A COMPARATIVE ANALYSIS OF CONDUCTOR BEHAVIOR AND TIME USE IN

HIGH SCHOOL AND COLLEGIATE ORCEHSTRA REHEARSALS

by

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THESIS ABSTRACT

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The purpose of this study was to examine conductors' behavior and use of rehearsal time in high school and collegiate orchestra rehearsals. In this study, eight conductors (high school, $n = 4$, college, $n = 4$) were video recorded leading two ninety-minute orchestral rehearsals. After the data were collected, the videos were analyzed to compare the conducting behaviors used in each rehearsal. The percentage of time and rate in which conductors engaged in twelve conducting behaviors were calculated. Results indicated that both collegiate and high school conductors spend the most time giving nonverbal directives and verbal directives and engaged in nonmusical behaviors. The results also indicated a pattern of individual variability among the high school conductors and consistency among the collegiate conductors.

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DEDICATION

To my parents, Kelly and Brent, thank you for your love, encouragement, support, and humor throughout the years of my education. To Matt, thank you for your positivity, patience, and love.

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CHAPTER I

INTRODUCTION

> The conductor of a professional ensemble will devote most of his or her efforts to the musical interpretation of the selected repertoire, although there are also many related duties such as organizing, selecting personnel, programming, and public relations. In reality, the conductor in an educational scenario has all of these above responsibilities plus the added tasks of promoting music reading with the ensemble, encouraging the development of technical skills, and fostering collective musicianship within the instrumental music ensemble environment. (Colson, 2012, p. 10)

Conductors in both professional and educational settings share similar responsibilities and engage in similar behaviors. Researchers have demonstrated that, as Colson (2012) suggests in the quote above, professional conductors do spend much of their time and effort interpreting music as well as logical and social tasks (Biasutti, 2013; Whitaker, 2017). Educational conductors (i.e., music teachers) engage in similar sets of behaviors to those used by professional conductors, in addition to teaching musical concepts, developing students' technical skills, and cultivating a sense of ensemble (Blocher, Greenwood, & Shellahamer, 1997; Dickey, 1991; Goolsby, 1996; Ihas, 2011; MacLeod, 2010; Whitaker, 2011). Regardless of the similarities in behaviors employed and displayed at both levels, researchers in the field frequently differentiate between the two terms, "teacher" and "conductor," and typically pair each one with ensembles that have a specific set of skills. This precedent leads to the question: at what level (including skill and experience) do conductors adjust their behaviors from the educational scenario to the professional scenario?

Previous literature has examined and measured several elements of conductor behavior in ensemble rehearsals at several different experience levels. These elements

include the use of time on, and the frequency of, specific conducting behaviors; the use of rehearsal activities and strategies; the use of sequences of conductor behaviors; and rehearsal preferences among conductors and musicians. While some of these studies compared the differences between ensembles of two skill levels (e.g., middle school and high school), differences between ensemble types (e.g., orchestra and band) have also been examined (Blocher et al., 1997, 1997; Ihas, 2011; MacLeod, 2010; Witt, 1986). Behaviors of experienced and novice conductors have also been examined and compared (Bergee, 2005; Goolsby, 1996, 1997). In addition to the studies that address conducting behaviors and rehearsal strategies, some researchers have also measured the effectiveness of certain behaviors and rehearsal strategies (Bergee, 1992; MacLeod, 2018; Price, 1983; Yarbrough, Price, & Hendel, 1994). Several researchers have examined conductor behavior and rehearsal strategies at the secondary, collegiate, and professional levels of all ensemble types (choir, band, and orchestra). However, very few researchers have examined orchestral conductor behavior at the collegiate level.

Previous research has found that band conductors at the secondary level typically have more structure within their rehearsals than orchestra conductors, including rules and pre-rehearsal protocols (Witt, 1986). Other studies at the secondary level have indicated that conductors of band use different rehearsal and instructional strategies than orchestral conductors (MacLeod, 2010; Williams, 2016; Witt, 1986). One researcher demonstrated that collegiate students prefer that their conductors use a variety of conducting behaviors than a few during rehearsals (Price, 1983). Another study indicated that collegiate band conductors tend to focus on multiple targets in a single rehearsal frame, while high school conductors tend to focus on one target at a time (Worthy, 2003).

Researchers have found that choral conductors at the high school level spend most of their time at the beginning of the rehearsal on sight-reading activities and that student off-task behaviors occur more during activities that require less active participation (Brendell, 1996; Napoles, 2006). Other choral studies have indicated that teacher talk, including verbal feedback and instruction, improves student performance and their attitudes, especially when it is succinct (Nápoles, 2017).

At the secondary level, researchers found that orchestral conductors tend to use different instructional strategies than band conductors including instrumental modeling, concurrent verbalizations with student performance, and pedagogical touch (MacLeod, 2010, 2018). Similar to other ensemble types, orchestra conductors spend a lot of their rehearsal time giving nonverbal directives and verbal directives (Ihas, 2011). By examining conductors' and musicians' rehearsal preferences as well as conductor behaviors, a few researchers have suggested that the sophistication of professional orchestral rehearsals is exhibited through the great amount of time spent on performance with few verbal instructions or feedback (Biasutti, 2013; Whitaker, 2017).

Through my personal orchestral experience, I became interested in the conducting behavior at the collegiate level. As a student, I worked with several conductors at the high school level (including youth orchestras and summer festivals), and as a working musician, I have worked with multiple conductors at the professional level. However, I have only worked with two collegiate conductors. Since I have worked with so few collegiate orchestra conductors and that there is a lack in research regarding this topic, I became interested in the adjustment in conducting behaviors that seems to occur between secondary ensembles and professional ensembles—at the collegiate level. In this study, I

examine collegiate conductor behavior in order to help fill in the gap in research that

exists between the high school and professional ensemble levels.

CHAPTER II

LITERATURE REVIEW

Participating in large ensembles is a central component of traditional training for student musicians. Therefore, understanding the teaching and rehearsing processes in the large ensemble setting is important, especially how these processes change and transform as conductors adjust their approach to their players' musical sophistication and technical skill level. Conductors' and teachers' leadership of large ensemble rehearsals involve activities including warm-ups, drilling (repetition of small excerpts), conceptual teaching, and performance practice (run-throughs) (Biasutti, 2013; Brendell, 1996; Goolsby, 1996; Ihas, 2011; MacLeod, 2010; Whitaker, 2017; Witt, 1986). Teachers of secondary instrumental and vocal ensembles and conductors of professional orchestras alike use most of their rehearsal time preparing for performances through both verbal and nonverbal instruction and feedback (Biasutti, 2013; Dickey, 1991; Duke & Henninger, 2002; Goolsby, 1997; Ihas, 2011; MacLeod, 2010, 2018; Whitaker, 2017).

Multiple studies have examined how teachers and conductors use rehearsal time, including teaching/conducting behaviors, allocation of time to rehearsal activities, and in some cases, time spent on modifying students' behaviors (i.e., classroom management). These variables have been examined in the contexts of band and choir rehearsals at both the secondary and collegiate levels (Brendell, 1996; Dickey, 1991; Goolsby, 1996; MacLeod, 2010; Manfredo, 2006; Williams, 2016; Witt, 1986; Worthy, 2003, 2006) as well as orchestra rehearsals at the secondary and professional levels (Biasutti, 2013; Ihas, 2011; MacLeod, 2010, 2018; Whitaker, 2017; Williams, 2016; Witt, 1986). However, there is a lack of research regarding time use and conductor behavior within collegiate

orchestral rehearsals. Specifically, there is a lack of research that compares the rehearsal behaviors used in high school and collegiate orchestras.

Teachers, directors, and conductors share similar responsibilities, and the extent to which they are actually distinct roles may be debatable. Many of the behaviors studied in the literature and observed in the current study are common to all three. Therefore, the terminology chosen by the original researchers will be used respectively in this literature review but is not intended as a statement about the degree to which these terms are synonyms.

Time Use and Conducting Behaviors in Secondary and Collegiate Orchestra Rehearsals

Studies at the secondary level have compared time use and instructional strategies in orchestra and band rehearsals (MacLeod, 2010; Williams, 2016; Witt, 1986). Witt (1986) found that class time use, and student attentiveness were specific to the ensemble type (either band or orchestra) and ensemble performance ability (either middle or high school). Orchestra classes had fewer teaching episodes that were longer in duration than band classes. Orchestra students were also less attentive both in performance and in nonperformance activities than band students partially due to the degree of structure in the classrooms. For example, band classrooms had pre-established "getting ready" procedures and specific rules for behaviors while the orchestra classrooms did not. MacLeod (2010) explored the specific teaching strategies that band and orchestra teachers use during rehearsals through observations of 20 experienced band and orchestra teachers teaching fifth- and sixth-grade instrumentalists. Band teachers tended to use verbal instruction, conducting, question and answer techniques, and student performance

(i.e., performance or playing through repertoire) with greater frequency than the orchestra teachers who used echoing, co-verbal instruction (concurrent verbal instruction with student performance), modeling, modeling with instrument during student performance, and pedagogical touch (i.e., physically touching students to indicate a correction) with greater frequency. MacLeod (2010) states that orchestra teachers may choose to model more as there are only four string instruments used in the ensemble and the skills required to play them are relatively similar. MacLeod (2010) advises against applying the behaviors in band rehearsals to orchestral settings because there are many differences between the two ensembles. For example, many band teachers must stop performance in order to give directions because they cannot speak over the comparatively greater volume of those instruments. In contrast, orchestra teachers can give concurrent instruction for a few reasons. First, orchestra instruments are softer, so teachers can talk while the students play. Second, string instruments do not obstruct talking and allow string teachers to talk while modeling. In addition, orchestra teachers model more than band teachers because the instruments are more similar to each other than instruments in a band (MacLeod, 2010).

Ihas (2011) applied the methodology used in Blocher et al.'s (1997) research in order to examine the frequency with which six middle and six high school orchestra directors engaged in seven specific teaching behaviors while rehearsing. Behaviors measured in Ihas's (2011) study were conceptual teaching behaviors, verbal and nonverbal instruction and feedback, nonmusical behaviors, and non-interactive listening. Conceptual teaching behaviors were defined as verbal behaviors that "attempt to make students aware of, have an understanding of, and/or be able to transfer any music

concept" (Ihas, 2011, p. 14). The middle school orchestra directors from this study spent 7.40% of time on conceptual teaching, which was twice as much as the high school orchestra directors, who spent 3.21% of time on conceptual teaching. Similar to MacLeod (2010) and Witt (1986), Ihas (2011) also found that orchestra directors (both middle school and high school levels combined) spent relatively more instructional time on nonverbal instruction (including conducting, facial expression, and body language) than verbal instruction (Ihas, 2011). Middle school orchestra directors spent more time giving verbal instruction (31.87% of time) than using nonverbal instructions (23.15%), while high school orchestra directors gave more nonverbal instructions (33.16%) than verbal instructions (23.65%) (Ihas, 2011). In addition, middle school orchestra directors also spent more time listening non-interactively (10.71%) than high school orchestra directors (8.63%) (Ihas, 2011). Colprit (2000) and Duke (1999) similarly found that teachers of younger students used verbal instructions more frequently than nonverbal instructions. Ihas suggests that this occurrence is due to middle school students' need for more verbal instructions and verbal explanations of musical concepts than conducting or other nonverbal instructions because they have fewer years of training on and knowledge about their instruments.

