Spring 2021

Effects of Musical Content on Student Practice Judgments, Decisions, and Improvement

Molly N. Batchelor
Missouri State University, Molly11@live.missouristate.edu

EFFECTS OF MUSICAL CONTENT ON STUDENT PRACTICE JUDGMENTS, DECISIONS, AND IMPROVEMENT

A Master's Thesis

Presented to

The Graduate College of

Missouri State University

In Partial Fulfillment

Of the Requirements for the Degree

Master of Music

By

Molly Batchelor

May 2021

EFFECTS OF MUSICAL CONTENT ON STUDENT PRACTICE JUDGMENTS, DECISIONS, AND IMPROVEMENT

Music

Missouri State University, May 2021

Master of Music

Molly Batchelor

ABSTRACT

The purpose of this study was to observe and compare the differences in practice behaviors among middle school band students who are presented with etudes of varying stylistic, technical, or expressive qualities. Existing literature has covered practice methodology extensively, but this study was intended to help understand how students vary strategies when presented with different musical challenges. Participants were individually observed in a pre-test, practice period, and post-test for each of two musical examples to examine the strategies used and improvement from pre-test to post-test. Results showed that participants who varied their strategy-use in lyrical and technical etudes increased performance achievement from pre-test to post-test more than those who did not, suggesting that musical context is an important component for effective practice. Implications arising from the study include the teaching of explicit practice strategies, error detection, and musical context during regular ensemble rehearsal time as strategies for improving the effectiveness of individual practice time.

KEYWORDS: practice, strategy, improvement, content, musical context

EFFECTS OF MUSICAL CONTENT ON STUDENT PRACTICE JUDGMENTS, DECISIONS, AND IMPROVEMENT

By

Molly Batchelor

A Master's Thesis
Submitted to the Graduate College
Of Missouri State University
In Partial Fulfillment of the Requirements
For the Degree of Master of Music

May 2021

Approved:

Daniel Hellman, Ph.D., Thesis Committee Chair

Brad Snow, D.M.A., Committee Member

John Prescott, D.M.A., Committee Member

Julie Masterson, Ph.D., Dean of the Graduate College

TABLE OF CONTENTS

LIST OF TABLES

LIST OF FIGURES

INTRODUCTION

Middle school musicians are still relatively new to the complex act of learning to play an instrument, so it is natural that they tend to struggle with the appropriate way to practice their instruments at home without guidance. Young students can struggle to achieve sufficient improvements in independent practice (Prichard, 2012), and often practice for hours on end and tire themselves out by completing the same actions over and over again, with only marginal improvement to show for their work. Stambaugh (2010) found students can often adopt a one-size-fits-all repetitive approach to their practice, without deeply contemplating what challenges are the most pressing or what skills are associated with the notes in front of them. To what extent do middle school band students actually observe this content and adjust their practice strategies? What strategies make the biggest impact on their improvement for specific musical challenges? In this study, I explored content-centered practice and the impact it has in young musicians' practice.

Current research surrounding practice decisions primarily focus on identifying strategies that are the most effective or the best indicator of improvement. Rohwer and Polk (2006) categorized practice strategies used by eighth grade band students into four groups based on how participants chose and sequenced strategies to improve the most challenging parts of music excerpts. Studies by Oare (2011), Smeltz (2012), and Hallam et al. (2012) focus on the importance of setting aside time to practice, but they ultimately emphasize that time alone does not indicate success in practice sessions. Finally, the practice dimension of setting goals, detecting errors, and reflecting on practice in studies by Oare (2012), Christensen (2010), and Johnson (2009) address the problems that musicians encounter on an individual level. Johnson

(2009) recommends that musicians choose specific methods that are effective for particulars excerpt instead of mindless practice. Together, the research clearly suggests that practice should be thoroughly strategic, sequential, and customized to identify particular errors and goals in the music.

Although the current research leads us toward certain answers regarding practice effectiveness, there appears to be gaps in the research that explain the link between practice behaviors and musical context in younger students. Practice habits, strategies, and tools have been studied at length (Christensen, 2010; Johnson, 2009; Miksza, 2007; Miksza, Prichard, & Sorbo, 2012; Oare, 2012; Prichard, 2012; Rohwer & Polk, 2006), but these methods have not been studied comparatively when placed in different musical contexts, especially with young musicians. This study was designed to help fill those gaps and identify the relationships between these variables to help directors guide students to practice more effectively. Many directors are painfully aware that their students often feel lost in their individual practice at home, or even spend large amounts of time practicing something only to marginally improve their performance. This frustration often leads to discouraged students and frustrated directors. Ineffective practice in young musicians is often the result of adopting or teaching a one-size-fits-all approach to practicing music—even if the musical demands are vastly different. Rohwer and Polk (2006) only used one musical excerpt when observing students, which leaves open the possibility that perhaps the participants' strategies or approach may have changed if the musical challenges were different. This study was conducted to help educators set up their students with strategies for success, no matter what challenges they face.

The purpose of the study is to observe if the type of musical content encountered by middle school band students alters practice decisions and problem solving through practice. A

secondary purpose of the study is to identify which strategies are most commonly used and most effective in improving performance. While plenty of research exists regarding young musicians' use of practice strategies, there is little to no research that explores the potential differences in approach when confronted with contrasting musical passages that clearly have different musical goals. Practice should reflect the music's intended expressive outcome, so it is important to study how young musicians interpret these differences in practice. Through this study, the goal is to better understand how middle school musicians interpret or respond to varying musical challenges and how they tackle different musical skills through individual practice. The goal for this research was to help other educators understand the practice behaviors of their students when dealing with contrasting musical demands, while helping them to better educate their students in selecting effective practice strategies based on musical context.

Research Questions

1. What are the differences in how middle school band students approach technical and lyrical excerpts in practice?
2. What strategies are the most frequently used in practice when encountering more technical challenges, and what are most commonly used in lyrical challenges?
3. What strategies yielded the most improvement pre-post student performance, and do they differ when the music has more technical challenges or lyrical challenges?
4. Which strategies improved student performance in particular musical criteria- such as rhythmic accuracy, tone, interpretation, or articulation?

This study was a quantitative comparison study, as the same data were collected twice for each participant, but in two different contexts to analyze potential differences or similarities. Each participant was individually observed and recorded practicing two musical excerpts containing contrasting musical challenges and styles for five minutes each after a pre-test sight

reading. During the pre-test sight reading, the researcher assigned a score on a five-point rubric for criteria of note accuracy, rhythm accuracy, tone, interpretation, and articulation. During the practice period, I listed the practice strategies used for each excerpt as the practice session was occurring for each participant. Each participant was then graded on the same five-point rubric in the post-test to demonstrate their improvement after the practice period. When all of the practice sessions when completed, the data were tallied up to show overall improvements, specific criteria improvement, and what strategies were used the most and how frequently strategies were used in relation to musical context. After the lists were complete, similarities and differences between the data for both passages were analyzed, and relationships between specific factors were explored.

This study was chosen to be a quantitative study because the aim was to compare and observe any notable differences, or even similarities. Creswell and Creswell (2018) define quantitative method as a way to compare variables. The data collected were compiled to be numerical in nature by measuring the number of times particular strategies were used and how effective those strategies were in different contexts. This method was an effective way to answer my research questions, as it fits the description of an experimental design where one "systematically manipulates one or more variables in order to evaluate how this manipulation impacts an outcome (or outcomes) of interest" (Creswell & Creswell, 2018, p. 254). The possibly differing choices of practice strategies and the effectiveness of these choices across the participant population was the outcome to be studied through this research.

Assumptions

1. Participants put forth their best effort in both their pre and post-tests during the study.
2. The rubric accurately recorded current musical accuracy in several categories.
3. The way participants practiced in the study was the same way that they typically practice at home.

Limitations

1. Participants who participated in the study over a video call experienced sound delay due to internet speeds, causing some slight confusion and misunderstanding of my instructions and my ability to clearly decipher their playing.
2. Participants only had five minutes to practice each excerpt, which limited the length of my observation to a small amount of time.
3. Only two contrasting musical excerpts were utilized, although many other styles of music exist and can affect how students practice them.

This study has the potential to fill in a gap in the research (Miksza, Prichard, & Sorbo, 2012; Oare, 2014; Rohwer & Polk, 2006) involving practice decisions in young musicians based on musical context. Currently, there is not a lot of information available to educators on how to teach their students to practice their music more effectively based on the challenges they identify in their music. The data in this study can help educators identify what practice strategies are useful for young musicians in specific contexts, as well as what certain strategies can be helpful when improving music of different styles. This information can impact the field by helping music educators teach their band students to be more effective with their practice and to identify certain musical challenges that point to the use of certain strategies. More successful practice in band students is likely to increase overall motivation, success, and the possibilities of literature, even at a young age. Directors who teach students to be more musically independent in their practice can open doors for students to experience the joy and beauty that lies in the expressive qualities of music.

Definitions of the Study

1. Practice: focused time a musician sets aside to improve on musical content individually, without the assistance of a teacher.
2. Strategy: a method of practice; a purposeful approach to an identified problem.
3. Excerpt: short musical passage focusing on a specific set of musical elements.

REVIEW OF RELATED LITERATURE

One of the most important and complicated skills for developing musicians to learn is the art of deliberate practice. Vast differences in musical context contribute to the complexity of learning to master practice (Prichard, 2012). The purpose of this study is to find out if and how young musicians differed their practice approach when presented with differing musical challenges. While there is a vast amount of existing literature concerning the nature of practice itself, this chapter will explore how the elements of practice can guide students to effective and deliberate practice in all musical contexts. The goal of this literature review is to describe the research that has been conducted on the practice habits and strategies of middle school instrumental musicians and how they approach different musical challenges. Research on younger musicians' practice is limited, as their relationship with practice is not fully developed and changes the way they interact with their music (Hart, 2014). Existing research literature that addresses practice strategies in older musicians was also included to address research practice topics that were not found in the research literature involving younger musicians.

This review will cover what is known about the aspects of deliberate practice that researchers and teachers found to be important, beginning with the most rudimentary and continuing to gradually include practice components that are more engaging and tailored to recognizing musical context. This gradual addition of practice components reflects the thinking and physical steps that many musicians utilize as they refine their practice skills. Finally, the review will conclude with a synthesis of contextual practice, which is the type of practice that is targeted in this study. This review will explore the most common variables that have been

examined in studies of practice: (a) time, (b) use or knowledge of certain strategies, (c) practice education by band directors, (d) goal-setting and reflection, and (e) contextual practice.

Practice Time

Amount of time spent practicing is often regarded as a hallmark of excellent practice by both directors and students, and it appears logical because in order to accomplish anything worthwhile, you must put in the time (Oare, 2011). Many directors use practice logs to encourage practice in their students by demanding a certain amount of time practiced per day or week, operating under the notion that improvement in proficiency and practice formality will occur after a certain amount of time in deliberate practice (Miksza, 2011). There are some studies that may support that philosophy, finding relationships between expertise and the amount of time that was spent practicing (Hallam, et al 2012), and between practice efficiency and time spent practicing (Miksza 2011). However, Oare (2011) found that practice logs can have a counter-effect on student motivation and actually encourage unproductive time use by only focusing on time spent and not the music to be learned. In fact, in a survey of music students regarding practice motivation, the amount of time required or put into practice did not serve as a great indicator or motivator of practice in students of any age, especially in young students (Smeltz, 2012). Although practice logs may be used often, it is important to note that the approach to practice logs should include a focus on improvement in relation to the time spent in practice (Miksza, 2011).

Several music education researchers did not find a strong relationship between the overall amount of time students of any age would practice and the quality of their performance (Duke, Simmons, & Cash, 2009; Miksza & Tan, 2015; Oare, 2012; Prichard, 2012; Rohwer & Polk,

2006). Music education researchers have used observations and student surveys to examine the relationship among those variables. Notably, a link has been found between the self-reporting of consistent practice over the course of several days, weeks, or even months and a higher quality of practice among students (Miksza, 2007). Cramming—intense practice for shorter periods of time right before a performance—is a common example of less consistent practice that is not effective for improvement, especially in younger students (Hart, 2014). Miksza (2007) found that incremental practice over time—not the amount of time spent practicing overall—yielded the greatest improvements to a student's performance in the early stages of practicing novel material. He investigated practice by examining consecutive practice sessions. He observed that the first practice session was critical to successful practice, as after the first practice session his students would spend less and less time practicing as time went on—suggesting that the first practice session is an important use of time for musicians of any age. Additionally, the first practice session was observed to be the most focused in middle school musicians with observations of decline in focus as time went on (Miksza, Prichard, & Sorbo, 2012).

