantly more expressive than neutral facial expressions, which also matches the results that Silvey found in his study with high school students (2013). The mean ranks for each facial expression also support this claim, with neutral (1.22) being far lower than approving (2.74) and even disapproving (2.04). Even more distinctly, the medians for neutral facial expressions were much lower than both approving and disapproving medians (see Table 4.2). Despite a small sample size, the median ratings at each percentile resembled the means ranks for each facial expression, with approving being the highest rated and neutral being the lowest rated (see Table 4.2). The *p*-value between approving and disapproving facial expressions approached significance ($p = 0.06$), demonstrating the benefit positive facial expressions reinforce over both negative and expressionless facial behaviors. These findings directly answer research question 2; approving facial expressions were perceived as most expressive by middle school band students. Kendall's W showed a strong agreement amongst participants, $W = 0.59$ (see Table 4.4). Despite the small sample size ($N = 23$), Kendall's W indicates a strong effect size, which encourages generalizability with the current study. Expressivity was perceived by middle school students, demonstrating the understanding and discernibility of expressivity by middle school students (Braun, 2012). Ultimately, the current study and Silvey's original study support Mayne's claim that facial expressivity does affect perceived musical expressiveness by musicians (1992).

Implications

Middle school students can recognize and describe expressive behavior (Braun, 2005; Braun, 2012), which also matches the middle school students in the current study understanding and perceiving expressivity. By being more expressive, students' perception of how effectively they are being taught increases (Heath-Reynolds, 2014), which affects student performance (Budde, 2011). Students in the current study were affected by what they saw, which directly aligns with the research of Schutz and Lipscomb (2007) suggesting visual stimuli heavily influenced the perception of note length in marimba strokes. Additionally, the research of Thompson and Russo (2007) is clearly congruent to the current study, demonstrating the effects the face has on the perception of music even in the absence of music.

The results from the current study affect our understanding of what nonverbal behaviors influence middle school students perceptions. Similar the findings by Morrison et al. (2014), participants in the current study perceived expressivity of any kind more favorably to neutral or non-expression. Teachers can employ expressive teaching behaviors like facial expressions to beneficially influence the perceptions of middle school students. The findings of Vines et al. (2010) and Krahe et al. (2015) align with the findings of the current study in that positive (happy or approving) facial behaviors yielded the highest perception of expressivity. Teachers can use the current study's findings to affirm the beneficial influence facial expressions and eye contact have on believability (Tatchell et al., 1983), likeability (Boyanowsky & Griffiths, 1982), and effectiveness (Price & Winter, 1991). Furthermore, music teachers can reinforce expressive musical concepts like style, mood, dynamics, phrasing, and articulation with appropriate facial expressions. Music students with an earlier introduction to conductor facial expressivity will be more prepared for future or even advanced ensembles, as veteran conductors will implicitly use

more expressive conducting techniques (Koerner & Silvey, 2016). Unfortunately, the current study yields no implications regarding the definition or speed of expressive gestures, despite previous research yielding results that demonstrate the ability for middle school students to recognize expressive gestures (Mayne, 1992). Moreover, the speed that musicians recognize congruent and incongruent face/music pairs is undetermined for middle school band students based on the current study despite being significantly faster with congruent face/music pairs in a study by Kamiyama et al. (2012).

Student learning increases as teachers use more senses in their teaching (Wollner, 2008, Morrison et al., 2014), so teachers of any subject can use facial expressivity to increase engagement and learning. School administrators, superintendents, school board members, and parents can be informed of the enrichment yielded by expressive conducting techniques to incoming 6th grade band students, following a vertically-aligned trajectory of consistent, expressive music education experiences. When music educators incorporate more senses in music teaching, the precision of communication increases (Wollner, 2008; Budde, 2011). Those who teach future conductors can teach expressive conducting techniques with the understanding that these techniques will not lay dormant for only advanced high school and collegiate conductors to employ. Music educators should strive to make music as enriching, engaging, and fun as possible, and by evoking more expressive elements in conducting, we educate the heart of music to our students immediately.