An exploratory study involving a collegiate orchestra compared the rehearsal strategies used by novice, intermediate, and expert orchestra conductors (Bergee, 2005). In this study, conductors were organized into three categories based on conducting expertise and experience. The conductor in the expert category had seventeen years of orchestral conducting experience at a major university. The conductor in the intermediate category was a graduate student studying orchestral conducting. Lastly, the conductors in

the novice category were undergraduate students interested in pursuing graduate degrees in conducting. The results demonstrate that novices tended to focus on surface-level aspects such as rhythm and cuing while experts focused on balance and style. Interviews with each conductor also suggested that novice conductors were more self-focused than intermediate and expert conductors, who were more ensemble-focused. Lastly, the author suggested that the traditional apprenticeship model that is used to teach orchestral conducting may not be as effective as reflective practicum. Reflective practice or practicum is an inquiry of teaching practices where the instructor and student examine their pedagogy or rehearsal strategies for strengths and weaknesses. Reflective practica would help novice conductors understand what their conductor thinks about during rehearsal and what motivates their rehearsal decisions (Bergee, 2005).

In another study completed by MacLeod (2018) the perceived effectiveness of three types of instruction – nonverbal, verbal, and co-verbal – was investigated at the collegiate level. Teacher participants were asked to conduct three 3-minute rehearsal segments only using either nonverbal instruction (conducting and facial expressions), verbal instruction (informing students were to begin), or co-verbal instruction (allowed teachers to use both nonverbal and verbal instruction) in each segment. The effectiveness of each mode of instruction was measured through written reflections by student and teacher participants and outside observers. These reflections indicated that students preferred verbal instruction rehearsals because they seemed to help the ensemble improve the most. Eye contact and delivery of gestures were also important and contributed to the effectiveness of a rehearsal according to all three participant groups. Co-verbal instruction received mixed responses from the participants. However, in general students

preferred this mode of instruction when the verbalizations were short and audible (MacLeod, 2018).

Time Use and Conducting Behaviors in Professional Orchestra Rehearsals

Studies of professional conductors and performers may augment the understanding of orchestral rehearsal behaviors. Biasutti (2013) qualitatively examined orchestral rehearsal strategies from the viewpoint of both conductors and performers who had at least ten years of experience of orchestral conducting or playing. In this study, ten professional conductors and ten professional orchestral players completed a survey on rehearsal practice strategies that were employed by both the conductors and performers. Two main themes were found in this study: social issues of collective study (team work, affiliation, roles, respect, communication, social environment, and responsibility), and strategies for collective study (planning, functions, approach, interpretation, musical skills, management, and other unspecified variables). The first theme, social issues of collective study, included the social aspects that take place in an orchestra rehearsal such as social environment, performer role, and group dynamics (e.g., communication between conductor and musicians). The second theme, strategies for collective study, included the strategies that were used during orchestra rehearsals such as structure, number of rehearsals, and function of rehearsals (e.g., dress rehearsals). Both conductors and performers preferred nonverbal communication for many reasons. One of those reasons was pacing: "Speaking too much breaks down the rehearsal rhythm, it interrupts the music flow and the players' concentration, resulting in lower efficiency" (Biasutti, 2013, p. 64). Immediate, nonverbal communication employed while conducting, including eye contact and gestures, offers much more than comments between performance trials can

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express. Performers preferred nonverbal communication because it allowed them to keep playing, otherwise, longwinded explanations or directions could cause the musicians to "fall asleep" (Biasutti, 2013, p. 64). Nonverbal communication also allowed the conductor to better manage rehearsal time by only stopping and giving verbal directions when necessary.

Biasutti's (2013) qualitative findings have been supported by a quantitative examination of professional orchestra conductors' use of rehearsal time and selected teaching behaviors (Whitaker, 2017). As found in most studies regarding time use within orchestra rehearsals, Whitaker (2017) demonstrated that the greatest amount of rehearsal time was dedicated to musician performance, and the next greatest amount of rehearsal time was dedicated to academic task presentations, defined as telling students or musicians how to play a passage (Price, 1983; Whitaker, 2017). Like Biasutti (2013), Whitaker (2017) confirmed that professional orchestra rehearsals stop less frequently for verbal direction or feedback in comparison to an ensemble with developing musicians. Instead, professional conductors convey most of their direction and feedback through gesture alone. Professional musicians are also able to remedy their own performance issues rather than relying on conductor feedback.

As musicians further their musical capabilities through formal training and orchestral experience, the use of verbal instructions during ensemble rehearsals decreases while the use of nonverbal instructions as well as concurrent verbal instructions or feedback during performance increases (Biasutti, 2013; Colprit, 2000; Duke, 1999; Ihas, 2011; Whitaker, 2017). While this pattern has been explicitly found at the middle school, high school, and professional orchestral levels, it has not been explored at the collegiate

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level. It is possible that high school orchestral rehearsals will more closely resemble middle school orchestral rehearsals and that collegiate and professional orchestral rehearsals will have more similarities, however, researchers have yet to examine this assumption in the orchestral setting.

Time Use and Conducting Behaviors in Band and Choir Rehearsals

Since studies regarding time use and conducting behaviors in orchestra rehearsals at all levels are somewhat limited (particularly at the collegiate level), it is beneficial to examine parallel studies examining time use and conductor behavior in both band and choir rehearsals. Examinations of rehearsal strategies in bands have focused on verbal and non-verbal feedback, timing/pacing, conductor interaction, and student preferences (Blocher et al., 1997; Dickey, 1991; Goolsby, 1997; Kelly, 2003; MacLeod, 2010; Whitaker, 2011). Some of these examinations of bands have also compared examinations with orchestra and or choir rehearsals (Kelly, 2003; MacLeod, 2010; Witt, 1986). The various types of feedback employed within a rehearsal affect the performance and/or overall goals of an ensemble. In general, band conductors tended to use verbal instruction, conducting, question and answer techniques, and student performance with greater frequency than the orchestra and choir teachers (Kelly, 2003; MacLeod, 2010). Conversely, orchestra teachers used more echoing techniques, delivered more co-verbal instructions, and modeled both separately and with student performance than band teachers (MacLeod, 2010).

In a study that compared three categories of teachers (expert, novice, and student teachers), Goolsby (1996) found that expert teachers of middle and high school band ensembles allowed the ensembles to perform for longer periods of time in between

teaching segments. During the teaching segments led by the expert teachers, the ensemble was stopped for a shorter period of time than the student teachers or novice teachers. Expert teachers often addressed several performance variables during a single stop, and used "drilling" techniques (repetitions of a short excerpt) (Goolsby, 1997). In contrast, novice teachers frequently stopped and started without giving students explicit instructions or feedback. The use of the "drilling" techniques may explain why the teaching episodes in band classes were shorter in duration and more numerous (Witt, 1986).

Similar to Ihas (2011), a comparison of teaching behaviors in high school and middle school bands found that high school band directors spent approximately 32% more time giving nonverbal directions than middle school band directors, and middle school directors spent approximately 24% more time listening non-interactively than high school directors (Blocher et al., 1997). Blocher, et al. (1997) suggests that one reason for these great differences may be that high school bands perform music that is relatively long in duration and requires proactive conducting throughout the piece. In contrast, middle school band directors may spend more time in non-interactive listening as they listen to longer periods of technique drilling or warming-up time as students develop their basic instrumental techniques (Blocher et al., 1997).

Experienced high school and middle school band directors spend more time in performance and less time giving verbal instructions than inexperienced directors (Goolsby, 1996). Pre-service teachers had the longest talk time and the shortest performance time, while experienced teachers provided the most break time, organized the class more equally between a warm-up and two musical selections, spent more than

half the period on performance, used the most nonverbal modeling, had more on-task time, and talked the least during rehearsals. Experienced band teachers spent significantly more time in nonverbal modeling (including conducting and other expressive physical gestures) than any other teachers (novice or student teacher) in this study (Goolsby, 1996). Verbal instruction delivery also differs between experienced and novice teachers in that experienced teachers verbalize more efficiently and model more effectively (Goolsby, 1996). Expert teachers spend more of the rehearsal time in warm-ups than student teachers or novice teachers.

A combination of behaviors typically exhibited by most conductors in rehearsal including student performance, academic task presentation, feedback, and directions have shown to be most successful and preferred for collegiate band rehearsals (Price, 1983). Price (1983) studied the effect of these common rehearsal behaviors by controlling which would be used in a teaching presentation. Three treatments were created, and each allowed the conductors to use specific conducting behaviors during the rehearsal. For example, Treatment A allowed the conductor to use verbalizations that only directed where the ensemble should begin in the music; to let the ensemble to perform as much as possible; and to keep a neutral face mask at all times. To measure the achievement (or success) of each of the three treatments given, a pretest and posttest performance of a composition was carried out. In between the pretest and posttest sessions, there were five twelve-minute treatment sessions, and at the end of the treatment session the composition was played in its entirety. The pretest and posttest performance sessions were audio-recorded and adjudicated by experienced judges. Price found that the third combination of behaviors (including, academic task presentations, directions, student performance,

and feedback) was preferred the most among students as it led to the highest student attitude ratings and demonstrated greater gains in score from the judges.

Students' attitudes and preferences are related significantly to their performance repertoire (compositions) and their interactions with their conductors (Price, 1983). For greatest effectiveness and highest attitude ratings, teachers need to engage in multiple teaching behaviors including performance time, feedback, directions, and tasks to meet the needs of all the students in the class (Price, 1983). Students are more attentive while performing, which may imply that teachers or conductors should attempt to give verbal instruction or use techniques that allow them to provide feedback while musicians are in performance to ensure effectiveness. However, it is possible that students may not be able to perform and process concurrent verbalizations as easily as professional musicians as indicated in Biasutti's study (2013).

During the initial minutes of a high school choir rehearsal, students are more attentive during activities that require singing and active participation (Brendell, 1996). While examining high school choir rehearsals in Florida, Brendell (1996) found that high school choral conductors spent the greatest amount of time during the first 30 minutes of rehearsal sight-reading; the next most frequent activities following sight-reading were vocal warm-ups and preliminary rehearsal routines (i.e., passing out music and materials, announcements, and finding seats) (Brendell, 1996). Out of those activities, students were the most attentive during the sight-reading activities and the least attentive during the "getting ready" activities. Students were also less attentive during vocal warm-ups than during sight-reading. Student attentiveness also corresponded with teacher talk and the types of teacher talk. Nápoles (2006) found that the amount of time teachers spent talking

related negatively to student attentiveness and that students were most off task when they were not receiving academic information. In a different study, Nápoles (2013) found that preservice teachers were able to reduce their teacher talk by about half after observing and analyzing previously recorded lessons.

Rather than examining specific conductor behaviors or time use in choral rehearsals, Cox (1986) examined the function of choir rehearsals as performances approach in collegiate and high school choirs. As performances approached, nonperformance activities increased during high school choir rehearsals (Cox, 1986). Collegiate choir rehearsals demonstrated the opposite, nonperformance activities decreased as a performance approached (Cox, 1986). Collegiate choir directors tended to use the rehearsal before the performance as a "dress rehearsal," while high school choir teachers used their rehearsal as time to mentally and emotionally prepare. This particular finding demonstrates a way in which high school and collegiate rehearsals differ as students in high school are still developing and learning how to control or respond to their emotional and mental capacities during performances.