Music education researchers have found that the way in which time is used during deliberate practices to not be so simple (Hallam, et al 2012; Hart, 2014; Miksza & Tan, 2015). Experienced students practice more frequently, likely due to greater independence, increased performance opportunities, musical demands, increased endurance, practice maturity and motivation (Hallam, et al 2012; Hart, 2014; Miksza, 2007). Students who practiced more frequently tended to have more practice options, time, and support, which helped them to feel more confident and motivated (Smeltz, 2012). Prichard (2017) found that teaching students to practice led to increased practice time and practice efficiency. The idea of quality practice over quantity of practice is a common finding in the literature (Duke, Simmons, & Cash 2009;

Prichard, 2012). It seems that the first step to quality, effective practice is to not simply put in more time, but instead to develop the awareness of mistakes, focus, and appropriate strategy-use during practice time (Christensen, 2010; Oare, 2012, Rohwer & Polk, 2006).

Use of Practice Strategies

Time may not be the best indicator of effective practice, but there are many ways a student can choose to approach practice by selecting different types of strategies to correct errors (Duke, Simmons, & Cash, 2009; Rohwer & Polk, 2006; Smeltz, 2012). In fact, the most integral practice skill identified by survey of collegiate musicians and their studio teachers is the use of practice strategies (Miksza &Tan, 2015). Oare (2014) found out that especially when musicians are young, their use of strategies are often ineffective due to a difficulty in adopting specific strategies and staying on task. Other researchers (Hart, 2014; Prichard, 2012), have found that even with appropriate strategies, students failed to (a) demonstrate correct strategy use, (b) correct mistakes and (c) recognize performance issues. In independent practice, the number one focus is almost always note accuracy (Miksza, Prichard, & Sorbo, 2012; Prichard, 2017). After note accuracy, some of the most commonly-used practice strategies include: (a) repeating smaller chunks, (b) slowing, (c) marking the part, (d) whole-part-whole, and (e) most remarkably- non-productive practice (Miksza, 2007; Miksza, Prichard, & Sorbo, 2012; Rohwer & Polk, 2006). More detail is provided on these strategies in the subsections below.

Repetition. Repetition is a long-prescribed practice technique that seems to stem from band directors' relentless use of this strategy in rehearsal (Prichard, 2017). While useful in the right context, repetition is not always the most effective form of practice, especially when used by itself (Stambaugh, 2010). Prichard (2012) and Johnson (2009) point out that while this

strategy is used tirelessly in young musicians, it can become a meaningless waste of time as they observed students repeat the same errors over and over. This is not to say that the strategy is not useful at all, though. When used in effective combination with other strategies and limited to tackling certain errors, repetition was widely observed to have a positive effect in middle school musicians' performance when they focused on shorter sections, chunking, and varying tempo (Prichard, 2017).

Ineffective Strategies. Outside of meaningless repetition and strict attention to note accuracy, there are several practice strategies or approaches that have been shown to be ineffective in particular studies (Stambaugh, 2010). Ineffective strategies are so harmful to success and productivity that researchers blame poorly executed strategy as the number one reason students struggle to improve, rather than a lack of good strategies (Hallam, et al, 2012; Stambaugh, 2010). Christensen (2010) found that formality in practice—such as having a plan, staying on task, or approaching music in a systematic manner—resulted in more effective practice. Miksza (2007) observed that eighth grade students who practiced informally were less likely to perform well compared to those who did not. Students who admitted to not having a solid plan of attack, getting off task, not coming back to mistakes, or not breaking down sections almost always performed at a lower level than students who were more strategic about their practice (Rohwer & Polk, 2006, Stambaugh, 2010).

Effective Strategies. There are many ways to be productive in practice through the use of a wide variety of strategies. Rohwer & Polk (2006) sorted middle school musicians into four categories based on how they approached their practice of musical excerpts. They found that students who focused on biggest problems first and prioritized and practiced sections made the greatest improvement in pre-post-performance. This result was also found in studies by Hallam,

et al (2012), Miksza (2007), Prichard (2020), and Miksza, Prichard, & Sorbo (2012). In other related studies, an increase of accuracy in repetitions during practice sessions correlated with higher performance and test scores, suggesting the need to break incorrect habits during practice early on (Duke, Simmons, & Cash 2009; Prichard, 2012). Other strategies that are positively correlated with performance included: (a) varying tempo, (b) repeating smaller sections, (c) slowing, and (d) breaking sections down, (Miksza, Prichard, & Sorbo, 2012; Prichard, 2017, 2020). Using a metronome improves many aspects of performance, including note accuracy and articulation, but especially in terms of rhythmic consistency (Miksza, 2007). Johnson (2009) suggests that "re-framing" spots to keep practice appealing by varying the rhythm, tempo, or even the style can help musicians see an excerpt in a new light and increase the motivation to persevere.

Alternatives to More Practice. Students can choose from an endless array of practice strategies, but simply using more strategies does not always result in higher achievement, especially when there isn't a solidified goal or plan in mind (Austin & Berg, 2006; Oare, 2011). Prichard (2012) points out that even when young students are made aware of several strategies, they simply tend to play right through the piece and neglect to stop to correct errors. Rohwer & Polk (2006) conducted a study comparing middle school musicians' ability to describe as many strategies as possible and their success in practice. They found a notable link between the number of strategies described by the students and increased practice improvement. They also concluded that students need lots of options for strategies to draw from in order for their practice to be successful. However, the implication of this finding is that practice effectiveness requires the use and knowledge of strategies that are best suited for the music (Oare, 2011). Becoming aware of the challenges that need to be addressed and selecting strategies to correct errors is

critical in the utilization of practice strategies, but young musicians often need some guidance to fully understand how to do this (Prichard, 2012).

Practice Education

Deliberate practice can be complicated, so naturally it would make sense to infuse ensemble teaching with practice strategy instruction that students can apply at home to improve individual practice skills (Miksza, 2011; Prichard, 2012). Many educators recommend that our goal is to make practice seem doable, valuable and positive to students (Johnson, 2009). Several studies suggest providing a practice focus or goal for each day or week at minimum to offer some sense of direction to the students (Prichard, 2012, 2017; Stambaugh, 2019) such as focus on tone, finger technique, or even specific passages. Taking that further by engaging students in crafting their own personalized practice plan can motivate and guide students to make smart practice choices (Hart, 2014; Oare, 2011). This is especially helpful in combination with reflection on the choices and their effectiveness (Miksza & Tan, 2015; Oare, 2012). Developing persistence to reach goals in practice begins through coaching in the classroom to stay focused, work towards goals, and finish the task at hand (Miksza & Tan, 2015). Prichard's (2012) suggestion for modeling practice strategies for middle school band students suggested that directors create practice exercises that utilize difficult sections of the ensemble literature to demonstrate practice strategies and guide the ensemble through unison exercises. Additionally, it is helpful to have the class discuss what strategies would be most appropriate in improving the challenge they face as an ensemble (Prichard, 2017).

Several studies have shown the positive effect on practice effectiveness that practice education during ensemble time can have on students (Prichard, 2017; Rohwer & Polk, 2006;

Smeltz, 2012). McPherson, Osborne, Evans, & Miksza (2017) observed that young students will often adopt erratic, unplanned, or habitual practice if they don't have a clear understanding of why they are choosing a certain strategy. They suggest that just doing what the teacher says is not enough—they must understand the method behind choosing a strategy that will help correct their errors. For example, students who were educated in the utilization of a wide variety of practice strategies demonstrated greater success and improvements in their playing (Rohwer & Polk, 2006, Smeltz, 2012). In two separate studies by Prichard (2017, 2020), students were provided practice instruction during class by their band instructors. In each study, the results revealed that the fidelity with which students approached practice was more important than the number of strategies that were used. Students became more effective in practice because they varied their goals and spent more time breaking down parts of their music into smaller chunks. These results reflect the importance of educating students on individual methods for deliberate practice in class instruction, including setting goals for musicianship.

Reflection and Goal-Setting

One piece of the puzzle is to utilize effective practice strategies, but one must also create a plan for practice sessions to maximize time and efficiency even further (Christensen, 2010; Miksza & Tan, 2015; Smeltz, 2012). Unplanned practice sessions often result in an erratic and ineffective use of time, with many students using strategies without a plan of attack (McPherson et al., 2017). Setting goals for improvement that are specific, measurable, and address both musical skills and context (Johnson, 2009; Prichard, 2012; Stambaugh, 2019) can make students feel accomplished and independent (Oare, 2011). However, many young musicians do not know how to set goals on their own and require some coaching to identify specific outcomes (Oare,

2011). During class, it is helpful for teachers to model goal-setting for ensembles by communicating musical goals and describing what strategies can be used to tackle particular issues, which in turn can establish effective goal-setting to students (Miksza, 2011; Prichard, 2012). Teachers can help students to set individual goals by setting daily practice focus points with clear criteria, and have them record goals and strategies through a log or practice reflection sheet (Oare, 2011; Prichard, 2012).

Reflection and Self-Evaluation. Goal-setting prior to beginning a practice session is useful for encouraging productive practice, but in order to continue to set appropriate goals, students must reflect on their practice and self-evaluate (McPherson et al., 2017; Oare, 2012; Prichard, 2012). This added step takes students from mindless playing to getting an idea of what works, what is not working, what strategies are effective, and what is attainable in the future (Hart, 2014; Johnson, 2009). For example, teachers can implement practice reflection sheets for student post-practice evaluation to record successes, what goals were met, and what can be improved (Hart, 2014). Stambaugh (2010) and Prichard (2012) found that keeping the mind engaged in practice while self-evaluating leads to greater independence in the learning process and retention over time.

Goal-Setting. Across observations of musicians of varying ability levels, music education researchers found that goal-setting was found to be a top indicator of effective practice (Hallam, et al, 2012; Miksza & Tan, 2015; Oare, 2011; Rohwer & Polk, 2006). The findings indicate that young students in particular benefit from setting goals and describing effective practice. Setting goals and engaging in practice reflection has been shown to lead to more focused practice sessions with greater error detection and fewer mistakes (Christensen, 2010; Miksza & Tan, 2015; Oare, 2012). Likewise, the literature suggests that reflection in action is the

cornerstone of successful and efficient practice (Austin & Berg, 2006; Miksza & Tan, 2015; Rohwer & Polk, 2006). Reflecting on what is working and what is not working seems to help students identify the most appropriate solutions to the musical demands they encounter (Miksza, 2011; Miksza, Prichard, & Sorbo, 2012; Miksza & Tan 2015). Teachers should encourage practice reflection in class as well as during individual practice to evaluate if the strategies used are effective in solving challenges that are encountered (Miksza & Tan, 2015).

Rohwer and Polk's (2006) study centers not just on the use of strategy, but also on its intentional use for setting goals in practice sessions. That study served as the methodological inspiration for this study: students were observed in pre and post-test scenarios, separated by brief practice periods, and the researcher took note of the strategies used by eighth grade musicians during practice. Additionally, participants were assessed via a five-point rubric to determine the level of achievement demonstrated on pre and post-tests as a mean to compare their approach. At the conclusion of that study, Rohwer & Polk were able to categorize the varying approaches that the 65 participants took into four distinct categories based on what students chose to do during practice. The participants who demonstrated the greatest achievement during the post-test tended to prioritize the most pressing problems in the excerpt. This planning and goal-setting even in a short practice session was found to increase achievement in musical performance more than those who chose to spend an equal amount of time on all sections of the excerpt. Although Rohwer & Polk linked the number of practice strategies that students could name to higher achievement, the goal of this study is to explore the links between the strategies that are used to solve particular musical problems and the resulting achievement.