Limitations

The current study transpired during the COVID-19 pandemic of 2020. The cancelling of on-site instruction due to the quarantine forced the current researcher to change how the experiment was conducted. Originally, the study was designed to take place on-site in the current

researcher's band room, where the research administrator would conduct the experiment with all assenting participants. Those conditions would have more closely resembled Silvey's initial study (2013). Not only would the current study be closer in terms of a true replication, the number of participants might have increased due to in-person announcements and reminders by the research administrator. With a larger sample size, the data may not have breached the assumption of normality, allowing the current research to have used a one-way repeated measures ANOVA. As far as methodology, a one-way repeated measures ANOVA would have matched the research of Silvey (2013) more precisely while possibly offering more generalizable results. Future researchers should consider implementing the current study's design with a larger sample size to ensure normality, generalizability, and a closer agreement to Silvey's original study (2013).

The current study was restricted by region, only using students from the state of Oklahoma. These students all belonged to the same 6A school district, and within that school district, they all attended the same middle school with the same band experience. Diversifying the study data with other regions around the country (Northeast, Southwest, etc.) would greatly extend the scope of the study's findings. Even within one school district, researchers should consider using several sites for continued research in this vein. The current study also could benefit from iterations at smaller or larger school districts within the same state to investigate potential differences in ratings across these varied districts. Additionally, future researchers should consider conducting studies across multiple states around the nation, as well as students from various cultures.

Middle school instrumentalists understand expressivity on a fundamental level (Braun, 2012). This very reason is why the current study did not specifically define expressivity for the

middle school participants before asking them to rate the nine excerpts. Similarly, Silvey (2013) did not define expressivity for its high school participants in his original study. However, if a participant does not understand the meaning of expressivity, then answers selected become fundamentally arbitrary. Future researchers should consider adding a definition for expressivity with examples to ensure that all ratings possess the caveat that what the participants were rating was understood.

Summary

Since the current study could not take place in-person, the design of the experiment was changed to an online-only consent, assent, and survey process. By the study consisting of features that only worked online, participation may have been impeded by access issues. Parents were notified by the research administrator via email of the consent process, so if the parent did not see the email or have access to internet, then the student never had a chance to participate in the first place. Secondly, the email database used by the research administrator could have contained obsolete or inaccurate email addresses for parents, thus created another barrier to entry for the current study. Even if parents consented to allowing their child to participate in the current study, students would then have to check their Canvas email inbox in order to assent and fill out the survey. Despite several announcements and reminders sent out through Canvas and Remind services, it was not uncommon for students to cease all communication and interaction with teachers and administrators during the COVID-19 pandemic. If the Canvas inbox was left unchecked, then potential participants would not have completed the study regardless of interest. Finally, students who did check their inbox and click on the study link were then subject to reading instructions and following them without any guidance from any authority figure, creating another barrier to successfully completing or even understanding the experiment therein. Future

researchers should utilize the robust and wide-reaching features of an online survey with the accountability that in-person communication, reminders, and announcements provide. Furthermore, future researchers should understand that because there are limitations in expected responses, contacting and utilizing multiple school sites and band programs would yield larger sample sizes despite response or access issues.

Suggestions for Future Research

Location and Culture

As mentioned previously in limitations, participants in the current study were all gathered from one school site. Students from one site might offer different answers to the survey questions based on who taught them, what they were taught, how they were taught, and at what pace they were taught. The current study should be replicated by researchers in multiple school sites/districts in the United States to ensure there is not a bias in education between students taught by one director over another. Future research does not need to stay within one country's boundaries, extending into other continents to determine regional differences.

The current study used a Qualtrics (https://www.qualtrics.com) survey which was advertised, disseminated, and completed online. Future researchers maybenefit from the solely online methodology used, allowing for the engagement of participants from multiple programs around the country/world. Some Eastern cultures view neutral facial expressions and eye contact differently than Western cultures (Uono & Hietanen, 2015). By testing various demographics, future research could assess whether or not backgrounds from different directors, school districts, socioeconomic areas, and cultures have any bearing on future results.

Age and Instrument

Silvey's original study (2013) and the current study both explored the effects facial expressions had on the perceptions of instrumental music students. Results for both studies indicated that approving and disapproving facial expressions received significantly higher ratings than neutral facial expressions. Future researchers should consider investigating the effects conductor facial expressions have on vocal or orchestra music students. It would be worthwhile to examine how universal the effects of eye contact and facial behaviors are viewed by participants of all backgrounds, regardless of ensemble type. Perhaps the understanding of facial expressions is universal once certain experiences are gained through age. Moving forward, researchers could study the effects conductor facial expressions have on students younger than the standard age for instrumental music in elementary/secondary school. It would be beneficial for future educators to know the age which information from facial expressions diminishes for students. Researchers could use information on facial expressions to help educators in fields outside of music, where facial expressions can be utilized to reinforce behavior and increase engagement.