Time Use and Teaching Behaviors in Individual Lessons

One of the most prevalent teaching behaviors in individual lessons is teacher verbalizations (Colprit, 2000; Duke, 1999; Kostka, 1984). Examinations of instructional time within individual violin lessons of Suzuki teachers have shown that teacher verbalizations are the most prevalent teaching behavior at 65% of all observation intervals which were 5-seconds in length. Teacher verbalizations were followed by teacher performances at 27%, and then performance approximations at 9% (Duke, 1999). Within rehearsal frames (lesson segments directed toward a single identifiable teaching

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point), 45% of total time was devoted to teacher verbalizations, about 20% was devoted to teacher modeling, and about 40% was devoted to student performance (Colprit, 2000). Colprit's total exceeding 100% may arise from observation intervals during which more than one activity was present, as was explicitly stated in Duke (1999). In piano lessons, across all age groups (elementary, secondary, and adult), teacher talk took up about 40% of time during lessons (Kostka, 1984). In contrast to Duke's (1999) findings about violin lessons, 55% of time was devoted to student performance and 12% of the time was devoted to student talk in piano lessons (Kostka, 1984).

Concurrent Verbal Delivery of Feedback and/or Directives

Another area of interest to the present study is the use of concurrent verbal delivery of feedback and/or directives by a conductor during the rehearsal. Concurrent verbal delivery of feedback and/or directives may be defined as verbalizations or comments that are given while the musicians or students are engaged in performance (i.e., while they are playing). At the middle school level, this particular behavior is somewhat specific to orchestra rehearsals, because it is difficult for a conductor to speak over the sound of a band, and because unlike wind players, string teachers can model and talk simultaneously (MacLeod, 2010). At the university level, MacLeod (2018) found co-verbal instruction was only considered effective when given as short prompts that the students could hear rather than inaudible, continuous talking. These findings were based on student and teacher participant written reflections as well as outside observers' written observations of rehearsal effectiveness.

A meta-analysis regarding immediate versus delayed feedback given to students found that delayed feedback hinders learning (Kulik & Kulik, 1988). Fifty-three studies

outside the field of music education research met the basic criteria (quantitative, two groups, and easily accessible) for the meta-analysis. Three different types of studies were included: (1) applied studies with classroom quizzes or programmed materials, (2) experiments on acquisition of test content, and (3) experiments with list learning. Results suggest that teachers should offer immediate feedback to students as quickly as possible to have positive learning effects, except in acquisition of test content (e.g., multiple choice tests) in which delayed feedback is preferred likely due to the perseveration-interference theory, which posits that "when a feedback trial follows too closely upon an acquisition trial, the memory of incorrect responses made during acquisition interferes with the learning of new correct responses during feedback" (Kulik & Kulik, 1988, pp. 93–94). There are only a few times or situations where delayed feedback appears to help learning, such as list learning. In most cases, immediate feedback to students ensures better learning than delayed feedback which interferes with learning. Applied to the orchestral rehearsal setting, it seems that feedback while playing may be superior to waiting until a play-through has been completed, though this extension has not yet been tested.

Specific Conducting Behaviors

Duke and Simmons (2006) observed three master teachers in a variety of lessons from high school students to doctoral candidates and organized the observed behaviors into three categories for study. The three categories of behaviors were goals and expectations, effecting change, and conveying information (Duke & Simmons, 2006). For example, behaviors that fall under goals and expectations may include remembering past rehearsals or lessons and drawing comparisons between the present and past to

demonstrate differences. Another example is demanding a consistent standard of sound quality from the student musicians either through verbal directions or nonverbal directions. Behaviors that effect change may include stopping the rehearsal to verbally or nonverbally give directions in fixing or improving technique or musicality of a phrase. Information may be conveyed through verbal or nonverbal feedback about the quality of performance given by the musicians.

Other researchers predetermined the behaviors that they would examine by reviewing relevant literature. The teacher behaviors found by Yarbrough and Price (1989) have influenced the behaviors that later researchers have examined. These teacher behaviors include academic musical task presentation, social task presentation (i.e., behavior management), giving directions, counting beats, questioning, and interruptions. Whitaker (2017) adopted these behavior categories and descriptions for examining the behaviors of professional orchestral conductors. As mentioned earlier, both studies used the term *academic task presentations* to describe how musicians should play a musical passage and the term *directions* to describe who will and where to play (Whitaker, 2017; Yarbrough & Price, 1989; Yarbrough et al., 1994).

Blocher et al. (1997) followed these studies' precedent in selecting behaviors to investigate middle school and high school band rehearsals, which in turn influenced Ihas's (2011) selection of variables to study. The following behaviors were selected and defined: nonmusical (teacher disciplines students, down time, nonmusical directions, announcements, etc.), nonverbal instruction (direction, including proactive conducting and facial expressions), verbal instruction (direction, e.g., "play louder" and "start at measure 3"), non-interactive listening (purposeful listening with no interaction),

nonverbal feedback, verbal feedback, and conceptual teaching (reinforcing or introducing a concept that gives the student musician an opportunity for awareness and understanding that may be transferred) (Blocher et al., 1997).

In summary, similar behaviors were examined and identified in these studies of conductor behavior and rehearsal time use, regardless of whether they were chosen *a priori* or selected for further analysis during the study. Researchers have recognized the need to separate verbal and nonverbal behaviors as well as their qualities – feedback and instruction – into distinct categories. Researchers also agree that there needs to be a category dedicated to giving instructions or directions that either addresses the music or logistics (i.e., academic task presentation versus directions). Researchers tend to examine behaviors that may be specific or corresponds to the level of the ensemble/lesson observed. For example, studies focused on middle and high school ensembles, band teachers devoted 2.79% of their time to conceptual teaching while orchestra teachers devoted 5.30% of their time (Blocher et al., 1997; Ihas, 2011), but researchers did not measure conceptual teaching at the professional level, perhaps because professional musicians were assumed to already understand most musical concepts (Whitaker, 2017). Non-interactive listening was found in the studies focused on secondary level ensembles (Blocher et al., 1997; Ihas, 2011) but has not been explored in professional-level ensembles, possibly because the conductor does not need to focus extra attention to the musicians' abilities.

Purpose Statement

The present research addresses the gap of collegiate orchestral conducting behavior and time use by examining the use of time in high school and collegiate

orchestra rehearsals as well as elements of conductor behavior. The particular conductor behaviors and rehearsal components examined include timing of delivery of verbal and nonverbal feedback, directives, and other observed behaviors of interest found in previous studies (Blocher et al., 1997; Ihas, 2011; MacLeod, 2010; Yarbrough et al., 1994).

The purpose of this study was to examine conductors' behavior and use of rehearsal time in high school and collegiate orchestra rehearsals. Specifically, I sought to answer the following questions: (1) What percentage of rehearsal time do collegiate and high school orchestra conductors spend in various common rehearsal components (e.g., verbal and nonverbal directives and feedback, modeling, noninteractive listening, conceptual teaching, concurrent verbal feedback and/or directives and others)? and (2) What percentage of conductor verbalizations (feedback and directives) is delivered concurrently with student performance?

CHAPTER III

METHOD

Prior research outlines several themes regarding orchestra rehearsals. Nonverbal directives (i.e., conducting) given by the conductor take up the majority of ensemble rehearsal time (Biasutti, 2013; Blocher et al., 1997; Goolsby, 1996; Ihas, 2011; MacLeod, 2010; Whitaker, 2017). Conductors and teachers engage in conceptual teaching behaviors and give more verbal directives while rehearsing students with less skill and sophistication (i.e., middle school students, younger private lesson students) (Colprit, 2000; Duke, 1999; Ihas, 2011). Conductors of high school ensembles give more nonverbal directives than verbal directives (Blocher et al., 1997; Ihas, 2011), and conductors of professional orchestras likewise spend most of their rehearsal time engaged in nonverbal directives, allowing the musicians to perform for over half the rehearsal (Biasutti, 2013; Whitaker, 2017). While conductor behavior within orchestra rehearsals has been examined at the secondary level and professional level, researchers have not yet examined patterns of conductor behavior within collegiate orchestra rehearsals.

The purpose of this study was to examine conductors' behavior and use of rehearsal time in high school and collegiate orchestra rehearsals. Specifically, I sought to answer the following questions: (1) What percentage of rehearsal time do collegiate and high school orchestra conductors spend in various common rehearsal components (e.g., verbal and nonverbal directives and feedback, modeling, noninteractive listening, conceptual teaching, concurrent verbal feedback and/or directives and others); and (2) what percentage of conductor verbalizations (feedback and directives) is delivered concurrently with student performance?

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Participants

Participants in this study ($N = 8$) were high school ($n = 4$, female $= 1$) and collegiate (all male) orchestra conductors from Oregon and Washington. All of the high school conductors taught in public schools in Oregon. Two of the collegiate conductors were from small, private universities in Oregon, while the other two conductors were from large, public universities in Oregon and Washington. The observed high school conductors conducted string ensembles (violin, viola, cello, bass), while the collegiate conductors conducted full orchestras (including wind, brass, and percussion instruments). All of the participants were recruited directly, in some cases after a referral from a university faculty member or a local orchestra conductor (see correspondence materials in Appendix A).

Most ($n = 6$) of the orchestra conductors at both the collegiate and high school levels had either a bachelor and master's degree in instrumental performance or both. All of the collegiate orchestra conductors had doctorates in conducting. None of the collegiate conductors had experience conducting/teaching in elementary, middle, or high school settings; however, all but one collegiate conductor had experience conducting youth orchestras. Only one of the collegiate conductors had a degree in music education. All of the collegiate conductors have conducted orchestras at the professional level.

Two of the high school conductors had degrees (bachelor and master) in music education ($n = 2$). One of these two conductors also had a master's in instrumental performance. The third high school conductors had a bachelor's degree in music (general), a master of arts in teaching and had completed all doctoral coursework but did not complete a dissertation. The fourth high school conductor did not indicate a degree

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relating to education or teaching, however, the individual did have degrees in instrumental performance and conducting. All of the conductors had at least two different orchestra levels at their high schools. All of the high school conductors had experience conducting/teaching in elementary and middle school settings, but none had conducting experience in collegiate settings. Two of the high school conductors had experience conducting youth orchestras and professional orchestras.

As mentioned briefly in the literature review, conductors and teachers share similar responsibilities. All conductors of ensembles teach musical elements during rehearsals, while all teachers conduct their ensembles during rehearsals. While many researchers have designated secondary ensemble leaders as 'teachers' and professional ensemble leaders as 'conductors,' in this study (and the rest of this document) I will use the term 'conductor' for both high school orchestra teachers and collegiate orchestra conductors.

Procedures for Data Collection

Participants completed both an informed consent form and a short questionnaire (see Appendices A and B) before conducting their video-recorded rehearsals. After filling out the forms, each participant was given a brief description of the procedure of the study as well as time to ask questions. The conductors were not given any rehearsal specifications and were told to rehearse their ensemble as normally as possible. For example, the conductors led their rehearsals in their regular rehearsal space and were instructed to use conducting techniques that they would use without an observer present. Before each rehearsal started, a digital video camera was placed in a position where only the orchestra conductor was in the video frame. I made sure that the student musicians

were comfortable, able to move, bow, and in general were not constrained by the placement of the camera. While minors and adult students were present during the rehearsal, only the conductor was video recorded and identified. Two ninety-minute rehearsal sessions, or a total of three hours of rehearsal, were recorded for each conductor.