Contextual Practice

Music of all levels consists of a variety of musical challenges ranging from technique to tone to rhythm. There is some information in the research literature that addresses the specific hurdle of choosing strategies specifically on musical context such as rhythm, articulation, or style; however, there are numerous variables that can influence the results of practice. Studies that do address practice strategies in relation to musical context report the benefits of modifying practice methods based on *particular* musical challenges (Geringer, Madsen, Macleod, and Droe, 2006; McPherson et al., 2017; Miksza & Tan, 2015). There shouldn't be a one-size-fits all approach to practice that is deemed successful for everyone and every musical context (Austin & Berg, 2006; Smeltz, 2012). Although music can often prompt similar strategy-use across individuals, it is important to note that despite these similarities practice is highly variable from person to person, the music content and the practice situation (Oare, 2014). Practice needs to be suited to personal preferences, musical context, and musical goals. (Oare, 2014; Smeltz, 2012). Engaging the mind and thinking critically about the challenges that one encounters is key to successful practice (Stambaugh, 2010). It involves a deep reflection of individual weaknesses, and a keen diagnosis of the potential problems that are evident when looking at a new piece of music (Miksza & Tan, 2015; Rohwer & Polk, 2006). More importantly, approaching practice by looking at specific musical elements replicates real music situations and performance, leading to students who feel more successful (Smeltz, 2012; Stambaugh, 2010). However, there are inherent limitations in this line of research because it is simply not possible or reasonable to control all of the variables that are involved. In the subsection that follows, I review the available research on contextual variables on practice.

Tempo. Geringer, Madsen, Macleod, and Droe (2006) found that certain stylistic components of music- specifically articulation- can affect musicians' perception of tempo. They found that when students listened to pieces containing legato and staccato passages most students would perceive staccato passages as with increasing in tempo or being faster overall.

Style. Students' perceptions of style in the music can negatively affect their practice decisions if they are unaware of certain tendencies. For example, musicians tend to begin practice at too fast a tempo when they encounter staccato passages or too slow when they encounter legato passages (Geringer, et al, 2006). These tendencies are called "unintentional performance tendencies" (Geringer, et al, 2006), and are important to understand so style perception does not take over accuracy in practice. The perceived style of a piece can cause musicians to misjudge rhythms, pitch, or expressive qualities, so young students must be careful to pay attention to all aspects of the music before beginning practice.

Contextual Techniques. McPherson et al. (2017) observed collegiate musicians' practice process in preparing an etude and made key observations about how practicing reflects the challenges that music presents. Although their study did not focus on young musicians, the results showed that the most effective practice and most successful performances stemmed from the identification and use of specific techniques that were "mindful of addressing musical elements of expression and character of the music, and the intentions of the composer" (McPherson et al., 2017, p. 25). Admittedly, the elements of expression and musical intent are open-ended by nature, but they are important to identify and attempt to preserve in practice. Contextual goals not only serve to help the practice needs of musicians, but also the specific musical context etudes presented- an application that drives more effective practice and leads to a more accurate musical performance.

Student Perception. Miksza & Tan (2015) presented a study that examines the importance of contextual practice through a questionnaire that was sent to collegiate music students and their studio professors on how they would best prepare a particular etude. The questionnaire included items about practice habits, interpretation, musical challenges, strategies, self-regulation, and reflection. Upon analysis of the responses, the researchers categorized practice processes into five categories: (a) analysis prior to practicing, (b) practice techniques that are useful to the etude, (c) techniques for positive habit forming, (d) strategies for self-evaluation, and (e) practicing for performance.

Analyzing the etude prior to practicing for specific stylistic or compositional challenges and identifying the strategies that reflected the music was an important theme in Miksza and Tan's study (2015). Experienced musicians and studio professors reported that the reflection of the musical elements prior to active practice was critical to musical achievement in performance. This is especially true when selecting practice techniques that reflected the music, making a strong case that student analysis of what is critical in the etude ahead of time is critical for practice. Additionally, the fact that reflection and self-evaluation are an important part of the practice process further solidifies the role of individual student perception as an element in practice strategy and achievement.

Teaching Contextual Practice. There are a variety of resources concerning how to teach practice during ensemble rehearsals, including books, articles, conference sessions, and websites. For example, Prichard (2012) is a great example of an article based on her research that provides a method on how to teach students to identify an effective plan of action in practice. She suggests a plan of action to model effective practice for middle school students. Some of the main strategies that she suggests include: (a) demonstrate practice strategies during ensemble rehearsal

time, (b) identify and discuss as a class what practice strategies best serves the music, (c) identify what strategies serve certain musical issues, and (d) create ensemble exercises to address difficult sections in the music.

The main piece of advice that Prichard (2012) offers is that practice needs to be problem-driven and relevant to the circumstance of the context of the music in order for it to be effective. Teaching and modeling the correct use of practice strategies in addition to applying strategies based on musical problems is central to her suggested method for contextual practice education. After initial instruction on strategy-use, students can reflect on what strategies they use in practice and how successful their approach was via practice journals with basic goals and directions given by the instructor. She makes a point that young musicians—although limited in their musical knowledge—are capable of identifying the musical context before them and identifying appropriate strategies to use in their individual practice.

There are many variables at work when observing and studying practice strategies and identfying how they fit in the context of music. Context and content in music is nearly infinite, as are the number of variables that go into decisions made while practicing. Attempting to study all possible variables is not feasible in a controlled study of practice that is meant to replicate practice that occurs at home. Variables such as home practice environment, availability of uninterrupted time, and consistent practice habits are not feasible to account for in a study that occurs in a controlled environment. Results of study cannot be generalized to apply to all students, as the participants in this study had the advantage of studying practice strategies in class, which put them at an advantage over other students who attend districts with limited staffing or instructional time with band students. Students in my district are also more likely to

take private lessons than other districts around us, which increases the odds that my participants are well versed in practice methods and error identification.

This study is intended to fill the gap in knowledge regarding contextual practice in young musicians. With so many variables and options to think about when practicing, students can feel overwhelmed and unsure of where to begin. Educating young musicians to use practice strategies during their regular class time can give them the tools that they need to succeed during individual practice, but extra care mut be taken to ensure that we also teach how the music itself should influence their decisions (Prichard, 2012). Not all students have the privilege of participanting in private lessons or getting extra help outside of school, so it is important that these skills are built into the early experience in the middle school band curriculum early on. Teaching students about identifying challenges and selecting strategies can lead to more effective practice sessions and musical experiences for students.

Summary

Clearly, there are several elements to successful practice in musicians of all ages, and many elements have a direct effect on one another. Although time is an important component to successful practice, many music education researchers agree that time is not a component that can stand alone. It must be spent wisely by identifying mistakes and selecting practice strategies that solves problems that they encounter in practice (Christensen, 2010; Oare, 2012; Rohwer & Polk, 2006). Deliberate strategies are numerous and can be confusing for young musicians to utilize, but it has been found that students practice more effectively when they are taught to use numerous practice strategies (Rohwer & Polk, 2006; Smeltz, 2012). Teaching practice strategies during class time has been shown to have a positive effect on the implementation of a variety of

practice strategies in individual practice (Prichard, 2017), as well as greater musical improvement following practice (Smeltz, 2012). Reflection and setting goals—in combination with strategy selection—is an important skill identified in the literature for improving practice efficiency (Austin & Berg, 2006; Miksza, 2011; Miksza, Prichard, & Sorbo, 2012; Miksza, & Tan, 2015; Oare, 2012) because it prompts students to make a plan based on what they observe in the music and the challenges they encounter.

What is apparent in the existing literature on practice is that there is not simply one specific way to approach practice. The elements of time, strategy-use, education in practice, goal-setting and reflection, and contextual practice can all add up to effective, rewarding practice if elements of each are considered (Prichard, 2012; McPherson, et al, 2017; Miksza & Tan, 2015). Contextual practice sums up all of these elements and encourages careful reflection of the challenges in music (Prichard, 2012).

Young students are challenging to study, as they have limited knowledge, availability, and prior experience to draw from. Due to these limitations, there are not many studies concerning young students and their use of contextual practice. Consequently, the purpose of this study is to determine if middle school musicians understand the differences in musical context and readily apply the appropriate differentiation in strategy we see from older students. The secondary purpose of this study is to determine if the differences in practice strategies between technical and lyrical etudes positively affect musical achievement (McPherson et al., 2017; Miksa & Tan, 2015; Prichard, 2012).

Prichard (2012) argues that young students can practice effectively so long as they are aware of the musical content they are encountering. Content awareness comes from a variety of resources, such as education provided by a band director, experience level, reflection or analysis

of the music, and musical cues. Prichard argues that the most effective path to effective contextual practice is to provide focused practice education during rehearsals. The method that Prichard demonstrated in the literature consisted of strategy identification, goal-setting, and strategy-use. In the next chapter, I will describe the method used in this study to compare how students in my classroom approached technical and lyrical excerpts and used the practice tools available to them. This was a meaningful setting to use because this team of instructors prioritized practice in instruction and in our curriculum.

METHODOLOGY

The purpose of this study is to compare the differences and similarities in how middle school musicians' approach and problem solve contrasting musical excerpts through practice. The method has been designed to explore what practice strategies are chosen based on musical context during practice sessions, and how this affects their performance or success in performing these musical excerpts. This chapter describes the research design, site of the study, participants, data collection procedures, data collection tools, and data analysis for this study.

Research Design

This study took take place in the spring semester of the 2020-2021 school year. Volunteers were drawn from both the seventh and eighth grade bands at both middle schools in my district, where our curriculum includes practice instruction during their in-class ensemble rehearsals. This practice instruction often occurs during warmups at the beginning of class, utilizing scales and chorales to practice techniques including: (a) chunking, (b) repetition, (c) slowing, (d) counting rhythms, (e) counting with fingerings, (f) playing rhythms on a set pitch, (g) style isolation (accents, staccatos, legatos, etc), (h) using a metronome appropriately, (i) whole-part-whole, and (j) identifying what is the most prominent issue in the music. These strategies were also applied and explained in the context of concert music that we play in class. Students were held to a goal-setting expectation all year long by identifying their greatest challenges in the music and creating a plan each week to improve. Their practice curriculum emphasized the importance of identifying specific challenges.

This study followed a pre-test post-test design, requiring the same data to be collected twice for each participant. These data were collected for both a lyrical and technical excerpt to analyze differences or similarities in what practice strategies they chose to utilize in practice for each excerpt. The excerpts were chosen to reflect an appropriate musical difficulty for both seventh and eighth grade band members and draws upon musical challenges that we have worked on in class—such as dynamic changes, rhythmic complexity, and tone challenges. The excerpts were chosen specifically for use in this study and were never played in class prior to the study. Musical Excerpt #1 focused on lyrical challenges with a slow tempo, slurs, legato articulations, and expressive hairpin dynamics. Musical Excerpt #2 focused on technical challenges in a march style with a faster tempo, more complicated rhythms, varying articulations, and sudden dynamic changes. (Refer to Appendix A for full scores of the selected excerpts). Each excerpt includes a short melody from well-known middle school band literature. (Refer to Appendix B for permission letters from the publishers of the referenced literature).

Participants either participated in the study in person at a safe distance (per COVID-19 recommendations) or virtually via Google Meet or Zoom. If a participant opted to participate in person, they met at individually scheduled times in the band room at the middle school. The band room was set up with a chair for myself and the participant, as well as a music stand for the participant. An iPad was placed on a stand to record each session. Each participant brought their instrument, a pencil, and a tuner-metronome. I observed and logged data while the participant completed the practice session. Participants who opted to participate virtually completed the study from their location of choice as long as they had their instrument, a music stand, a pencil and a tuner-metronome. Their session was recorded via a video-conferencing application.

Students were instructed to play each excerpt straight through to the best of their abilities as a pre-test to gather baseline data on a five-point rubric for each to determine musical accuracy of the performance. Each participant was individually observed and recorded practicing two musical excerpts of contrasting styles for five minutes each. I listed the practice strategies that I observed each participant utilize for each passage, referencing a list of practice strategies and definitions I used during their class time. (Refer to Appendix C for the data collection tools I utilized). Finally, the participant played each excerpt straight through once more and re-assessed using the same five-point rubric as before. As the researcher, I graded each excerpt fairly using the criteria listed on the rubric and committed to remain consistent with scoring. Additionally, 20% of the participants were also graded by another band director in the district to ensure reliability and consistency in scoring. Once all practice sessions were completed and recorded, the data were compared and analyzed.