Critical Analysis

The effects facial expressivity had on the perceptions of music in the current study examined a combined aural/visual stimuli. Future researchers needs to investigate whether visual, aural, or visual/aural stimuli receive the highest expressivity ratings. The control group could experience the same visual/aural experiment that was performed in the current study/Silvey's original study (2013), while other treatment groups could experience visual-only/audio-only stimuli. By comparing groups, researchers could investigate any significance between the ratings of the different stimulus. Finally, based on the current study and Silvey's

(2013) original study, middle school and high school students, respectively, perceived differences in expressivity based on conductor facial expressions. Additional studies should investigate how students internalize the messages inferred from conductor facial expressions, and how these facial expressions manifested changes in their performance. Future researchers could explore if any discernible choices are made by musicians during rehearsals based on conductor facial behaviors. Perhaps the apex of a musical phrase can be measured in decibels depending on conductor facial expressions to see if upper volume levels are played with increased volume. By investigating the choices musicians make in reponse to conductor facial expressivity, conductors can better understand how best to approach studying, conducting, teaching, rehearsing, and performing.

Conclusion

In order to be successful at the most basic level, conductors must communicate the score to the ensemble and ensure synchronicity. To achieve this objective, conductors use an arsenal of different techniques that have been studied, tested, practiced, and refined over many centuries (Green, 1961). It is common for conductors to practice the mechanical skills of effective conducting: various meters, entrances, releases, etc. However, the expressive elements of conducting tend to be harnessed and refined through age and experience instead of education. To better our conducting craft, we can educate our future conductors in the benefits of expressive techniques and skills. If so, pedagogues and conducting professionals can utilize expressive techniques to better train themselves and future conductors to convey information with not just gestures but the eyes and face as well.

High school and middle school students have shown that they understand the degree of expressivity in conductor facial expressions (Silvey, 2013). If facial expressivity is the vehicle by

which expressive musical ideas are transferred, then it is imperative that the skills required for the transmission of these ideas are strengthened by both conductor and ensemble members. If facial expressivity is understood by both high school and middle school musicians, then the practiced implementation and teaching of such a skill can have a pronounced effect on the communication between conductors and ensembles. Conductors at all career and age levels can better understand the effects of informed, expressive conducting for middle school band students through the understanding and application of facial expressivity. Engaging our musicians to look up and interpret facial information from the podium may instill a greater sense of enrichment, understanding, and musical potential in our youth.

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Appendix A: Institution Review Board Documentation

Institutional Review Board for the Protection of Human Subjects

Approval of Initial Submission – Expedited Review – AP01

Date: April 13, 2020 **IRB#:**10629

Principal Investigator: Brandon Michael Collins

Approval Date: 04/13/2020

Status Report Due: 03/31/2021

Study Title: The Effects of Facial Expression on Music Expressivity in Middle School Students **Expedited**

Category: 7

Collection/Use of PHI: No

On behalf of the Institutional Review Board (IRB), I have reviewed and granted expedited approval of the above-referenced research study. To view the documents approved for this submission, open this study from the *My Studies* option, go to *Submission History*, go to *Completed Submissions* tab and then click the *Details* icon.

Requirements under the Common Rule have changed. The above-referenced research meets one or more of the circumstances for which continuing review is not required. However, as Principal Investigator of this research, you will be required to submit an annual status report to the IRB.

As principal investigator of this research study, you are responsible to:

- Conduct the research study in a manner consistent with the requirements of the IRB and federal regulations 45 CFR 46.
- Obtain informed consent and research privacy authorization using the currently approved, stamped forms and retain all original, signed forms, if applicable.
- Request approval from the IRB prior to implementing any/all modifications.
- Promptly report to the IRB any harm experienced by a participant that is both unanticipated and related per IRB policy.
- Maintain accurate and complete study records for evaluation by the HRPP Quality Improvement Program and, if applicable, inspection by regulatory agencies and/or the study sponsor.
- **Submit an annual status report to the IRB to provide the study/recruitment status and report all harms and deviations that may have occurred.**
- **Submit a final closure report at the completion of the project.**

If you have questions about this notification or using iRIS, contact the IRB @ 405-325-8110 or irb@ou.edu.