Analyzing Rehearsal Videos and Defining Conductor Behaviors

Although I was present during each rehearsal, I neither took notes nor began to transcribe the rehearsals to make my presence as unobtrusive as possible. At a later time, I watched each rehearsal video several times. During the early stages of observing the rehearsal videos, I informally took notes regarding the conductors' behaviors. Through this note taking and casual observation process, I was able to identify possible trends and behaviors of interest, including counting off and physical proximity. Seven of the behaviors chosen for study were derived from the study completed Blocher et. al. (1997) and were also used by Ihas (2011). Relevant orchestra or strings studies influenced the inclusion of three of the behaviors chosen for examination, including vocal modeling, instrumental modeling, and concurrent verbal feedback and/or directives (Colprit, 2000; Kostka, 1984; MacLeod, 2010, 2018). The following behaviors were chosen for examination in this study: verbal feedback, verbal directives, nonverbal feedback, nonverbal directives, noninteractive listening, conceptual teaching, nonmusical, vocal modeling, instrumental modeling, physical proximity, counting off ensemble, and concurrent verbal feedback and/or directives with student performance.

When observing the videos, I drew from the definitions provided by Blocher et al. (1997) to guide my identification of the seven behaviors listed above. Verbal feedback

was defined as any time a conductor provided verbal reaction to student performance that reinforced, shaped, or changed further student performance (e.g., "The cellos are too soft"). Verbal directives were defined as any time a conductor gave verbal instructions or directions that involved specific musical or logistical attributes of the performance at hand (e.g., "Play that phrase more gently" or "Start in measure 32"). I used the same criteria specified by Blocher et. al. (1997) to define nonverbal directives. Nonverbal directives were identified as any time a conductor gave instruction through "proactive conducting," which was defined by Blocher et al. (1997, p. 461) as "attentive, helpful gestures, eye contact." It also included a conductor's facial expressions, body language, and other nonverbal cues that demanded a response.

Nonverbal feedback was defined as any time a conductor provided nonverbal reaction that was based on student performance that reinforced or changed further student response (Blocher et al., 1997). In general, I mostly identified a conductor as exhibiting nonverbal feedback when a blatant facial or body gesture was made. For example, this behavior was identified when a conductor made a disapproving face while waving arms in the air to indicate to the ensemble to stop playing. Nonverbal feedback was one of the behaviors that was the most complicated to identify since many conductor gestures or facial expressions could be considered nonverbal feedback. However, any gestures or facial expressions given while conducting were defined preemptively as a nonverbal directive.

I likewise used the criteria specified by Blocher et. al. (1997) to identify instances of conceptual teaching. Conceptual teaching was defined as whenever a conductor "reinforces or introduces a concept in such a way that the student is given opportunities

for awareness and understanding with a potential for transfer" (Blocher et al., 1997, p. 462). For example, a conductor might engage in conceptual teaching by stating that a sharp sign should be carried through out an entire measure unless otherwise indicated by another accidental or natural sign. It was at times difficult to identify and separate conceptual teaching behaviors from verbal directive behaviors. Whenever a conductor made a statement that furthered the students' understanding regarding music history, theory, or technical aspects of performance, I identified the conductor engaging in conceptual teaching.

The last two behaviors adopted for examination from the Blocher et al. (1997) study were noninteractive listening and nonmusical behaviors. Noninteractive listening was identified whenever the conductor listened to student performance without having an active role in the performance either visibly or audibly except when the conductor monitored tempo by simply tapping on a nearby surface. Nonmusical behaviors included times when the conductor disciplined students, had down time, was interrupted by the office or visitors, gave nonmusical directions (e.g., "close the window"), or made announcements.

In addition to the behaviors identified by Blocher et al. (1997), several additional rehearsal behaviors were included for examination in the present study: instrumental modeling, vocal modeling, physical proximity, counting off, and concurrent verbal feedback and/or directives. Instrumental modeling was identified when the conductor performed on an instrument individually or during student performance. Vocal modeling was identified when the conductor sang individually or during student performance. While some studies have used the term 'teacher performance' to identify this behavior

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(Colprit, 2000; Duke, 1999; Kostka, 1984), I chose to employ the term "modeling" because it has been used in prior studies of ensemble rehearsals (Dickey, 1991; Goolsby, 1996; MacLeod, 2010; Worthy, 2003). Unlike the previously mentioned studies, I chose to distinguish between vocal and instrumental modeling. Physical proximity was defined as anytime the conductor left the podium and entered the section of students seated within the orchestra. Counting off was defined as any time the conductor vocally counted the orchestra in before playing a section of the music (e.g., "One, two, ready, play").

Verbal feedback and directives delivered during student performance were a behavior of particular interest in this study. MacLeod (2010) used the term "co-verbal instruction" to denote a teacher giving verbal instruction while modeling or during student performance. Co-verbal instruction has been noted to remind students to be fully engaged with the previously instructed behavior, and as such tends to be somewhat different in character from directives themselves (MacLeod, 2018). MacLeod (2010) found that co-verbal instruction was used more in orchestra rehearsal than band rehearsals. MacLeod (2018) also found that co-verbal instruction was preferred by students in the orchestra when given as short, audible prompts, otherwise the behavior was considered as distracting to them.

As mentioned, the twelve behaviors chosen were either drawn from relevant studies or chosen from informally observing the rehearsals *in situ*. I chose not to include some behaviors examined in previous studies, such as echoing techniques or pedagogical touch from MacLeod's (2010) study, because those behaviors were simply not present in the current data set. Some of the behaviors, including counting off and physical proximity, had not been studied previously but were chosen for examination in this study

because they were unique and unlike any other behavior categories encountered in previous literature. Lastly, no other behaviors were chosen beyond these twelve because I knew from the initial observation stage that they would be sufficient to identify and categorize all of the behaviors in the videos.

After choosing behaviors to analyze, I examined the rehearsal videos using the software package SCRIBE (Simple Computer Recording Interface for Behavioral Evaluation) to label and identify the rehearsal components and measure the percentage of time, frequency, duration, mean, standard deviation, and total observation time of each conductor behavior reported (Duke & Stammen, 2011). The chronological data from each SCRIBE file for each rehearsal was saved as a PDF file, and from there the data were copied and pasted into an Excel file. Compiling all of the data into Excel allowed me to combine entire rehearsals that my camera had split into separate files due to their size and that SCRIBE was therefore treating as separate events. Once the data was exported into Microsoft Excel, the frequency, percent of all events represented by each behavior, rate in behaviors per minute, total time, and percent of rehearsal time devoted to each behavior were calculated. In addition to analyzing the percentage of rehearsal time that was spent on different behaviors, I decided to analyze the rates at which conductors employed each behavior since the rehearsals recorded ended up having slightly differing lengths. Analyzing the rates, rather than the frequency (i.e., counts), helped eliminate any effects that may be caused by differing rehearsal lengths. With these results, mean percentage of time and rate for collegiate and high school conductors' behaviors were calculated.

In determining the best way to analyze the data, I also considered analyzing reoccurring sequences of behaviors (such as verbal directives or verbal feedback,

followed by counting off, and concluding with noninteractive listening or nonverbal

directives) and the location and duration of each behavior within the rehearsal for each

conductor; however, I did not have sufficient data to completely analyze these two

aspects.

CHAPTER IV

RESULTS

The purpose of this study was to examine conductors' behavior and use of rehearsal time in high school and collegiate orchestra rehearsals. Specifically, I sought to answer the following questions: (1) What percentage of rehearsal time do collegiate and high school orchestra conductors spend in various common rehearsal components (e.g., verbal and nonverbal directives and feedback, modeling, noninteractive listening, conceptual teaching, concurrent verbal feedback and/or directives and others); and (2) what percentage of conductor verbalizations (feedback and directives) is delivered concurrently with student performance?

Twelve behaviors were chosen for examination for this study. Most of these behaviors chosen for examination were studied in previous research, while a few were chosen based on my informal, initial observation of the rehearsal videos. In addition to calculating the percentage of time each conductor spent on each behavior as specified in my purpose statement, the rate at which each conductor engaged in each behavior was also calculated (for full details, see Table 4.1). As discussed in Chapter III, it became clear that comparing the frequencies of each behavior among all of the conductors would lead to inaccurate findings since each rehearsal differed slightly in length. To eliminate any effects of differing rehearsal lengths, each behavior's frequency within a rehearsal (i.e., behavior counts) was converted to a rate (behaviors per minute).

TABLE 4.1

Percentages of Time and Rates of Twelve Conducting Behaviors

| Conducting Behaviors	Rate (Instances per Minute)				Percentage of Rehearsal Time			
	High School		College		High School		College	
	Mean	SD	Mean	SD	Mean	SD	Mean	SD
Conceptual Teaching	0.28	0.18	0.06	0.08	3.05	1.75	0.84	0.74
Concurrent Verbalizations	0.62	0.46	0.76	0.46	1.54	1.28	1.85	1.52
Counting Off	0.97	0.56	0.47	0.43	3.06	2.62	1.03	0.86
Instrumental Modeling	0.54	0.45	0.00	0.00	7.28	8.11	0.00	0.00
Noninteractive Listening	0.78	0.50	0.08	0.09	10.23	8.92	0.75	0.84
Nonmusical	0.28	0.13	0.16	0.12	16.82	12.05	13.84	6.41
Nonverbal Directives	1.37	0.75	1.46	0.65	29.88	15.95	50.81	9.61
Nonverbal Feedback	0.05	0.03	0.05	0.08	0.13	0.13	0.15	0.26
Physical Proximity	0.02	0.04	0.00	0.01	0.20	0.40	0.15	0.41
Verbal Directives	2.24	0.81	1.37	0.59	14.36	4.41	16.08	6.86
Verbal Feedback	1.02	0.64	0.67	0.44	4.50	3.40	4.48	3.58
Vocal Modeling	0.26	0.22	0.40	0.24	1.15	1.02	1.66	0.96

With the small sample size (only two rehearsals for each of four participants at each level) and twelve behaviors, inferential statistical analysis was inappropriate. Instead of statistical analysis, I used descriptive statistics to analyze the data and to qualify these comparisons. Since an inferential statistical analysis was not completed, these results must be interpreted with caution. However, some of these results did seem suggestive of relative differences between high school and college orchestra rehearsals. The behaviors that suggested relative differences between the two conductors included: instrumental modeling, conceptual teaching, noninteractive listening, counting off, nonverbal directives, and verbal directives. In particular, these six behaviors demonstrated a pattern in which a relative difference in means appeared to emerge between collegiate and high school conductors, with a relatively small standard deviation among collegiate conductors. This collegiate standard deviation seemed to suggest the high school conductors' means were truly different; however, the comparatively large standard deviations among high school participants complicated these findings (see Figures 4.1 and 4.2). The figures demonstrate the pattern of a wider range of values among the high school conductors and a narrower range of values among the collegiate conductors.