The frequency of strategies used by excerpt was tallied and analyzed to determine relationships between the strategies participants used and achievement. Similar to Rohwer and Polk's (2006) study of practice methods used by eighth graders, I identified the strategies used by participants from most frequently used to least frequently used. These data were used to make comparisons between the two excerpts within each practice session and across the two practice sessions.

A quantitative design was selected to compare participants' approach to two different etudes to observe any notable differences or similarities in their practice strategies. One of the definitions of quantitative studies in the text by Creswell and Creswell (2018) describe the method as a way to compare variables. The data collected were compiled to be numerical in nature by measuring the number of times a strategy was used and how their scores changed from

pre to post-test. This method was an effective way to answer my research questions, as it fits the description of an experimental design where one "systematically manipulates one or more variables in order to evaluate how this manipulation impacts an outcome (or outcomes) of interest" (Creswell & Creswell, 2018, p. 254). The independent variables are the contrasting musical excerpts, and the dependent variables are the achievement score changes from pre-test to post-test. The differing choice of practice strategies across the participant population and the relationship it had on musical achievement was the outcome to be studied through this research.

Site of the Study and Participants

This study took place in the suburban school district located in the Kansas City Metropolitan Area where I teach. The data were collected in the middle school band rooms of my district's two middle school buildings. This is where the participants met for band each day, making the location a comfortable place to perform and demonstrate their skills. The band room areas are used for band only, so it was easy to secure and ensure there were no distractions.

Our district's middle school band program utilizes a specialized like-instrument model to structure classes. Sixth grade beginning band students meet in instrument-specific classes for duration of the year, and then move to specialized instrument family classes in seventh grade. In eighth grade, band students meet as a full ensemble (minus percussion) to hone their ensemble skills. Throughout the grade levels we utilize a team-teaching model that allows directors to exclusively teach within a specialty classification of instruments and team-teach larger ensemble classes such as eighth grade band. Private lessons are strongly encouraged but are a fairly new focus in the program. Currently, only about 10% of students in the middle school band program take weekly private lessons.

The community of the school district has been a historically small one until the last two decades, when the expansion of the KC metro area pushed further east to create a population boom in our city to over 15,000 people (Demographics of Grain Valley, Missouri, n.d.) The school district has experienced enormous growth and now contains four elementary schools, two middle schools, and two brand new expansions to the high school to accommodate the influx in student population. The district itself serves over 4,300 students- 17% of which are minorities and 21% are economically disadvantaged (District, n.d.).

The COVID-19 pandemic altered the function of school across the world, including our district and our classes during the 2019-2020 and 2020-2021 school year. In March 2020, the school district shut down for the remainder of the school year to slow the spread of the virus while only allowing remote learning from home. When school resumed again in September 2020, COVID-19 still was a serious threat. The district opted to assume a hybrid model of instruction. At the middle schools, half of our students attended school in person on Monday and Wednesday, and the other half attended on Tuesday and Thursday. The days they did not attend are virtual instruction days, and Friday was a virtual instruction day for all students. Additionally, students could opt for 100% online instruction, where they did not come to school in-person at all. In band, we could only teach each of our hybrid students two times a week in person, and we provided materials for instruction on their virtual days. Our 100% virtual students had to continue to learn in band classes remotely, which we taught as well. From mid-November 2020 to the end of January 2021, our district was 100% online. Band classes during this time were aimed at keeping the students playing at home and maintaining the musical skills they possessed before we went all virtual. At the end of January 2021, we returned to 100% in person learning with a virtual option. Even though we had our classes back together making music

again, we progressed much more slowly, and it was very difficult to teach cohesive ensemble skills when dealing with uneven or incomplete instrumentation, intermittent instruction due to quarantines, and social distancing restrictions.

All participants in this study were volunteer middle school band students in seventh and eighth grade—currently in their second or their year of band. Participants were drawn from the two middle schools in the school district where I teach. These students participated in seventh grade brass or woodwind classes, or eighth grade band classes. These classes are nearly identical between both buildings—sharing an aligned curriculum and equal director representation. Percussionists were not used as participants, due to the differing nature of their technique and approach. This serves to preserve consistency in the data collection.

Volunteer participants were recruited by first obtaining permission from the school district to use my own students in my study. Once the school district approved the study, the opportunity was presented to potential participants in seventh and eighth grade band classes by myself in person. I summarized the purpose of the study, what participants would need to do, and how much time would be required of them. A letter was sent home that described the study and the opportunity to participate, including contact information to sign up for the study. If a student was interested and the student's guardian approved, they had the opportunity to contact me to receive additional information and the informed consent form to participate. All volunteers who completed their informed consent were selected to participate.

Through the course of the study, each participant was assigned a participant ID number to protect their identities. Data on all tables were collected in reference to the participant ID, and the master list of participant names to participant ID will be kept in a password secured document online. Students were be able to opt out of the study or cease participation at any time.

Participants in this study were exposed to practice strategy education during their regular ensemble rehearsal time throughout the school year. The impact of the pandemic on our in-person class time did not allow for as much emphasis on practice education as originally planned, but I still worked in practice strategy education and application into each class period we had leading up to data collection. At the beginning of the year, practice strategy education centered on learning warm-ups and technique exercises in method books. I selected each exercise beforehand to work in utilization of a variety of strategies based on the musical content. Before we played something new that the students have not seen before, we identified potential challenges as a class and made a list, helping students to learn to plan for difficult content and how to address them. After an initial run all the way through a short exercise, students would then circle or write down the most difficult portions of the music they encountered personally. After surveying the class for the most prominent challenges they faced, I would teach the class about a new strategy to use that helps to solve these musical challenges and walk them through how to use it effectively. As we progressed through the year, students began leading practice discussions in class over their concert music that we were learning. They discussed what strategies would be the most helpful to move them forward in their music, and why they chose that strategy. Students would volunteer to serve as models to demonstrate correct use of strategies in class so others could see their peers successfully incorporate these strategies in context. During full ensemble rehearsals, I would often reference practice strategies when solving particular issues that we encountered in the music. For example, I would address topics such as slowing the tempo on a fast technical section and then explain how we to progress to quicker tempos, or how to play a rhythm on a static pitch to work out stylistic and rhythmic concerns.

Data Collection Procedures and Tools

Prior to data collection, I ensured that it was approved by the school administration and the university IRB. The IRB approved my study- IRB-FY2021-356- on January 7th, 2021. (Please refer to Appendix D for the IRB Approval Letter). After confirmation, I scheduled available times after school and dates for all approved participants. Some students opted to participate virtually, and those were also scheduled after school hours. Before the first participant arrived, the data collection site was set up in the band room with a chair, music stand, musical excerpts, a pencil, a metronome, and iPad to record each session. The band room was cleared of all interruptions and after school activities that could occur during data collection. I observed each participant from a small table in the corner of the room.

During participant practice observation, the participant entered the room and sat in the chair with the music stand in front of them. I welcomed the participant and thanked them for participating in the study. Basic information was collected first, such as how many years in band they have had so far and if they are in private lessons.

First, I gave the participant a short overview of what they will do: "Today you will be see two different musical excerpts. You will first play through both excerpts while sight reading to gather your starting score. Then, you will have five minutes to practice the first passage in whichever ways you seem fitting and necessary for that particular passage. You will then do the same for the next passage, choosing whichever ways to practice you think is best. Once you finish five minutes of practice on each passage, then you will play through both excerpts again to see how you have improved. Then, you are done." Once the participant understood, I started the video camera on the iPad. The excerpts were placed on the stand, and the participant was

instructed to play through each for a pre-test. When the practice period began, I started a timer to let the student know when to begin and end practicing.

I collected information on the strategies that they used for each passage and assigned a score for pre-tests and post-tests on a five-point rubric. This rubric served to assess the musical accuracy of their pre and post-test performances on the criteria of tone, rhythm, note accuracy, interpretation, and articulation. Once the timer ran out, the second passage was placed on the stand, and the timer was started. Once the five-minute practice period was over, each participant played a post-test on the same music. Once that was complete, the researcher took the excerpts off the stand and stopped the recorder. The participant was thanked again, and I allowed them to leave the room. The next participant entered the room, and the process was repeated over again.

I developed my own data collection tool to organize the strategies used by each participant in both musical excerpts. I loosely based this collection tool on the table used to organize practice strategies in the study by Rohwer and Polk (2006), table 1. This simple table lists practice techniques used by participants in the study. For data collection in my study, I utilized the recordings from my iPad from each session to create a table to compare the strategies I observed the participants use for each musical passage. This differs from Rohwer and Polk because I was only looking for the use of the strategy in their practice, not the explicit identification of the strategy. I worked from a list of strategies that we have covered in class and talked about the appropriate application in practice.

I utilized a performance rubric to assess musical achievement of the excerpt four times for each participant; twice for each excerpt for the pre-test and twice for the post-test. The primary purpose of this rubric is to determine an overall score between the two excerpts to determine a level of accuracy achieved in each category. This rubric is a simplified version of the

official performance rubric used in adjudication of musical performances in the state of Missouri developed by the Missouri State High School Activities Association (MSHSAA, n.d.). The rubric is a standard assessment of musical performances in the state and is therefore a widely used and accepted method of assessment. To ensure the accuracy and consistency of the rubric, I ran a brief pilot of the study with different students to ensure the procedures were seamless. A colleague from my district verified the scores of 20% of my participants by listening to their audio performances and scoring them on the same rubric. My colleague rated participant performances within 1.5 points of my original overall scores. (Refer to Appendix C for a blank performance rubric within the data collection materials.)

I also recorded the gender, instrument, years in band, and enrollment in private lessons for each participant. The data were used to identify potential trends in strategies based on instrument, experience, etc.

Data Analysis

Descriptive data were analyzed; determining the total participant size, number overall that are male/female, number of participants on each instrument, number of participants with two or three years of experience, and number of participants enrolled in private lessons.

Data from all of the individual practice observations were compiled into a larger chart showing the practice strategies from most used in each passage to the least used. Overall score increases and post-test scores were compared with strategy-use to begin to recognize possible relationships between strategy-use and overall score increase or post-test score. (Refer to Appendix E for a sample of the form I used to compare post-test scores, overall improvement, and strategy-use in participants.)

After the initial data processing, a follow-up analysis of the data was conducted to determine relationships, similarities, or differences that arose in the tables between musical passages or other demographic factors. Averages of these factors were performed to determine their relationship to other variables, and the results are discussed in the results and analysis sections.

Common factors were presented to show the similarities or differences in the strategies used when practicing contrasting musical passages, as well as what strategies could be most effective in each context for improving certain musical criteria.

RESULTS

This chapter reports the data and relationships found in the results of the study. Contextual practice is complicated and involves several variables, therefore the data reported in this chapter are organized by data type. First, overall participant characteristics are discussed, followed by data that report relationships between these characteristics and participant success in practice. Data reporting relationships and differences in strategy use between excerpts follow in the next section. Overall data relationships are then presented to display the link between participant strategy use and scores, as well as any links that strategy use had on specific music criteria.

A total of 20 participants completed the study. Of the 20 participants, nine were male and eleven were female. Slightly more eighth grade students who are in their third year of band participated in the study compared to seventh grade, second-year band students. This was to be expected, considering the higher comfort level that more experienced students likely have in practicing and performing music at this point in their music education. Six of the twenty participants participated in weekly private lessons on their primary instrument. Appendix F displays a brief table containing participant characteristics. A breakdown of the number of instruments represented in this study is located in Appendix G. There were no findings in the data that suggest the instrument played by participants had an observable link to their practice strategy choices.

Relationships of Participant Characteristics and Experience

On average, participants who took private lessons on their primary instrument ended with an average overall score of nearly six points more than those who did not participate in private lessons. In regard to average overall score increase, participants in lessons increased their score by over one full point more than those who did not take lessons. Seventh graders in their second year of band earned an average of nearly seven points less on their average overall score compared to eighth grade participants in their third year of band. Eighth grade participants increased their overall score an average of about half of a point compared to seventh grade participants. (Refer to Tables 1 and 2 below for average overall scores and score increases in relation to these variables.)