Cordially,

Aimee Franklin, Ph.D.

Chair, Institutional Review Board

Appendix B: List of Recorded Wind Band Literature

Canterbury Chorale by Jan van der Roost

With Quiet Courage by Larry Daehn

Yorkshire Ballad by James Barnes

Appendix C: Silvey's Original Presentation Group Table

Presentation Group 1	A1	A2	A3	A2	A3	A1	A3	A1	A2
(Used in the current study)	E1	E2	E3	E2	E3	E1	E3	E1	E2
	App	Neu	Dis	Dis	App	Neu	Neu	Dis	App
Presentation Group 2	A2	A3	A1	A3	A1	A2	A1	A2	A3
	E2	E3	E1	E3	E1	E2	E1	E2	E3
	Dis	App	Neu	Neu	Dis	App	App	Neu	Dis
Presentation Group 3	A3	A1	A2	A1	A2	A3	A2	A3	A1
	E3	E1	E2	E1	E2	E3	E2	E3	E1
	Neu	Dis	App	App	Neu	Dis	Dis	App	Neu
Note: A = actor; E = excerpt; App = approving; Neu = neutral; and Dis = disapproving.									

Appendix D: Participant Assent Form and Survey

Start of Block: Informed Consent

Q1

Child Assent Form (Over 12)

Signed Child Assent (Over 12)
You are invited to participate in research about music expressivity from conductor facial expressions as perceived by middle school students. If you agree to participate, you will watch nine one-minute videos and rate how expressive you think each ensemble's performance was on a scale of 1 (not very expressive) to 10 (very expressive).The researchers will have access to your instrument section, grade level, and gender. There are no risks or benefits. If you complete the survey, you will receive this compensation: a chance to win a $20 Starbucks gift card! Your participation is voluntary, and your responses will be anonymous. After removing all identifiers, we might share your data with other researchers or use it in future research without obtaining additional permission from you. Even if you choose to participate now, you may stop participating at any time and for any reason.

Data are collected via an online survey system that has its own privacy and security policies for keeping your information confidential. No assurance can be made as to their use of the data you provide.
If you have questions about this research, please contact:

JoAnn Barker, jbarker@baschools.org
Charlene Dell, cdell@ou.edu

You can also contact the University of Oklahoma – Norman Campus Institutional Review Board at 405-325-8110 or irb@ou.edu with questions, concerns or complaints about your child's rights as a research participant, or if you don't want to talk to the researcher.
Please print this document for your records. By providing information to the researcher(s), I am agreeing to participate in this research.

- o I consent, begin the study (1)
- o I do not consent, I do not wish to participate (2)

Skip To: End of Survey If Child Assent Form (Over 12) You are invited to participate in research about music expressivity f... = I do not consent, I do not wish to participate

Q2 **Survey Instrument**

Directions - Please answer the following questions.

Q4 What is your gender?

- Male
- Female

Q5 What type of instrument do you play in band?

- Woodwind
- Brass
- Percussion

Q6 What is your current grade level?

- 6th
- 7th
- 8th

End of Block: Informed Consent

Start of Block: Block 1

Q7 You are about to watch nine, one-minute videos. Please rate each ensemble's expressivity from 1 (not very expressive) to 10 (very expressive).

Click your rating after watching each performance excerpt.

	Expressivity Scale									
	1 (1)	2 (2)	3 (3)	4 (4)	5 (5)	6 (6)	7 (7)	8 (8)	9 (9)	10 (10)
Excerpt 1 (1)	○	○	○	○	○	○	○	○	○	○
Excerpt 2 (2)	○	○	○	○	○	○	○	○	○	○
Excerpt 3 (3)	○	○	○	○	○	○	○	○	○	○
Excerpt 4 (4)	○	○	○	○	○	○	○	○	○	○
Excerpt 5 (5)	○	○	○	○	○	○	○	○	○	○
Excerpt 6 (6)	○	○	○	○	○	○	○	○	○	○
Excerpt 7 (7)	○	○	○	○	○	○	○	○	○	○
Excerpt 8 (8)	○	○	○	○	○	○	○	○	○	○
Excerpt 9 (9)	○	○	○	○	○	○	○	○	○	○

End of Block: Block 1