Figure 4.1

Number of Rehearsals and the Percentages of Time Spent on Conceptual Teaching
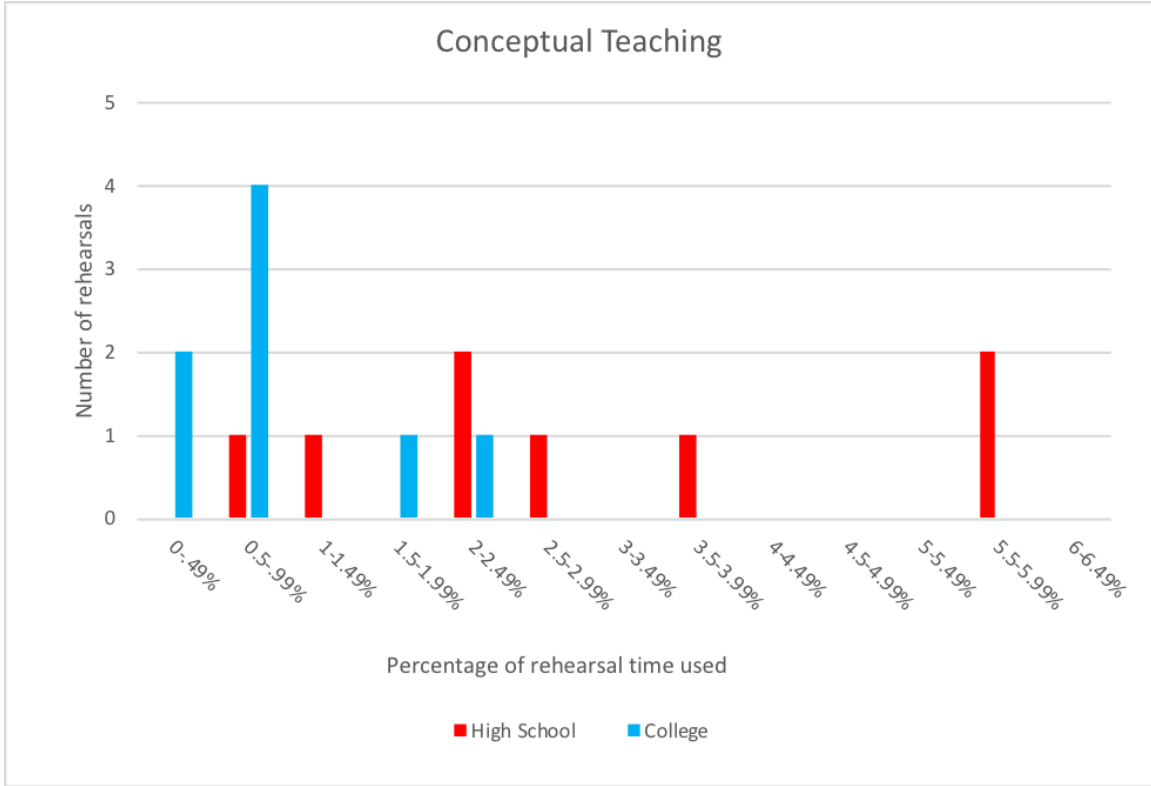
Figure 4.2

Number of Rehearsals and the Rates of Noninteractive Listening
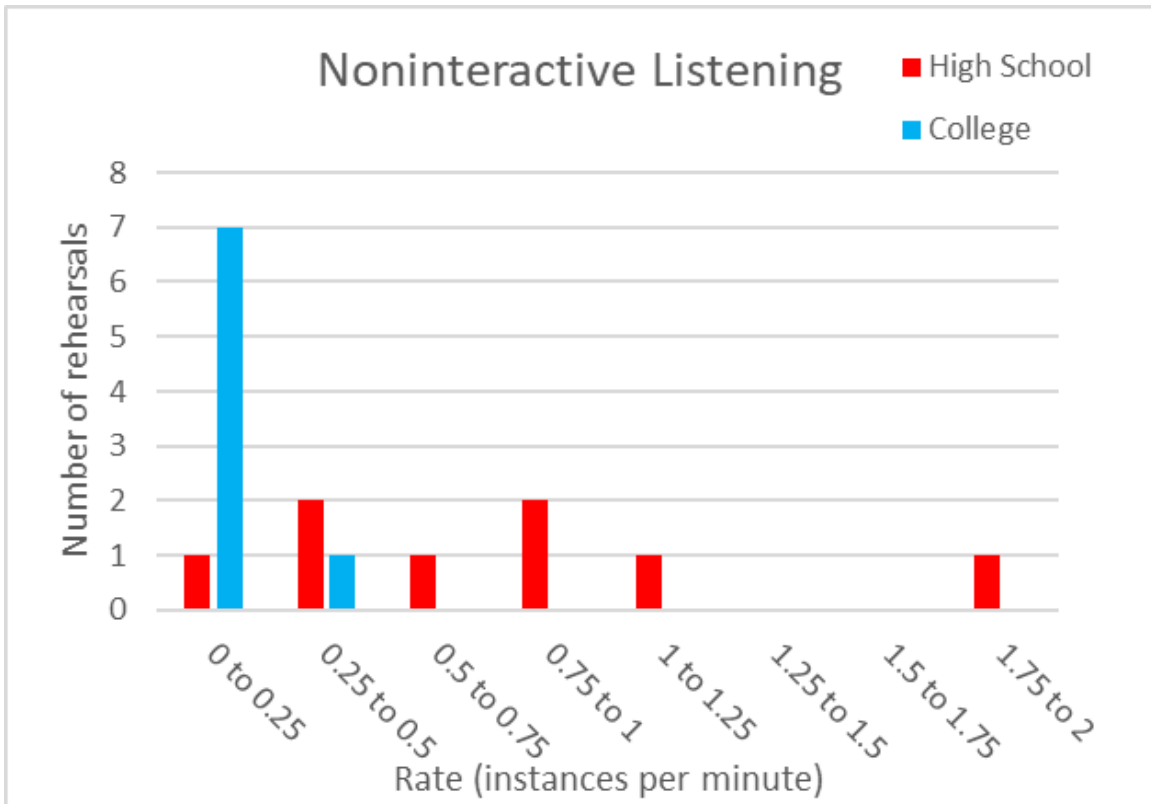
After presenting the results most suggestive of differences between the two participant categories, I will present the results of behaviors that demonstrated high variability between conductors at the collegiate level as well as the high school level. These behaviors included nonmusical behaviors and vocal modeling. The last group of behaviors discussed in this chapter did not display any differences between the high school and collegiate conductor means and had high variability among both groups of participants. These behaviors included verbal feedback, concurrent verbal feedback and/or directives, nonverbal feedback, and physical proximity. Throughout this chapter, I will only include specific numbers that demonstrate salient data. For all means and standard deviations of each behavior demonstrated by either high school or collegiate conductors, see Table 4.1.

None of the collegiate conductors exhibited instrumental modeling, while high school orchestra conductors modeled on their instruments a mean of 7% of the time. At the high school level, conductors modeled on their instrument about every two minutes. While this behavior occurred at a fairly high rate and on average took up 7% of rehearsal time, the standard deviations for both measurements were high. There was individual variation in the extent to which high school conductors employed instrumental modeling; one high school conductor did not model on any instruments in either of their rehearsals, while three of the conductors did model on instruments and spent between 2% to 26% of rehearsal time on this behavior. Again, none of the collegiate conductors engaged in instrumental modeling, which indicates that this behavior was specific to the high school conductors.

Like instrumental modeling, noninteractive listening took up a greater percentage of time and occurred at a higher rate in the high school setting than in the collegiate setting. On average, high school conductors listened noninteractively 10% of the time while collegiate conductors dedicated on average less than 1% of time to noninteractive listening. Noninteractive listening occurred about 10 times as often in high school orchestra rehearsals (0.8 per minute) as they did in collegiate orchestra rehearsals (0.1 per minute). This behavior, too, exhibited the pattern discussed above, wherein collegiate conductors appeared much more unified, while the high school conductors had much more variability (see Figure 4.2). While seven of the eight collegiate rehearsals fell into the "0 to .25 behaviors per minute" range, none of these rehearsals actually had zero of these events.

High school orchestra conductors also engaged in conceptual teaching behaviors more than collegiate conductors. High school conductors spent 3% of rehearsal time teaching concepts while collegiate conductors spent less than 1% of rehearsal time engaging in conceptual teaching behaviors. The rate of conceptual teaching behaviors among high school orchestra conductors (0.3 per minute) was about 4.5 times that of collegiate orchestra directors (0.1 per minute). Similar to instrumental modeling and noninteractive listening, this behavior also demonstrated the pattern of variability among the high school conductors and homogeneity among the collegiate conductors (see Figure 4.1).

High school orchestra conductors audibly counted off at a mean rate of 1.0 per minute, about twice as often as collegiate orchestra conductors (0.5 per minute). At the high school level, conductors spent an average of 3% of rehearsal time counting off

students before they performed, while collegiate conductors only spent on average 1% of rehearsal time counting off. The smaller standard deviation of the percent of time at the collegiate level suggests that this behavior also indicates the pattern of variability among the high school conductors and homogeneity among the collegiate conductors.

College conductors spent a higher percentage (51%) of their rehearsal time engaged in nonverbal directives than did high school conductors (30%), but both groups displayed this behavior at very similar rates (High school, 1.4 per minute; college, 1.5 per minute). Together, these results indicate that each time the conductors at the collegiate level conduct the orchestra, they conducted for a longer period of time (i.e., the average individual instance of uninterrupted conducting was longer in college rehearsals than in high school). Collegiate conductors spent on average 16% of rehearsal time giving verbal directives while high school conductors spent 14% of rehearsal time giving verbal directives. While the overall percentage of time spent was somewhat similar, high school conductors gave verbal directives at a higher rate (2.2 per minute) than collegiate conductors (1.4 per minute). Combining these results may suggest that collegiate conductors give verbal directives that are longer in duration at a lower rate, while high school conductors give more frequent verbal directives that are shorter in duration. However, the standard deviations for both high school and collegiate conductors are too large and complicate the comparison of means.

Unlike instrumental modeling, both high school and collegiate conductors used vocal modeling in their rehearsals. On average, collegiate conductors spent about 1.7% of rehearsal time modeling with their voices and high school conductors spent a similar 1.2% of rehearsal time on vocal modeling. Collegiate conductors modeled with their

voices at a higher rate (0.4 per minute) than high school conductors (0.3 per minute). The standard deviations for this behavior for both percent of rehearsal time and rate are relatively large for high school and collegiate conductors in comparison to their averages. This behavior, and the rest of the behaviors discussed in this chapter, did not exhibit the pattern of variability among the high school conductors and homogeneity among the collegiate conductors.

Collegiate conductors spent almost 14% of rehearsal time on average engaging in nonmusical behaviors, and high school conductors spent almost 17% of rehearsal time on nonmusical behaviors. High school conductors (0.3 per minute) engaged in nonmusical behaviors at a higher rate than collegiate conductors (0.2 per minute). The standard deviations in comparison to the percent of rehearsal time and rate averages were too large to suggest that these results have strong implications.