Table 1. Relationship of Enrollment in Private Lessons on Overall Scores and Score Increase

	In Lessons	Not in Lessons
Average Overall Score	38.42	32.56
Average Score Increase	10.92	9.81

Note. Private Lessons refer to weekly individual instruction on the participant's primary instrument.

Table 2. Relationship of Years of Experience on Overall Scores and Score Increase

	Second Year	Third Year
Average Overall Score	33.40	40.33
Average Score Increase	10.75	11.37

Note. Second Year and Third year refers to the number of years participants have been in band.

Strategy-Use by Excerpt

Each strategy that is listed on Table 3 was observed at least once in each musical excerpt during the practice period over the course of the study. This table lists the observed use of practice strategies from most used to least used for each excerpt. In total, 176 strategies total were used for the lyrical excerpt and 195 strategies were used for the technical excerpt. Additionally, the average strategy-use number for single participants was 8.75 strategies for the lyrical excerpt and 9.40 strategies for the technical excerpt. Before analyzing the differences between what types of strategies were used for each excerpt, it is clear that the participants responded to the challenges of the technical excerpt by employing more practice strategies than they did for the lyrical excerpt. This distinct difference is likely due to the higher technical demand of the excerpt and the difficulty of the rhythms presented.

The top five most used strategies for the lyrical excerpt included (a) full run, (b) stopping to correct pitch, (c) starting at the beginning, (d) repetition, and (e) stopping to correct rhythm. These strategies are more generic and less specific in resolving specific musical issues compared to other strategies, likely due to the seemingly easier nature of the excerpt and the time constraint. Many participants opted to start their practice at the beginning rather than targeting the most difficult or least-achieved parts from their pre-test. Pitch was a top musical priority for most participants, with plenty of repetition of sections to ensure all notes were played correctly. Rhythmic considerations still made the top five, but rhythm was emphasized much less than correct pitch for this excerpt overall. The use of full runs by most participants suggests that they likely viewed this music in larger phrases instead of smaller musical ideas.

The top five most used strategies for the technical excerpt was: (a) stopping to correct rhythm, (b) chunking, (c) stopping to correct notes, (d) repetition, and (e) writing in the music.

Table 3. Number of Participants Who Used Each Strategy by Excerpt Type

Lyrical	*n*	Technical	*n*
Full Run	17	Stop to Correct Rhythm	17
Stop to Correct Pitch	17	Chunking	16
Start at Beginning	16	Stop to Correct Pitch	16
Repetition	12	Repetition	15
Stop to Correct Rhythm	12	Writing in Music	14
Chunking	10	Full Run	14
Prioritization	9	Start at Beginning	13
Consistent Metronome Use	8	Slowing	12
Pitch Check with Tuner	7	Counting Rhythms out Loud	10
Adding Dynamics to Section	7	Prioritization	10
Inconsistent Metronome Use	6	Articulation Isolation/Addition	10
Counting Rhythms out Loud	6	Inconsistent Metronome Use	9
Writing in Music	6	Consistent Metronome Use	8
Whole-Part-Whole	6	Whole-Part-Whole	8
Interval Check	6	Single Pitch Rhythm Isolation	6
Tone Correction	6	Silent Fingerings	4
Articulation Isolation/Addition	6	Air Playing	4

Note: *n* represents the number of participants who used each strategy. Strategies that were observed in 5 participants or less were edited out of this table for ease of reading. The full un-abbreviated table is located in Appendix H.

While repetition held the fourth spot in both excerpts, it was used more frequently in this excerpt compared to the lyrical excerpt. Stopping to correct rhythm jumped in frequency in this excerpt

due to the rhythmic demands the excerpt presented. Although correcting rhythm and notes made the top list for both excerpts, chunking and writing in the music made unique high appearances in this particular excerpt. Many participants wrote in the counts for difficult rhythms in this excerpt before they began playing. The jump in occurrences of chunking to work on more technical matters suggests that the participants saw the use of time to work out small sections more useful in this context than in the lyrical context.

There are some notable differences between the overall strategy-use in both excerpts. As expected, there was a greater focus on notes in the lyrical excerpt and a greater focus on rhythm in the technical excerpt. Although notes were shown to be important to participants in both excerpts, the spike in focus on rhythm via rhythmic strategies in the technical excerpt is notable. For example, the occurrence of counting rhythms out loud jumped in occurrence in the technical excerpt by four participants, and the instances of using a metronome both consistently and inconsistently went up slightly as well. Single pitch rhythm isolation was also used by five more participants in the technical excerpt than the lyrical excerpt. Slowing played another important role in correcting rhythm in the technical excerpt, as nine more participants chose to use it in their practice compared to the lyrical excerpt.

Outside of the focus on rhythm, the technical excerpt revealed a few other tendencies in participants' practice. The use of whole-part-whole is more prevalent in the technical excerpt—notably paired with the increased use of chunking in solving specific problems in the music before moving on or integrating it into the rest of the music. A much greater focus was placed on articulation in the technical excerpt, likely due to the more specific use of articulation in the music itself. Most participants also seemed to focus less on dynamics and tone, noted in the decreased use of dynamic incorporation and tone correction in the technical excerpt.

The lyrical excerpt showed some unique differences compared to the technical excerpt. Checking pitch with a tuner and checking intervals was much more common in the lyrical excerpt than in the technical excerpt. The focus on tone and attention to dynamics in the lyrical excerpt was especially notable. Five more participants corrected tone and incorporated dynamics compared to the technical excerpt. The focus on articulation was much lower in the lyrical excerpt, likely due to fewer articulation demands in the music compared to the technical excerpt. The use of slowing was less prevalent in this excerpt as well due to the slow metronome tempo already required of the excerpt.

Despite the differences, there were some key similarities in how students utilized practice strategies in both excerpts. Outside of the obvious correction of notes and rhythms in both excerpts, repetition was utilized very often in both cases. Although slightly different, the usage of a metronome—both consistently and inconsistently-- was nearly the same for both etudes. It was observed that participants who chose to use a metronome in some capacity typically chose to use it for both etudes regardless of the musical content. Starting at the beginning and doing full runs were common in both excerpts, which exposed the participants' developing practice skills and perhaps the pressure they felt in regard to the time limit. I observed that participants often acted surprised when I called time for the practice periods. They remarked that the five minute practice period seemed to pass quickly. Surprisingly, prioritization was also similar between excerpts, but participants who chose to prioritize sections instead of starting at the beginning were observed prioritizing sections no matter what the musical challenges were. Strategies that were used rarely used in both excerpts include: (a) saying note names out loud, (b) looking up fingerings, (c) checking how much time is left, (d) air playing, and (e) silent fingerings.

Comparison of Overall Results

No matter what strategies or how many strategies each participant chose to use, everyone improved from their pre-test to post-test performances to some degree as a result of their practice. Generally, participants who used more strategies in their practice tended to have higher overall composite scores in their post-test performance. The participants with the top 10 highest overall scores used more strategies on both excerpts than the bottom 10 participant scores—with an average of 10.7 strategies utilized in the lyrical excerpt and 11.3 in the technical, compared to 7.7 in the lyrical and 8.4 in the technical excerpts. Additionally, participants with the top 10 highest score increases from pre to post-tests used more strategies overall than the bottom 10 scores—with an average of 9.7 strategies utilized in the lyrical excerpt and 10.3 in the technical, compared to 7.9 in the lyrical and 8.5 in the technical etudes. Figures 1 and 2 graphically illustrate the relationship between the number of strategies used and the score increases from the pre to post-tests.

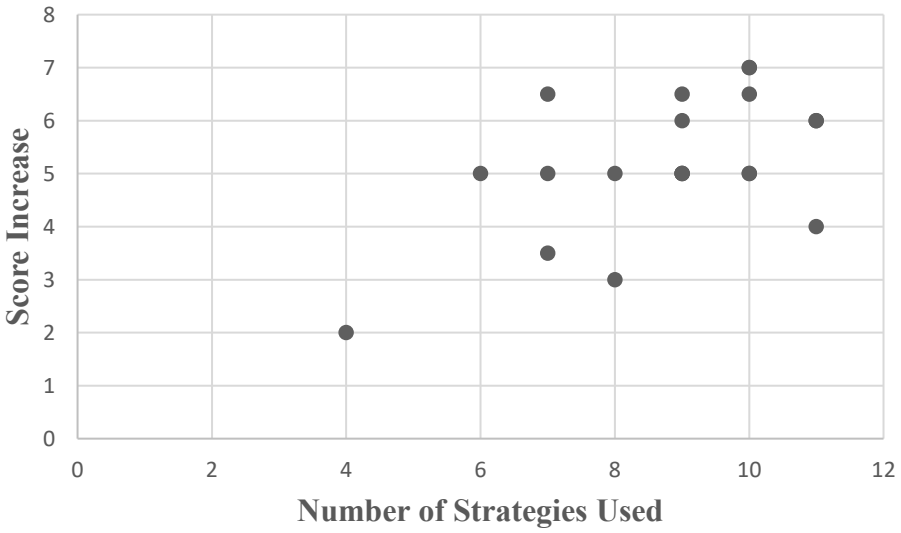


Figure 1. Score increase and strategies used in the lyrical excerpt.

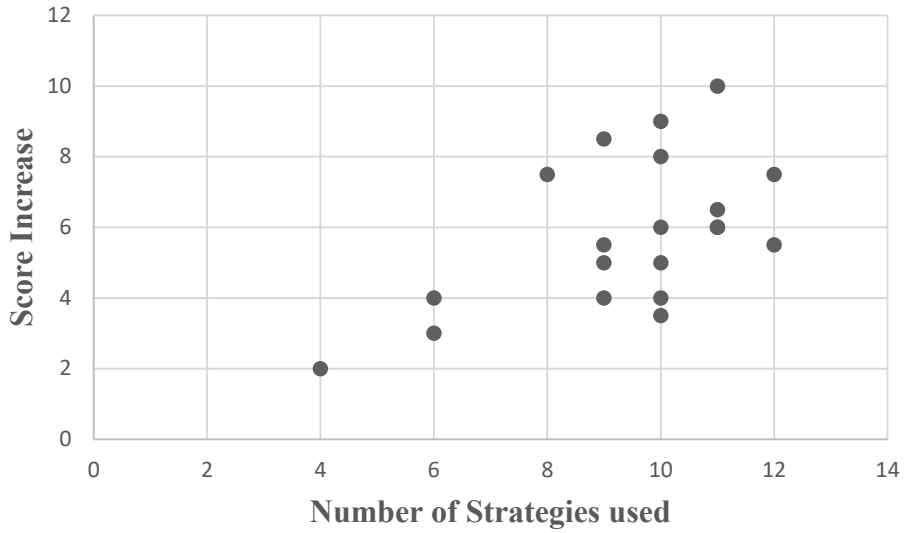


Figure 2. Score increase and strategies used in the technical excerpt.

Strategy-Use and Improvement

The use of some practice strategies were related to improvement in particular performance criteria. Tables 4 and 5 show the relationship between strategy-use, post-test scores, and performance criteria increase. The top three strategies used in the lyrical excerpt that yielded the largest average score increase among those who used them were: (a) counting rhythms out loud, (b) whole-part-whole, and (c) consistent metronome use. Interestingly, counting rhythms out loud yielded the highest average rhythm score increase and overall score.

Another notable observation is the use of a metronome in the lyrical excerpt, yielding a rhythm score increase of 1.19 for consistent metronome use and 0.75 for inconsistent metronome use, suggesting that consistently using the metronome was more beneficial to rhythm improvement in practice. Unsurprisingly, those who focused on articulation and dynamics in this excerpt increased interpretation and articulation scores by an average of 1.25 points.