Verbal feedback, concurrent verbal feedback and/or directives, and nonverbal feedback were behaviors that showed little variation between collegiate and high school conductors in either percent of rehearsal time or rate. Verbal feedback behaviors were exhibited by both high school (5%) and collegiate (4%) orchestra conductors and took up about the same percentage of time. However, verbal feedback behaviors occurred at a higher rate (about 1.5 times) with high school orchestra conductors (1.0 per minute) than collegiate orchestra conductors (0.7 per minute). Conductors at the high school (0.6 per minute) and collegiate (0.8 per minute) levels gave concurrent verbal feedback and/or directions at about the same rate. Conductors at both levels also spent about the same about of time giving concurrent verbal feedback or directives. Nonverbal feedback behaviors were exhibited by both high school and collegiate conductors. At both of these

levels, nonverbal feedback behaviors took up less than 0.20% of time and occurred at roughly the same rate (0.1 per minute). The standard deviations for these three behaviors were also large and indicated great variability among both collegiate and high school conductors. While observing the video recordings, physical proximity was observed and chosen for examination; however, this behavior occurred very few times and did not provide enough data for analysis.

CHAPTER V

DISCUSSION

Previous researchers have suggested that conductors adjust their behavior between ensembles of different types, settings, and levels (Blocher et al., 1997; Ihas, 2011; MacLeod, 2010; Whitaker, 2017; Witt, 1986). Middle school conductors engage in conceptual teaching more frequently than high school conductors (Ihas, 2011). Orchestra conductors model (both alone and concurrently with student performance), give concurrent verbal feedback and/or directives, and use echoing techniques with greater frequency than band directors, who instead use more verbal instruction, conducting, and student performance (MacLeod, 2010). The purpose of this study was to examine conductors' behavior and use of rehearsal time in high school and collegiate orchestra rehearsals. I was also specifically interested in the percentage of time conductors spent giving verbalizations (feedback and directives) concurrently with student performance.

Overall, conductors in both settings spent the most time giving nonverbal directives, verbal directives, and engaging in nonmusical behaviors. Collegiate and high school conductors spent the least amount of time on nonverbal feedback and physical proximity. Most of the findings from this study, especially results for high school conductors, were consistent with findings from previous literature, except for the behaviors that were not examined in previous research such as counting off and physical proximity.

Across many relevant studies, verbal directives are typically one of the most frequent and time-consuming conductor behaviors examined. In this study, verbal directives were the second most frequent and time-consuming behavior among collegiate

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conductors and the third most employed behavior among high school conductors in regard to the percentage of time spent on the behavior. High school conductors gave verbal directives at a higher rate than collegiate conductors. Combining the results of the percentage of time spent and the rate the conductors engaged in verbal directives suggests that collegiate conductors give fewer, longer verbal directives while high school conductors give shorter, more frequent ones. The large amount of time spent giving verbal directives (including academic task presentation) found in this study is consistent with findings from several other studies (Blocher et al., 1997; Colprit, 2000; Goolsby, 1996, 1997; Ihas, 2011; MacLeod, 2010; Whitaker, 2017; Witt, 1986). MacLeod (2018) found that verbal directives are preferred by students in comparison to nonverbal directives during collegiate orchestra rehearsals. The amount of time conductors spent giving verbal directives in this study seems to indicate that students and conductors share this preference for verbal directives that MacLeod (2018) found.

Other forms of verbalizations examined in this study included verbal feedback and concurrent verbal feedback and/or directives. This behavior is separate from verbal directives and feedback because these verbalizations are given concurrently with student performance and are generally function as short reminders. In this study, collegiate and high school conductors spent similar amount of time giving verbal feedback and concurrent verbal feedback/directives. Conductors at both levels spent less than 5% of rehearsal time giving verbal feedback. This finding is consistent with Blocher et. al.'s (1997) findings at the high school level for band ensembles. However, this finding is inconsistent with Ihas's (2011) findings at both the middle school and high school level for orchestras. In contrast, Ihas (2011) found that at the middle school and high school

levels, conductors spend about 11% of rehearsal time giving verbal feedback. One possible explanation for the differences between the present findings and those that Ihas (2011) reported is that the rehearsals observed were in differing preparation stages. While verbal feedback is an aspect that many researchers have studied, the results in those studies are not directly comparable with my study's results likely because they were measured differently. For example, several studies examined the frequencies (count) rather than the rates of each behaviors (Blocher et al., 1997; Goolsby, 1997; Ihas, 2011; MacLeod, 2010). The different measurements complicate the comparisons because the frequencies that others measured likely do not eliminate any effects that may be caused by differing rehearsal lengths.

MacLeod (2010) examined concurrent verbalizations, among other behaviors, in instrumental ensemble rehearsals, and found that middle school (5th and 6th grade) orchestra directors used concurrent verbal delivery much more often than band directors. MacLeod (2018) also found that collegiate string students preferred concurrent verbal directives when given in short, audible prompts or reminders in comparison to longer, inaudible concurrent verbal directives through written evaluations. Although the standard deviations in the present study were high and preclude any conclusions about differences between groups, and the small sample size, the percentages of time spent on this behavior at both levels were small and from my observation the concurrent verbalizations were given as short reminders and correspond to MacLeod's (2018) description of the "preferred co-verbal delivery."

Conductors at both the high school and collegiate levels spent the greatest percentage of rehearsal time on nonverbal directives, which included conducting and

included helpful gestures, facial expressions, body language, and other nonverbal cues that demanded a response. This finding is consistent with many other studies on time use within ensemble rehearsals, including orchestra rehearsals (Brendell, 1996; Goolsby, 1996; Ihas, 2011; Whitaker, 2017; Witt, 1986; Yarbrough & Price, 1989). In contrast, MacLeod (2010) found that conducting was orchestra teachers' sixth most represented behavior when teaching beginning ensembles an unfamiliar song. This contrast with the present study may reflect a few differences in the rehearsal conditions: a) she observed a conductor leading a much younger and less skilled group of students, and b) the conductors were teaching a new song to the students. MacLeod's (2010) finding from this study seems to fit into the paradigm that conductors adjust their rehearsal strategies and behaviors to their players' skill level and musical sophistication. For example, instead of spending time on nonverbal directives, the conductors from MacLeod's study used verbal instruction the most in order to teach a new song. While beginning students may need more verbal instructions about how to learn a new piece, it seems that advanced students do not need this verbal instruction and would rather spend more time performing, however students' rehearsal preferences were not examined. The findings from my study also fit into this paradigm since the high school conductors spent less time giving nonverbal directives than collegiate conductors.

While conductors at the high school and collegiate level both spent the greatest amount of rehearsal time using nonverbal directives (primarily conducting), there was great disparity between their average percentages of time. Collegiate conductors spent half of their rehearsal engaged in nonverbal directives while high school conductors spent less than 30% of their rehearsal engaged in this behavior. Despite this disparity in time

percentage, nonverbal directives given by both high school and collegiate conductors occurred at roughly the same rate—that is, conductors in both groups engaged in nonverbal directives comparably often, but collegiate conductors' average instance of this behavior lasted almost twice as long. Collegiate conductors may spend more time than high school conductors engaged in nonverbal directives because collegiate orchestras perform repertoire that is longer in duration than high school repertoire and that collegiate conductors prefer to perform longer chunks of music at a time.

Another explanation for the large differences between the amount of time collegiate and high school conductors spend giving nonverbal directives may be due to high school conductors' use of noninteractive listening as an alternative tool to monitor students' ongoing performances. In contrast to high school conductors, noninteractive listening was the fourth least represented behavior among collegiate conductors and occupied only a tiny amount (less than 1%) of collegiate rehearsals. In this study, the situations in which the collegiate conductors engaged in noninteractive listening usually involved the conductor was listening for ensemble balance. In contrast, high school conductors spent more than 10% of rehearsal time using noninteractive listening behaviors and displayed this behavior during warm-ups and when using "drilling" techniques in addition to checking balance. For example, a section of students would perform a short excerpt of music while the conductor listened without interacting, and after each performance the conductor would give verbal feedback about the performance. The process would be repeated multiple times in succession. There is no reason to assume that high school conductors are unable to listen while they conduct, rather that students of this level seem to require more attention to their technical facilities (i.e., left-

and right-hand skills) than keeping the ensemble rhythmically together. The high school findings for noninteractive listening were consistent with findings from previous literature (Blocher et al., 1997; Ihas, 2011). This behavior has not been measured at the collegiate level nor the professional level. From my findings there appears to be a difference between the amount of time high school and collegiate conductors spend on noninteractive listening. This finding seems to fit the paradigm that conductors adjust their behaviors to the sophistication level of their students. It is possible that the collegiate conductors' small use of noninteractive listening may reflect an aspect of their formal conducting training.

As mentioned in a previous paragraph, it is possible that high school conductors substitute nonverbal directives with noninteractive listening for a portion of the rehearsal. If the high school conductors' percentage of time spent on noninteractive listening was added to their percentage of time spent on nonverbal directives, the combined percentage of those two behaviors would make a total that is much more comparable (a difference of about 10% of the time) to the collegiate conductors' percentage of time used on nonverbal directives. As mentioned above, regardless if the conductor is listening noninteractively or giving nonverbal directives, during either of these behaviors students are usually performing.

Conductors of both levels used less nonverbal feedback than other nonverbal behaviors. This finding is consistent with findings from previous studies (Blocher et al., 1997; Ihas, 2011). It is possible that nonverbal feedback as well as instruction might be used with caution during rehearsal due to students' preferences. For example, MacLeod (2018) found that students valued rehearsal segments that included verbalizations of

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instruction as well as feedback because they felt that they led to ensemble progress. Similarly, students do not feel like they are making progress when they are unaware or feel that they are not receiving feedback (MacLeod, 2018; Nápoles, 2017). Another explanation that this could arise at least in part from the distinction between nonverbal feedback and nonverbal directives since all conducting, in this study and others, has been identified as nonverbal directives. Therefore, the results of these studies that examined nonverbal feedback in rehearsals would be clarified if these two behaviors (nonverbal feedback and nonverbal directives) had more specific definitions.

Based on my own experiences as a collegiate music student, the finding that none of the collegiate conductors used instrumental modeling during their rehearsals was anticipated. In contrast, high school orchestra conductors spent 7% of rehearsal time modeling on their instruments. This modeling was not concentrated in a few, long demonstrations, but rather occurred frequently, about once every two minutes on average. High school conductors used instrumental modeling in a variety of contexts, including demonstrating techniques and skills that students may still be developing and melodic phrasing. High school conductors may have felt that actually modeling on an instrument was a more efficient instructional strategy than verbally describing the desired technical changes. In contrast, collegiate conductors mostly used modeling to demonstrate desired phrasing using only their voice. Collegiate conductors may hold the expectation that collegiate students no longer need instrumental demonstrations of technique. Another possible explanation for the lack of instrumental modeling in collegiate orchestras is due to the greater variety of instruments in a symphony orchestra (the ensemble in all of this study's collegiate rehearsals) than a string orchestra (the ensemble in all of this study's

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high school rehearsals). Yet another possible explanation of why collegiate conductors did not use instrumental modeling is that this behavior it is not part of the culture due to their conducting teachers' traditions. These traditions may also assume it is condescending for the conductor to model with an instrument.