The technical excerpt also revealed that the use of certain strategies yielded higher overall average score increases among participants who used them. The top three average overall

Table 4. Strategy-Use and Relationship on Score and Criteria Increase in the Lyrical Excerpt

Strategy	Mean	Criteria	Criteria Mean
Consistent Metronome Use	5.31	Rhythm	1.19
Inconsistent Metronome Use	4.83	Rhythm	0.75
Prioritization	4.75	Articulation	1.38
Counting Rhythms Out Loud	6.08	Rhythm	1.50
Whole-Part-Whole	5.5	Articulation	1.40
Adding Dynamics to Section	4.93	Interpretation	1.29
Articulation Isolation/Addition	5.25	Articulation	1.33
Chunking	5.1	Interpretation	1.3

average score increases came from the use of: (a) counting rhythms out loud, (b) whole-part-whole and (c) prioritization. Metronome use did not make the top three, but instead was replaced with prioritization in the technical excerpt. It is important to note that the average score increase was higher for all notable relationships in the technical excerpt, likely due to the overall higher margin of improvement in all participants in this excerpt. Score differences were more pronounced based upon the consistency of metronome use. Performers who used a metronome consistently were more likely to earn higher scores. The increase in rhythm score when utilizing counting rhythms out loud is quite notable—resulting in a rhythm score increase of over three points on average. Prioritization and whole-part-whole also proved to be useful in increasing

rhythms scores by two points. In the next chapter, I will discuss the connections and meaning of the data to teaching.

Table 5. Strategy-Use and Relationship on Score and Criteria Increase in the Technical Excerpt

Strategy	Mean	Criteria	Criteria Mean
Consistent Metronome Use	6.81	Rhythm	1.81
Inconsistent Metronome Use	5.37	Rhythm	1.12
Prioritization	7.4	Articulation	2
Counting Rhythms Out Loud	7.65	Rhythm	3.3
Whole-Part-Whole	7.64	Rhythm	2
Adding Dynamics to Section	5.5	Interpretation	1.75
Articulation Isolation/Addition	6.25	Articulation	1.5
Chunking	5.8	Articulation	1.56

DISCUSSION

This chapter explains the data in this study, discusses the links and meaning behind the results, and explores the implications and application of the results to my classroom. This chapter also gives suggestions on how the data can be useful in teaching practices and classrooms outside of my district.

Due to the specific circumstances and procedures of this study, it is not possible to make definitive statements that can be generalized to all students in every classroom. Although I observed participants in the band room where they feel comfortable playing on a daily basis, what I observed likely does not reflect a home practice session. It is possible that participants put forth their best practice habits while I observed them, but this may not exhibit the same discipline or application of techniques at home in every practice session. Distractions were removed from the room for this study, but distractions at home are numerous and often cannot be controlled by students. The focused environment that participants encountered in this study created a practice space that encouraged productivity and improvement—especially since there was a teacher in the room. It is likely that my students utilized a more disciplined practice approach while in the same room as me to demonstrate their understanding of the practice material we covered in class. Without the presence of a teacher, it is very likely that participants would not have behaved the exact same way.

Similarities and Differences in Strategy Use

The similarities in strategy-use overall reveal interesting tendencies in the practice strategy-use of the participants. Although many strategies are quite specific in application,

"broad" strategies such as repetition, chunking, and correcting notes and rhythms were used frequently. Full run-throughs were also commonly used, likely representing a lack of intentionality. Practice behaviors that lack specificity have also been observed by several researchers (Miksza, 2007; Miksza, Prichard & Sorbo, 2012; Rohwer & Polk, 2006). These music education researchers found that chunking, repetition, correcting notes and rhythms, and non-productive practice behavior tops the list of most commonly used strategies observed in young musicians. Musicians in their second or third year of band often revert back to these often used and easily applied strategies to all contexts, simply because they are the more applicable to all situations and used often in rehearsal situations, excluding the use of non-productive full runs. Oare (2014) suggested a similar phenomenon with young musicians, stating that the use of specific strategies can sometimes be ineffective due to a difficulty of selecting appropriate strategies for the music.

There are a few key differences that were revealed in how students used practice strategies differently when confronted with very different musical challenges. First, it appears that these young musicians responded to the technical etude by using more strategies overall than in the lyrical etude. The number of strategies used overall for each is not terribly pronounced—a difference of about 0.5 strategies between the two excerpts. Oare (2014) suggests that although similar strategies may be used from one person to the next, how the strategy is used is widely varied depending on the context. Technically, all strategies can be used for either excerpt, but it seems the more obvious challenges of the technical etude prompted students to utilize more strategies. The lyrical excerpt has its own challenges, but these tended to be less obvious and observable to young musicians simply because many reverted to a simple and tangible approach that focused on technical issues such as notes and rhythms. I observe this often with these

students during regular rehearsals. They often have a difficult time thinking about tuning tendencies or applying expressive dynamics without specific direction from me or my colleagues. This is similar the findings of other music education researchers such as Prichard (2017) and Miksza, Prichard, & Sorbo (2012) who observed that many young musicians focus is nearly always on note accuracy—even when attempting to utilize other strategies.

Excerpt Challenges

The demands of lyrical excerpts require focus on intonation, expression, control, and tone that are likely seen as less important or not observed at all in the individual practice of inexperienced musicians. Young musicians can have a less mature view on musical challenges, and the lyrical excerpt revealed this distinction through their practice. Running the piece all the way through, correcting pitch, starting at the beginning, repetition, and stopping to correct rhythm were the top five strategies utilized in the lyrical excerpt. This reflects that most participants in this study were able to achieve the correct notes early in their practice, followed closely with rhythm. Those who scored highest overall and employed more strategies in the lyrical excerpt used the rest of their time integrating higher-tier musical responsibilities, such as adding dynamics, tone correction, and checking pitch with a tuner. McPherson et al., (2017) reached similar conclusions in a study with collegiate participants. They found that most the effective practice techniques were reflective of the character and expression elements of the music. Moreover, this is more challenging for less-advanced musicians as notes and rhythms tend to take precedent. Participants in this study who scored lower tended to ignore more complex musical elements altogether and focused on additional repetition of sections to ensure correct notes and rhythms. Low-scoring participants also utilized full run-throughs and repetition

more often in their practice. Surface-level practicing such as this is common with young musicians and is likely due to a lack of experience in applying musical elements. Repetition is a helpful and commonly used tool among musicians (Stambaugh, 2010), but young students often rely solely on this strategy to secure correct notes and rhythms without much attention to other musical components. Seventh grade participants exhibited this behavior more frequently than eighth grade participants, which may reflect developmental differences—especially given lost instructional time due to the pandemic. Additional research exploring musicians in this category whose practice primarily focus on notes and rhythms could be beneficial for improving practice instruction in music education.

Demands in the technical excerpt included more challenging rhythmic components, a faster tempo, greater variation of articulation, and more sudden or extreme dynamic changes. These demands were typical to the technical exercises we worked on in class leading up to the study. These challenges were also present in ensemble literature being rehearsed at the time of the study. Technical demands are easier to recognize by simply glancing at the music. Certain musical aspects such as tone and articulation can be neglected while trying to correct rhythmic problems. Stopping to correct the rhythm, chunking, stopping to correct notes, repetition, and writing in the music were the top five most used strategies in this excerpt. What is notable here is the common use of chunking by students to break the more challenging technical demands into smaller parts. It appears that participants recognized the difficult nature of segments of the music that required prioritization. Specifically, more attention was devoted to articulation when practicing the technical excerpt. Similarly, students had considerable experience applying and incorporating articulation in the context of technical exercises during regular class time throughout the year, especially once notes and rhythms were mastered. This identification of

stylistic challenges in the excerpt to help select practice strategies is similar to the finding that college students and their studio professors reported that style awareness in practice was critical for improvement (Miksza & Tan, 2015).

Achievement and Strategy-Use

Aside from participants simply using more strategies in the technical excerpt, it appears that there was a link in the use of more strategies and higher overall scores in these students, as well as a higher margin of improvement from pre-test to post-test. The top ten participants were shown to have used an average of three more strategies in both the lyrical and the technical excerpts than those with the bottom ten overall scores. Four of the six participants enrolled in private lessons were included the top ten overall scores. In order to rule out the possibility that the data could be skewed by participants who can sight-read well but do not know how to practice effectively, I also looked at how many strategies were used in relation to the highest score increases from pre-test to post-test. The participants with the top ten highest score increases used an average of two more strategies in each excerpt than those with the lowest ten score increases. Rohwer & Polk (2006) also discovered a similar link between the number of strategies that students could name and the margin of practice improvement. However, the results are not generalizable. All the participants in this study were educated on practice strategy and its application. Nevertheless, several participants still did not apply many of the strategies that were taught to them over the course of the semester and instead resorted to full run-throughs or mindless repetition. Other researchers have found that even when inexperienced musicians were taught how to use several strategies, some students still resorted to playing straight through the piece without fixing elements of the music that needed attention (Johnson, 2009; Prichard,

2012). Perhaps, the students who showed the most improvement and the highest overall scores clearly considered what strategies would help them the most in each situation.

Impact of COVID-19 on Results

The impact of the COVID-19 pandemic is important to consider when addressing musical maturity in young musicians given contemporary circumstances. Schools around the world lost months of instructional time when schools shut down, impacting the youngest musicians the most when they lost the ability to learn with their band directors and play with their ensembles on a daily basis. The seventh and eighth graders who participated in this study did not have access to typical band classes and ensemble instruction for the last quarter of the 2020 school year, half of the first quarter and the entire second quarter of the 2020- 2021 school year. In total, seventh grade participants lost five months of instruction they would have had in a typical year—amounting to a loss of nearly one-third of typical accumulated instruction at the time of the study. Most musical skills that were learned prior to the pandemic had to be re-learned, which likely accounted for less mature or simple uses of practice strategies in this study. More information on the effects of the pandemic on music education is a pressing need given the current circumstances.

Implications for Teaching

Certain strategies could be more beneficial to use in practice than others, as well as certain strategies that appear to improve particular performance criteria more than others. Counting rhythms out loud was used by the students who showed the largest improvement in both overall and rhythm scores for both excerpts. Rhythm is often overlooked in favor of note

accuracy by young musicians, so it is notable and logical that the active correction of rhythm through strategy-use yielded such positive results. Unsurprisingly, the consistent use of a metronome for both excerpts was shown to be more effective in increasing overall score as well as the rhythm score compared to inconsistent metronome use. Every single participant corrected notes to some extent and improved their note score, so I did not analyze the impact of correcting notes in this study. Notes tend to be what young musicians focus on (Miksza, Prichard, & Sorbo, 2012; Prichard, 2017), because they are easily audible and corrected.

Every participant used repetition to some degree in both excerpts in this study. Over the course of five minutes of practice, some repetition is bound to happen. The strategies that were employed in collaboration with repetition—such as prioritizing sections or progressing from counting rhythms to playing them on a static pitch in a particular section are the defining factors between very effective use of repetition and somewhat effective use of repetition, similar to what Prichard (2007) found. She found that participants used repetition often in both excerpts, but in the lyrical excerpt it was more commonly demonstrated as simply playing larger sections over again, while in the technical excerpt it was used in smaller sections to tackle rhythmic or articulation issues.

In the lyrical excerpt, the use of whole-part-whole and chunking was the most effective use of strategy for increasing overall score. While tone was an important focus in the lyrical excerpt, the use of tone correction didn't necessarily lead to a notably higher tone score in the post-test. Tone is difficult to fix in a short amount of time and is usually something that is already developed or takes a long time to practice developing. Five minutes appears to be not be a long enough practice period to observe much change, so further research studies on practice that utilize longer time periods would be beneficial to examine the effect of sequential practice.

In the technical excerpt, the use of whole-part-whole, prioritizing, and adding articulation were the most effective strategies used in improving the overall score. Notably, the use of whole-part-whole was effective in improving the rhythm, articulation, and interpretation scores for those who used this strategy than when it was applied in the lyrical excerpt. The more complex rhythmic challenges in the technical excerpt likely accounted for this difference, as there were more rhythms and specific articulations to address. The use of prioritizing sections was the most effective strategy in increasing the scores in several performance criteria including articulation, interpretation, and rhythm. Interestingly, this strategy was used more frequently when more outwardly complicated musical challenges were present in the music.