High school conductors spent almost twice as much time on conceptual teaching than collegiate conductors. Conceptual teaching behaviors occurred among high school orchestra conductors at about 4.5 times the rate among collegiate orchestra directors. Ihas (2011) reported similar findings, with middle school orchestra directors spending twice as much time on conceptual teaching than high school orchestra directors. These findings may suggest that conductors believe the need for conceptual teaching decreases as students improve and advance to higher level ensembles such as collegiate orchestras. These findings may also suggest that collegiate conductors neglect this teaching technique as they may assume that their students enter collegiate ensembles with enough exposure and understanding of musical concepts that they do not need to spend rehearsal time on conceptual teaching. This finding seems to continue or extend the trajectory suggested by Ihas's (2011) findings which indicated that middle school teachers used conceptual teaching behaviors more than high school students. It seems probable that the pattern would continue at the professional level; however, this behavior has not been examined at that level. It is also important to note that conceptual teaching within performance-based ensembles at the secondary level does not only improve understanding of musical concepts such as theory and history, it also improves performance quality (Garofalo & Whaley, 1979; Hendricks, 2010).

Counting off was identified and chosen as behavior for examination because it was distinct from other behaviors, seemed to take up a lot of rehearsal time, and seemed to avoid teaching the concept of internalizing tempo. Counting off behaviors occurred at about twice the rate (per minute) in high school orchestra rehearsals as in collegiate orchestra rehearsals. At the high school level, conductors spent an average of 3% of rehearsal time audibly counting before students performed, while collegiate conductors only spent on average 1% of rehearsal time counting off. While these are not large percentages, the few seconds spent on this behavior multiple times adds up over the course of a whole rehearsal to about two minutes. It is possible that conductors' use of this behavior might have been affected by the experience and skill level difference between collegiate and high school orchestras. Specifically, this finding could be due to high school students' inability to accurately internalize tempo from a conductor's cue (upbeat) when starting to play. Conductors of collegiate orchestras may also have the expectation that collegiate students should be able to internalize tempo visually rather than audibly. It is also possible that some conductors choose to use counting off versus giving an upbeat because it saves time in certain situations. Perhaps conductors of all ensemble levels, especially high school conductors, should teach their students to internalize tempo based on their cue in order to save rehearsal time.

Among both high school and collegiate conductors, nonmusical behaviors were in the top three most frequent behaviors, as measured by their percentages of rehearsal time spent on this behavior. Nonmusical behaviors included off-task talking, pre-rehearsal announcements, tuning instruments, and transitions, among others. The amount of time used to tune instruments contributed to the amount of time spent on nonmusical

behaviors at the high school level as well as pre-rehearsal announcements and interruptions from the office or other visitors. In addition to tuning, collegiate conductors typically engaged in nonmusical behaviors when telling a humorous story or allowing the orchestra students to take a break during rehearsal. The present study's findings are consistent with other studies which have found that much rehearsal time is lost to nonmusical behaviors, especially at the secondary level (Goolsby, 1996; Ihas, 2011; Witt, 1986). This finding, along with previous findings, is concerning when comparing the amount of time used on nonmusical behaviors with time spent on behaviors that affect the orchestra's progress such as verbal feedback, verbal directives, conceptual teaching, and nonverbal feedback.

Conductors of both levels almost never engaged in physical proximity (i.e., leaving the podium and entering student sections). This behavior, like counting off, was identified and chosen as behavior for examination because it was distinct from other behaviors observed in this study. However, very few conductors spent any time on this behavior, resulting in only a few data points that I could not meaningfully compare.

As mentioned in the results section, a pattern of high individual variability among high school conductors, as opposed to relative homogeneity among the collegiate conductors, emerged across many of the observed behaviors. Five behaviors that appeared to differ in percentage of overall rehearsal time and/or rate between collegiate and high school conductors (instrumental modeling, noninteractive listening, counting off, conceptual teaching, and nonverbal directives) displayed this pattern through the differences among the high school and collegiate standard deviations. In general, the collegiate conductor behaviors' standard deviations were considerably smaller than the

difference between high school and collegiate conductor means. The difference between groups together with the collegiate conductors' standard deviations seemed to indicate that the high school conductor averages did not fit within the collegiate conductor data, including averages and spread. However, the high school conductor behaviors' standard deviations were much closer to or as large as the difference between the averages. This pattern indicated that the high school conductors' use of each behavior tended to vary greatly between participants. The behavior that demonstrated this finding most clearly was instrumental modeling. While three of the four participating high school conductors used instrumental modeling during their rehearsal, one high school conductor did not use instrumental modeling at all. One participant spent about an average of 19% of their rehearsal time on instrumental modeling while the other two participants spent about 7% and 3% of time on this behavior. Likewise, while high school conductors spent an average of 30% of rehearsal on nonverbal directives (again, usually conducting), individuals ranged from about 10% to about 65% of their rehearsal time engaged in this activity.

In contrast to the individual variability exhibited in high school conductors, collegiate conductor behavior was much more homogenous. For example, collegiate conductors' use of conceptual teaching behaviors took up between 0% to 2% of rehearsal time while high school conductors' use of conceptual teaching behaviors ranged from 0.5% to 5.5% of rehearsal time. This pattern was also exhibited in the counting off behaviors as collegiate conductors' use of counting off took up between 0% to 2% of time while high school conductors' use of counting off ranged from 0.5% to 9.5% of time. The homogeneity among collegiate conductors could be due to homogeneity

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among their students. For example, collegiate ensembles often require an audition that filters out students who have not already achieved a certain skill level or standard on their instrument. In contrast, high school conductors likely teach students who have a greater variety of skill levels which requires a variety of teaching techniques and behaviors.

Limitations

Readers of this study should interpret the findings with caution due to the small sample size. The small number of participants and rehearsals observed did not allow for any statistical analysis because there were many behaviors examined, and there was a moderate amount of individual variability among the conductors, especially at the high school level. Without the completion of inferential statistics, the results from this study limit generalizability, particularly with the relatively large high school conductor standard deviations. In addition, the participants recruited and chosen for this study had to be from a particular region due to convenience which did not allow for a random selection. Without a random selection, it is possible that the participants from this study may have provided idiosyncratic and non-generalizable results.

Another limitation of this study was that each of the orchestras were in different preparation phases of the rehearsal cycle during the observed rehearsals. For example, one high school and two collegiate rehearsals were dress rehearsals, while other rehearsals represented either the middle of the rehearsal cycle or initial stages of learning the repertoire. Dress rehearsals appeared to involve a greater percentage of rehearsal time dedicated to nonverbal directives. Rehearsals at or near the beginning of a rehearsal cycle (i.e., starting new repertoire) involved a greater percentage of rehearsal time dedicated to verbal directives. It is possible that the variation among individual conductors would be

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minimized if they were all observed in the same phase of the rehearsal cycle because conductors may engage in similar behaviors during specific stages of preparation. For example, rehearsals observed during dress rehearsals resulted in higher percentages of rehearsal time spent on nonverbal directives than rehearsals in the beginning or middle stages of preparation. Future studies that specifically explore differences in rehearsal stages may be able to discern whether this factor indeed could have generated the variability in certain conductor behaviors measured in this study, or whether individual idiosyncrasies were more important.

In addition, variability among high school conductors' behaviors may be due to the large differences in skill among the ensembles observed. For example, a fourth of the high school orchestra rehearsals recorded were those schools' least advanced ensembles, while the other rehearsals involved the schools' most advanced ensembles. The differences between the least advanced and most advanced ensembles varied between high schools. However, the least advanced ensembles were performing about grade two to three repertoire while the most advanced ensembles were performing about grade five to six repertoire. With the inclusion of considerably more data, one might expect a trajectory within the high school setting to emerge, in which behaviors similar to those characterizing middle school rehearsals lead to high school rehearsals which lead to collegiate rehearsals. It is possible that eventually this trajectory would turn into a more specific trajectory that included the differences between under-class high school rehearsals and upper-class high school rehearsals.

Another factor that could have impacted this study was that the high school ensembles observed were strictly string orchestras while the collegiate orchestras were

full symphonies. The differences in ensemble types may have impacted instrumental modeling as well as concurrent verbal feedback/directives. Future research should directly compare the interaction of level (high school or college) and orchestra type (full or string) on conductor behaviors. Lastly, another limitation may be that conductors' behaviors were influenced by an outside observer videotaping the rehearsals and being present in the room. In fact, in one of the recordings, a conductor engaged with the observer/researcher multiple times during the rehearsal. This interaction did not take long, nor do I think it led to substantive differences in behavior, however, the conductor was inquiring how a certain behavior (i.e., giving a coffee order to another teacher) would be identified in this study. Since the conductor inquired how a behavior would be identified, I was led to believe that the conductor was self-conscious about the behaviors they exhibited.

Lastly, I did not complete an interobserver reliability check, therefore there was no way to determine if the behaviors identified in this study matched the definitions of their label. For example, it is possible that I observed behaviors that other observers would identify as nonverbal feedback, however, I identified the observed behavior as noninteractive listening. As the only observer of the rehearsals and examiner, it is also possible that my biases may have influenced how I identified observed behaviors. Without a reliability check, it is difficult to generalize or validate my findings.

Implications for Rehearsals

This study was an observational study rather than an experimental study, meaning, I did not create any sort of environment, prescribe treatments, nor use pretests and posttests in order to measure the effectiveness of certain behaviors within a rehearsal.

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I also did not interview the conductors about their impressions or reflections about which behaviors were effective or good uses of their time. The following observations and suggestions are my responses to the patterns I observed rather than implications of the data collected. As mentioned earlier, a considerable amount of rehearsal time (about 14 minutes of a 90-minute rehearsal) was used on nonmusical behaviors among both high school and collegiate conductors. In comparison to the amount of time used on behaviors that affect the orchestra's progress such as verbal feedback, verbal directives, conceptual teaching, and nonverbal feedback, the time spent on nonmusical behaviors seemed high at both levels at a combined average of 15% of the time. In contrast to the findings at the secondary level and to this study's findings, Whitaker (2017) found that about 1% of rehearsal time at the professional level was dedicated to off task behaviors. From my observation, most of the conductors spent the most time engaged in nonmusical behaviors when giving pre- or post-rehearsal announcements. If possible, conductors should try to limit pre- and post-rehearsal announcements by allotting a short and specific amount of time for them. It is also possible that sharing the announcements through other means (i.e., blog or emails) may help reduce the time spent on nonmusical behaviors.

The percentage of rehearsal time spent on conceptual teaching behaviors at the secondary level was consistent with findings from previous literature (Blocher et al., 1997; Ihas, 2011). Since previous research at the collegiate level has not examined conceptual teaching, I cannot contextualize my findings. From my expectations, I thought that conductors would spend more time on conceptual teaching especially in comparison to other behaviors that contributed to performance preparation such as nonverbal directives, verbal directives, and verbal feedback. Many variables could have contributed

to this low percentage, including the conductors' training, the needs of the ensembles, and the preparation for performance. Another explanation of the low percentage of time dedicated to conceptual teaching may be the assumption that as students become older they are able to understand concepts that experts consider obvious (Wiggins & McTighe, 2005). Another reason why conceptual teaching is not well represented at either level may be the emphasis placed on performance objectives, overshadowing conceptual teaching objectives. Lastly, it is also possible that conceptual teaching does not need to take a lot of time when delivered successfully.

The amount of time spent counting off prior to student performance trials is another implication for rehearsing that should be considered. Initially, counting off was not a conductor behavior that I planned to examine; however, after casually observing some of the rehearsals, I noticed that all conductors engaged in this behavior at some point in their rehearsal and I became curious about how much time was spent on this behavior. As mentioned earlier in this chapter, each conductor spent about two minutes of rehearsal time counting off students which results to a total of about 30 minutes of rehearsal time when combined over 16 rehearsals. It is possible that this time used to count off prior to performance could be saved if conductors only cued tempo through their upbeat. More important than reallocating this time, cuing tempo only through the upbeat may also change the way students are engaged with the preparatory stimuli. Compared to other behaviors that may improve performance, such as conceptual teaching and nonverbal feedback, counting off prior to performance does not seem like a behavior that contributes to improvement. Rather, counting off enables students to ignore conductor's visual cues and does not require them to internalize tempo from the upbeat.