Even with limited musical skill and knowledge, musicians at the middle school level generally recognize different musical challenges and adapt their practice accordingly. The differences in strategy-use in the two excerpts would likely be more pronounced with more experienced musicians. The participants who utilized practice strategies correctly and differentiated strategies between the excerpts improved the most on nearly every musical criterion and ended with the highest post-test scores. However, even with specific practice strategy education provided during regular class time, a small number of participants did not utilize strategies in an intentional manner or differentiate their strategy-use between excerpts. Perhaps these students struggled to accomplish the most basic musical elements, had difficulty creating a viable plan for practice during the five-minute practice period, or responded to the musical challenges erratically or habitually. Oare (2011) and McPherson et al. (2017) have also noted random results in practice. While these results are not generalizable, it could be useful to study long-term practice strategy education that begins during student's first year of musical

instruction to study how struggling with these basic musical concepts manifests in later musical development.

The results of this study will be used to inform teaching practices and practice strategy education in our band program. Although the addition of practice education was new to our middle school curriculum this year, the results of this study have been insightful in providing information on how my students react to musical challenges during practice, as well as what strategies we can realistically expect to be used effectively by these young musicians. I intend to use the results from this study to develop a curriculum for contextual practice that starts with our beginners and progresses with their abilities through middle school. For example, I believe it is important to start practice education immediately in students' first year of band. Practice education should start small with strategies like error identification, targeted repetition, and metronome use that can set students up to consistently apply appropriate strategies as the content they encounter progresses in difficulty. After observing some of my students revert back to poor practice habits that they learned before we implemented practice education during class, it became clear to me that strategy-use is a learned skill— much like tone quality or technique that is taught so deliberately in first-year band students.

When developing practice curriculum for my second-year and third-year students, I will use the results of this study to guide my instruction in targeting the practice tendencies that I noticed in the data. For example, participants in this study appeared to be less inclined to use a metronome in the slow-tempo etude but improved drastically when they counted rhythms out loud. When learning slow etudes or concert literature, I will begin instruction by prioritizing rhythm and tempo, gradually adding in other elements of the music while ensuring the importance of rhythm is not lost. When learning any new piece of music, I plan to engage my

ensembles in discussions on the less obvious challenges of the music in addition to the challenges that stick out the most. This study revealed that my students sometimes miss fewer obvious challenges while working hard to address the most obvious challenges such as rhythm or note names. If I coach my students to identify both obvious and hidden challenges before practice begins, I believe that their practice sessions will become more productive.

The results from this study can also benefit the larger field of music education and other band directors and students by informing directors how my middle school students tackled a variety of musical problems. Perhaps the improvements that many of my students demonstrated as a result of strategy use can guide directors to integrate style-specific strategy-use in their own classes. Demonstration, identification, and discussion of specific contextual strategies were impactful in my own classroom and could be a useful method to incorporate contextual practice in other instrumental music programs as well. The pandemic has made independent practice more important than ever, so my goal is to find more ways to help students practice confidently at home.

This study displays strengths in the strict data collection methods and numerical analysis of observed strategies for students in a single instrumental music program. The use of tested rubrics to assess performances provides a reliable base for data that are limited to subjectivity. The methodology used provides a clear model for how to collect data and analyze the use of practice strategies on musical achievement. Comparison was central to Rohwer & Polk's (2006) study, which I used to inform the methodology for this study. Specifically, the use of pre and post-tests were important for analyzing differences from practice strategy.

Prichard (2012) emphasizes that contextual practice can improve the musical challenges that students encounter in practice. Contextual practice differs from other forms of practice

because it addresses specific musical elements and style of the music through the use of practice strategies. The skills associated with successful contextual practice can appear to be too complicated for young musicians, but musicians with limited experience in this study did recognize and adapt their practice to varying musical challenges. Educating students to identify challenging musical elements, set goals, and prioritize practice elements has the potential to ensure that even the youngest students learn to practice effectively.

Effective practice begins the moment that students learn to make a sound on their instrument, so special care should be taken to ensure productive and specific practice is utilized from day one. Music educators can integrate contextual practice into daily ensemble routines by teaching students to identify how many times to practice simple mouthpiece sounds, how to create practice plans for simple method book exercises, or to identify what practice strategies can help to solve difficult musical elements in their concert music. When young students begin their practice education considering higher level musical elements, they are set up for a lifetime of productive practice and music making.

REFERENCES

Austin, J. R., & Berg, M. H. (2006). Exploring music practice among sixth-grade band and orchestra students. *Psychology of Music, 34*(4), 535-558. doi:10.1177/0305735606067170

Christensen, S. E. (2010). Practicing Strategically: The Difference Between Knowledge and Action in Two Eighth-Grade Students' Independent Instrumental Practice. *Update: Applications of Research in Music Education*, *29*(1), 22–32. doi:10.1177/8755123310377924

Creswell, J. W., & Creswell, J. D. (2018). *Research design: Qualitative, quantitative, and mixed methods approaches*. Los Angeles: Sage Publications.

Demographics of Grain Valley, Missouri. (n.d.). Retrieved from https://cityofgrainvalley.org/about/demographics/

District. (n.d.). Retrieved from https://grainvalleyschools.org/district

Duke, R. A., Simmons, A. L., Cash, C. D. (2009). It's not how much; it's how: Characteristics of practice behavior and retention of performance skills. *Bulletin of the Council for Research in Music Education*, 56(4), 310–321.

Geringer, J. M., Madsen, C. K., Macleod, R. B., & Droe, K. (2006). The Effect of Articulation Style on Perception of Modulated Tempo. *Journal of Research in Music Education*, 54(4), 324. doi:10.2307/4139754

Hallam, S., Rinta, T., Varvarigou, M., Creech, A., Papageorgi, I., Gomes, T., & Lanipekun, J. (2012). The development of practising strategies in young people. *Psychology of Music*, *40*(5), 652–680. doi: 10.1177/0305735612443868

Hart, J. T. (2014). Guided Metacognition in Instrumental Practice. *Music Educators Journal*, *101*(2), 57–64. doi: 10.1177/0027432114552569

Johnson, D. (2009). More than just Minutes: Using Practice Charts as Tools for Learning. *Music Educators Journal, 95*(3), 63-70. doi: 10.1177/0027432108330675

McPherson, G. E., Osborne, M. S., Evans, P., & Miksza, P. (2017). Applying self-regulated learning microanalysis to study musicians' practice. *Psychology of Music, 47*(1), 18-32. doi: 10.1177/0305735617731614

Miksza, P. (2007). Effective Practice. *Journal of Research in Music Education*, *55*(4), 359–375. doi: 10.1177/0022429408317513

Miksza, P. (2011). The Development of a Measure of Self-Regulated Practice Behavior for Beginning and Intermediate Instrumental Music Students. *Journal of Research in Music Education*, 59(4), 321–338. doi: 10.1177/0022429411414717

Miksza, P., Prichard, S., & Sorbo, D. (2012). An Observational Study of Intermediate Band Students' Self-Regulated Practice Behaviors. *Journal of Research in Music Education*, 60(3), 254–266. doi: 10.1177/0022429412455201

Miksza, P., & Tan, L. (2015). Predicting Collegiate Wind Players' Practice Efficiency, Flow, and Self-Efficacy for Self-Regulation. *Journal of Research in Music Education,* 63(2), 162-179. doi:10.1177/0022429415583474

MSHSAA. (n.d.). Missouri High School Sports and Activities. Retrieved from https://www.mshsaa. org/Activities/Info/MusicActivities.aspx

Oare, S. (2011). Practice Education. *Music Educators Journal*, *97*(3), 41–47. doi: 10.1177/ 0027432111400006

Oare, S. (2012). Decisions Made in the Practice Room. *Update: Applications of Research in Music Education*, 30(2), 63–70. doi: 10.1177/8755123312437051

Oare, S. (2014). Aural Image in Practice. *Update: Applications of Research in Music Education*, 34(2), 37–44. doi: 10.1177/8755123314550415

Prichard, S. (2012). Practice Makes Perfect? *Music Educators Journal,* 99(2), 57-62. doi:10.1177/0027432112458458

Prichard, S. (2017). Music Practice Instruction in Middle School Instrumental Ensembles: An Exploratory Analysis. *Bulletin of the Council for Research in Music Education, 213*, 73. doi:10.5406/ bulcouresmusedu.213.0073.

Prichard, S. (2020). The Impact of Music Practice Instruction on Middle School Band Students' Independent Practice Behaviors. *Journal of Research in Music Education*, *68*(4), 419–435. https://doi.org/10.1177/0022429420947132

Rohwer, D., & Polk, J. (2006). Practice Behaviors of Eighth-Grade Instrumental Musicians. *Journal of Research in Music Education*, 54(4), 350. doi: 10.2307/4139756

Smeltz, H. (2012). Reframing Student Practice to Facilitate Lifelong, Joyful Musicianship. *Music Educators Journal*, 99(2), 51–55. doi: 10.1177/0027432112463248

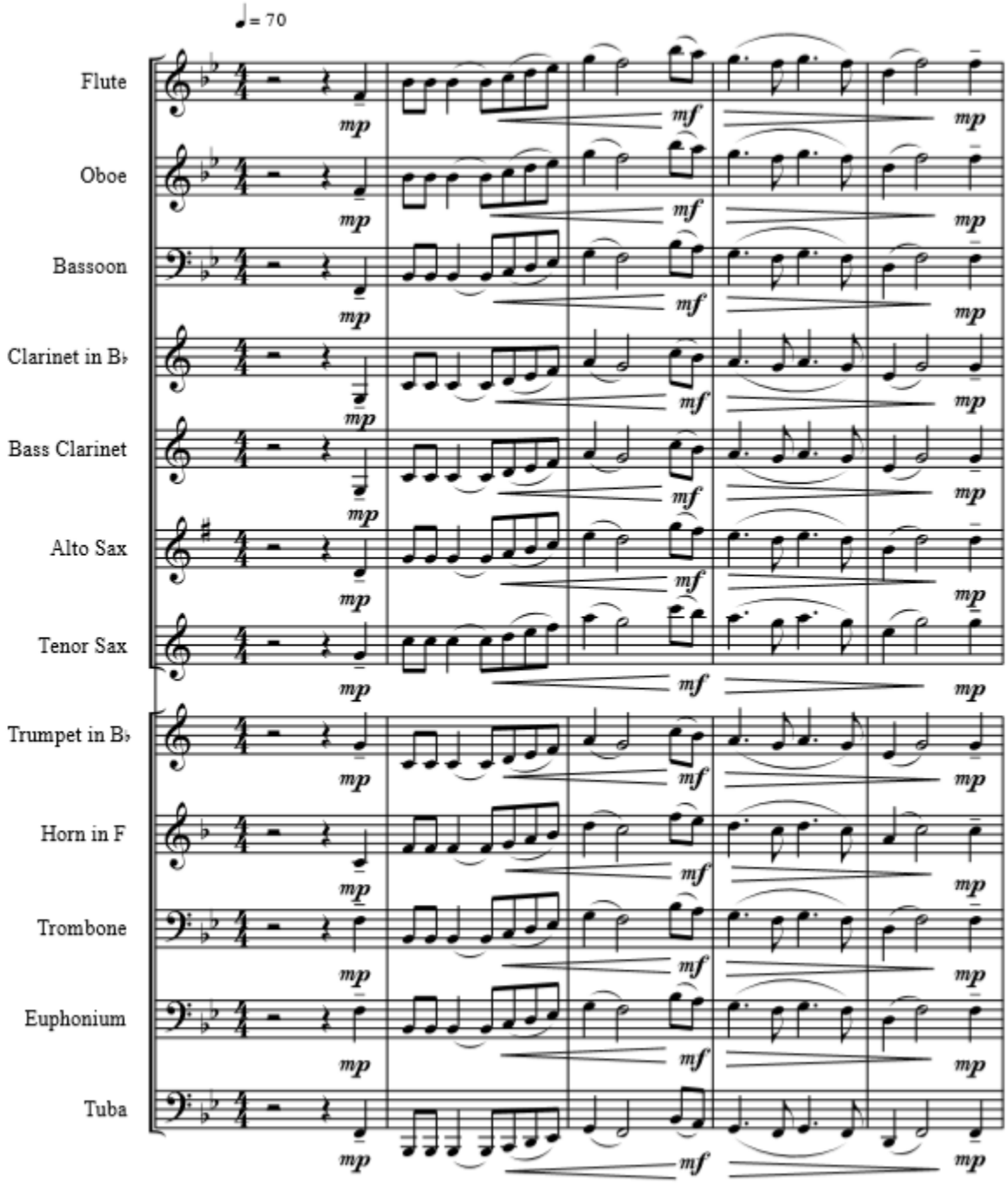
Stambaugh, L. A. (2010). When Repetition Isn't the Best Practice Strategy: Effects of Blocked and Random Practice Schedules. *Journal of Research in Music Education*, 58(4), 368–383. doi: 10.1177/0022429410385945