However, it is possible that counting off requires students to get ready quicker as they are given a "time limit" through the count off. Conductors should be cautious about counting off their students and should consider the importance of internalization of the tempo from their upbeat.

Directions for Future Research

As discussed above, this study has a number of limitations created by small sample size. Researchers could expand upon this study by replicating it with more participants from both high school and collegiate orchestras. In addition, participants should be from a larger geographical area in order to create a more representative sample and should be in the same or similar stages of the rehearsal cycle. In contrast, future researchers may examine if conductors use different types of behaviors or spend more time on specific behaviors during a dress rehearsal than initial sight-reading rehearsal. Future researchers may also investigate sequential patterns of conducting activities in greater depth in order to provide more insight into the use of conducting/rehearsing sequences in orchestra rehearsals. Although my findings regarding concurrent verbal feedback and directives behaviors did not demonstrate differences between collegiate and high school conductors, it did demonstrate that concurrent verbalization is a behavior that conductors use. My findings and observation are also consistent with previous findings that indicate that these concurrent verbalizations are short, audible prompts that are typically preferred by collegiate and professional musicians (Biasutti, 2013; MacLeod, 2010, 2018). It would be interesting to have a greater collection of results that can demonstrate the use and/or quality of this behavior and its effectiveness in orchestral rehearsals. Future research may also address behaviors that appear to be a function of

level including instrumental modeling, conceptual teaching, and noninteractive listening. Another possible element to research is whether there are differences in conductor behavior within specific ensemble types including full symphonies and string orchestras. Again, the present study's small size only allows it to reveal suggestive trends, but conclusive results backed by more data could inform the ways in which high school conductors prepare their students for collegiate orchestral experiences.

APPENDIX A

IRB APPROVAL, RECRUITMENT LETTERS, AND CONSENT FORMS

IRB Approval

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DATE: December 08, 2017   IRB Protocol Number: 11282017.039

TO: Lauren Culver, Principal Investigator
          School of Music

RE: Protocol entitled, "A Comparative Analysis of Conductor Behavior and Time Use
          in High School and Collegiate Orchestra Rehearsals"

Notice of IRB Review and Exempt Determination
as per Title 45 CFR Part 46.101 (b)(1)

The above protocol has been reviewed by the University of Oregon Institutional Review
Board and Research Compliance Services. This is a minimal risk research protocol that
qualifies for an exemption from IRB review under 45 CFR 46.101(b)(1) for research
conducted in established or commonly accepted educational settings, involving normal
educational practices, such as research on regular or special education instructional
strategies or research on the effectiveness of or the comparison among instructional
techniques, curricula, or classroom management methods.

NOTE:
  - IRB review of the research and/or approval from the schools/districts may be
    necessary for this research. You are responsible for contacting each school/district to
    determine whether or not permission/approval is necessary, and obtain such
    approval prior to commencing human subjects research activities. Please provide
    documentation of required approvals/permissions to Research Compliance Services
    once obtained.
  - This determination was made in part based on your intent NOT to record any
    students or information about them. Any inadvertent recordings of students or other
    identification of students should be immediately removed or otherwise eliminated.

You are not required to submit continuing reviews for this protocol, however, you must
submit any changes to the protocol to Research Compliance Services for assessment to
verify that the protocol continues to qualify for exemption. This exempt determination will
expire December 07, 2022. Should your research continue beyond expiration date, you will
need to submit a new protocol application.

Your responsibility as a Principal Investigator also includes:
  - Obtaining written documentation of the appropriate permissions from public school
    districts, institutions, agencies, or other organizations, etc., prior to conducting your
    research
  - Notifying Research Compliance Services of any change in Principal Investigator
  - Notifying Research Compliance Services of any changes to or supplemental funding
  - Retaining copies of this determination, any signed consent forms, and related
    research materials for five years after conclusion of your study or the closure of your
    sponsored research, whichever comes last.

UNIVERSITY OF OREGON

As with all Human Subject Research, exempt research is subject to periodic Post Approval Monitoring review.

If you have any questions regarding your protocol or the review process, please contact Research Compliance Services at ResearchCompliance@uoregon.edu or (541)346-2510.

Sincerely,

Carolyn J. Craig, PhD, CIP
Senior Research Compliance Administrator

CC: Andy Strietelmeier, Faculty Advisor

COMMITTEE FOR THE PROTECTION OF HUMAN SUBJECTS ● RESEARCH COMPLIANCE SERVICES
677 E. 12· Ave., Suite 500, 5237 University of Oregon, Eugene OR 97401-5237
T 541-346-2510 F 541-346-5138 http://rcs.uoregon.edu

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Participant Recruitment Email

Dear Orchestra Conductor,

My name is Lauren Culver and I am a graduate student from the School of Music and Dance at the University of Oregon. I am studying Music Education with an emphasis in the string orchestra setting and am conducting a research project for my Master's Thesis. I am writing to ask you to participate in my research study about time use and conductor behavior (choice of rehearsal activities) in collegiate and high school orchestra settings. You're eligible to be in this study because you are either an orchestra conductor at the collegiate or high school level in Oregon or Washington.

If you decide to participate in this study, I will make video recordings of approximately one hour of each of four of your orchestra rehearsals. I will use the information to estimate the percentage of time you spend various rehearsal components (verbal and nonverbal feedback, directions, modeling, and student performance). I will also ask you to fill out a brief questionnaire for background information. This questionnaire will take approximately 5 minutes of your time.

Remember, this is completely voluntary. You can choose to be in the study or not. Your choice will in no way affect your relationship with the University of Oregon. Your participation will help orchestra conductors better understand which rehearsal activities are used in various levels. The records of this study will be kept private and no identifiable information will be made public. In any sort of report I may publish, I will not include any information that will make it possible to identify individual participants and your recordings will be stored in a secure manner. If you are willing to participate or have any questions about the study, please email me at lculver3@uoregon.edu, contact me on my phone at (503)-949-6085, or email my faculty advisor, Dr. Andrew Strietelmeier, at astriete@uoregon.edu.

Thank you very much.

Sincerely,

Lauren Culver

Participant Informed Consent Form

Observation Consent Form

University of Oregon School of Music and Dance
Informed Consent for Participation as a Subject in: A Comparative Analysis of
Conductor Behavior and Time Use in High School and Collegiate Orchestra Rehearsals
Investigator: Lauren Culver
Type of consent: Adult Consent Form

Introduction
- You are being asked to be in a research study that examines rehearsal time use and conductor behavior (rehearsal activities) in high school and collegiate orchestra rehearsals.
- You were selected as a possible participant because you conduct an orchestra at either the high school or collegiate level in Oregon or Washington.
- We ask that you read this form and ask any questions that you may have before agreeing to be in the study.

Purpose of Study:
- The purpose of this study is to examine rehearsal time use and conductor behavior (rehearsal activities) in high school and collegiate orchestra rehearsals.
- Participants in this study are conductors from Oregon or Washington, and the total number of participants is expected to be 8 people.

Description of the Study Procedures:
- If you agree to be in this study, you will lead your orchestra rehearsal in the same manner you normally do while being video recorded and observed by the researcher. You will be recorded during four rehearsals for approximately one hour at each session. You will also be asked to complete a brief questionnaire regarding background information.

Risks/Discomforts of Being in the Study:
- There are no reasonable foreseeable or expected risks than daily life poses. This study may include risks that are unknown at this time.

Benefits of Being in the Study:
- The purpose of this study is to examine conductors' behavior and use of rehearsal time in high school and collegiate orchestra rehearsals.
- While this study will not benefit participants directly, data gathered from participants' collective responses will help orchestra conductors, as well as other music ensemble conductors (band, choir), better understand which rehearsal activities are used in different orchestra levels, and how these activities are similar or different from those found by previous research.

Compensation:
- You will receive no reimbursement for participation in this study.

Costs:
- There is no cost to you to participate in this research study.

Confidentiality:
- The records of this study will be kept private, and no identifiable information will be made public. In any report I may publish, I will not include any information that will make it possible to identify a participant. Research records will be kept in a locked file.
- All electronic information will be coded and secured using a password protected file. Only the researcher and faculty advisor will have access to the video recordings. Audiovisual files (video recordings), and any data I extract from them, will be labeled only with your participant number, not your name. Any other names you may mention while answering questions will likewise be identified only by a number. These recordings will be kept for three years and then destroyed. If, and only if, you give me explicit, written permission, I will keep your recording permanently and may include video of your participation when I talk about my work at conferences and presentations.
- Access to the records will be limited to the researchers; however, please note that regulatory agencies, and the Institutional Review Board and internal University of Oregon auditors may review the research records.

Voluntary Participation/Withdrawal:
- Your participation is voluntary. If you choose not to participate, it will not affect your current or future relations with the University.
- You are free to withdraw at any time, for whatever reason.
- There is no penalty or loss of benefits for not taking part or for stopping your participation.

Contacts and Questions:
- The researcher conducting this study is Lauren Culver. For questions or more information concerning this research you may contact her at lculver3@uoregon.edu or (503)-949-6085. You may also contact her faculty supervisor, Dr. Andrew Strietelmeier, at astriete@uoregon.edu.
- If you believe you may have suffered a research related injury, contact Lauren Culver at (503)-949-6085 who will give you further instructions.
- If you have any questions about your rights as a research subject, you may contact: Research Compliance Services, University of Oregon at (541) 346-2510 or ResearchCompliance@uoregon.edu

Copy of Consent Form:
- You will be given a copy of this form to keep for your records and future reference.

Statement of Consent:

- I have read (or have had read to me) the contents of this consent form and have been encouraged to ask questions. I have received answers to my questions. I give my consent to participate in this study. I have received (or will receive) a copy of this form.

Signatures/Dates

_____ I agree to allow audiovisual recordings of my participation to be stored permanently and to be used in conferences and/or presentations.

_____ I **do not** agree to allow audiovisual recordings of my participation to be stored permanently and to be used in conferences and/or presentations.

_____

Study Participant (Print Name)

_____

Participant or Legal Representative Signature   **Date**

Participant Questionnaire

1. What is your gender?

☐ Male   ☐ Female   ☐ Other/Prefer not to say

2. Please check all areas of education that you have completed.

Bachelors:

☐ Music Education   ☐ Voice/Instrumental Performance

☐ Conducting   ☐ Other music   ☐ None   ☐ Other

Masters:

☐ Music Education   ☐ Voice/Instrumental Performance

☐ Conducting   ☐ Other music   ☐ None   ☐ Other

DMA/Phd:

☐ Music Education   ☐ Voice/Instrumental Performance

☐ Conducting   ☐ Other music   ☐ None   ☐ Other

3. How many years of experience do you have conducting orchestras at each of the following levels?

Level	Years of Experience
Elementary School	Click here to enter text.
Middle School	Click here to enter text.
High School	Click here to enter text.
Youth Orchestra	Click here to enter text.
Collegiate	Click here to enter text.
Professional	Click here to enter text.

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