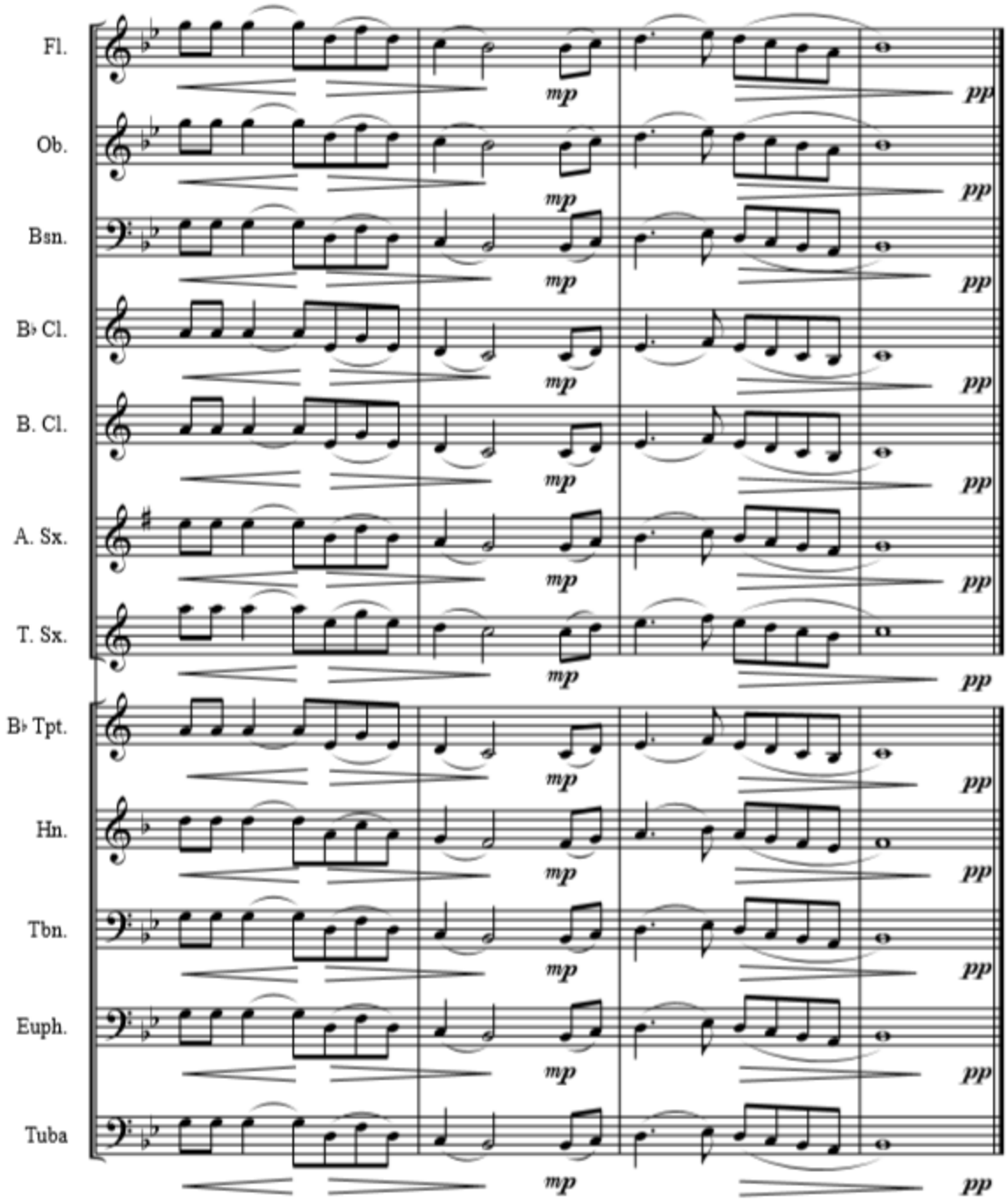
Stambaugh, L. A. (2019). Effects of Focus of Attention on Performance by Second-Year Band Students. *Journal of Research in Music Education*, *67*(2), 233–246. doi: 10.1177/ 0022429419835841

APPENDICES

Appendix A. Musical Excerpts

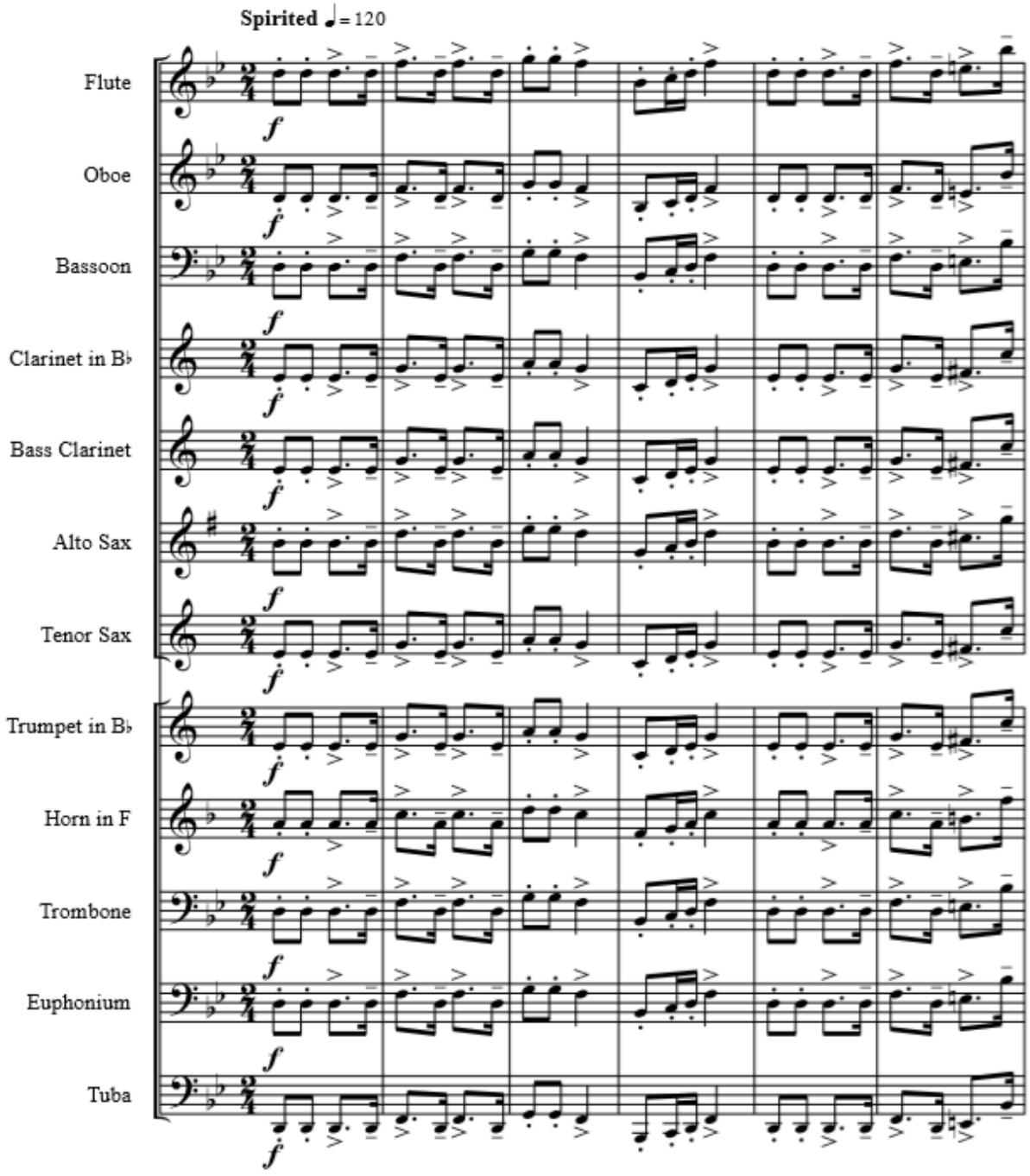
Musical Excerpt #1.

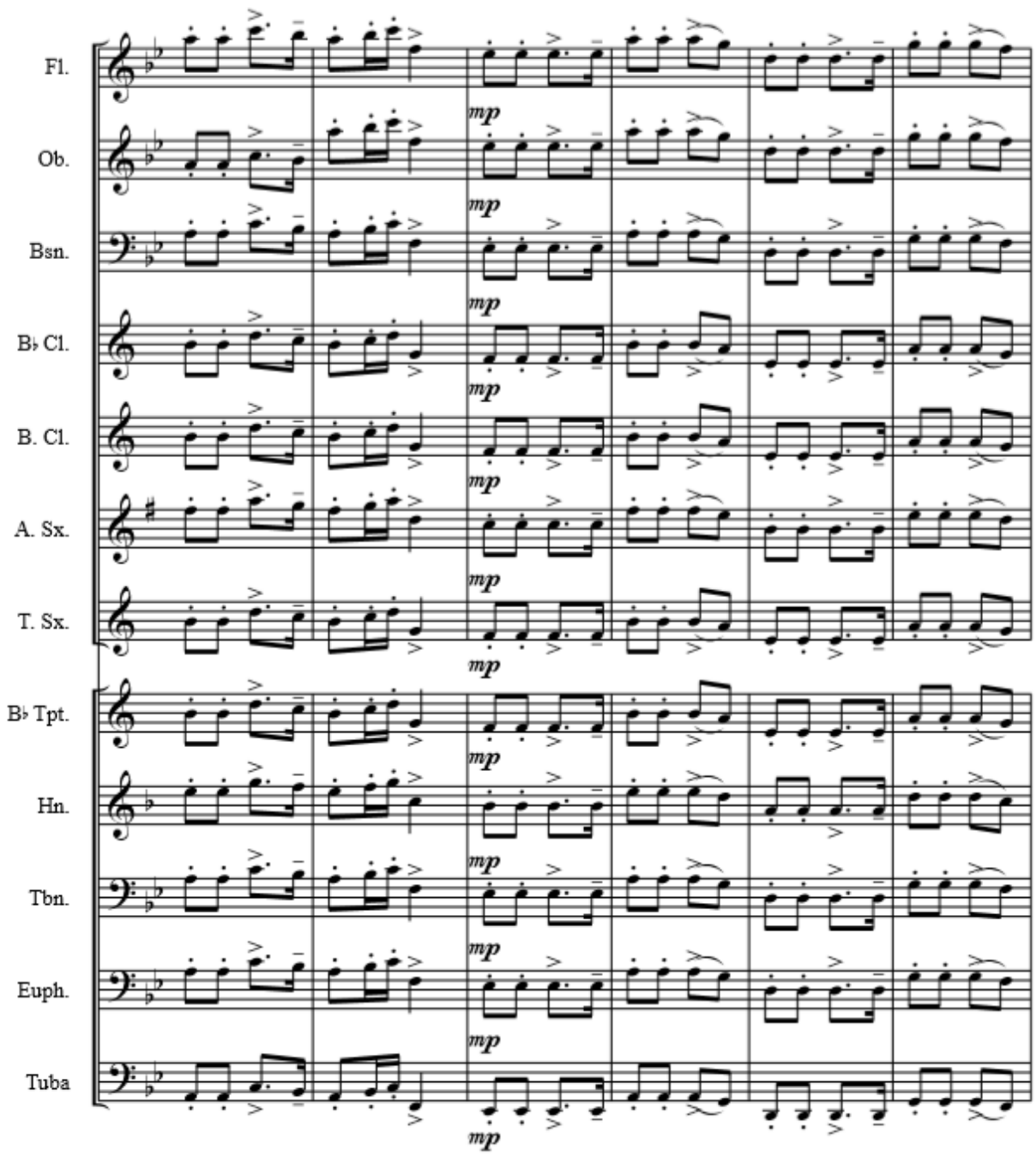


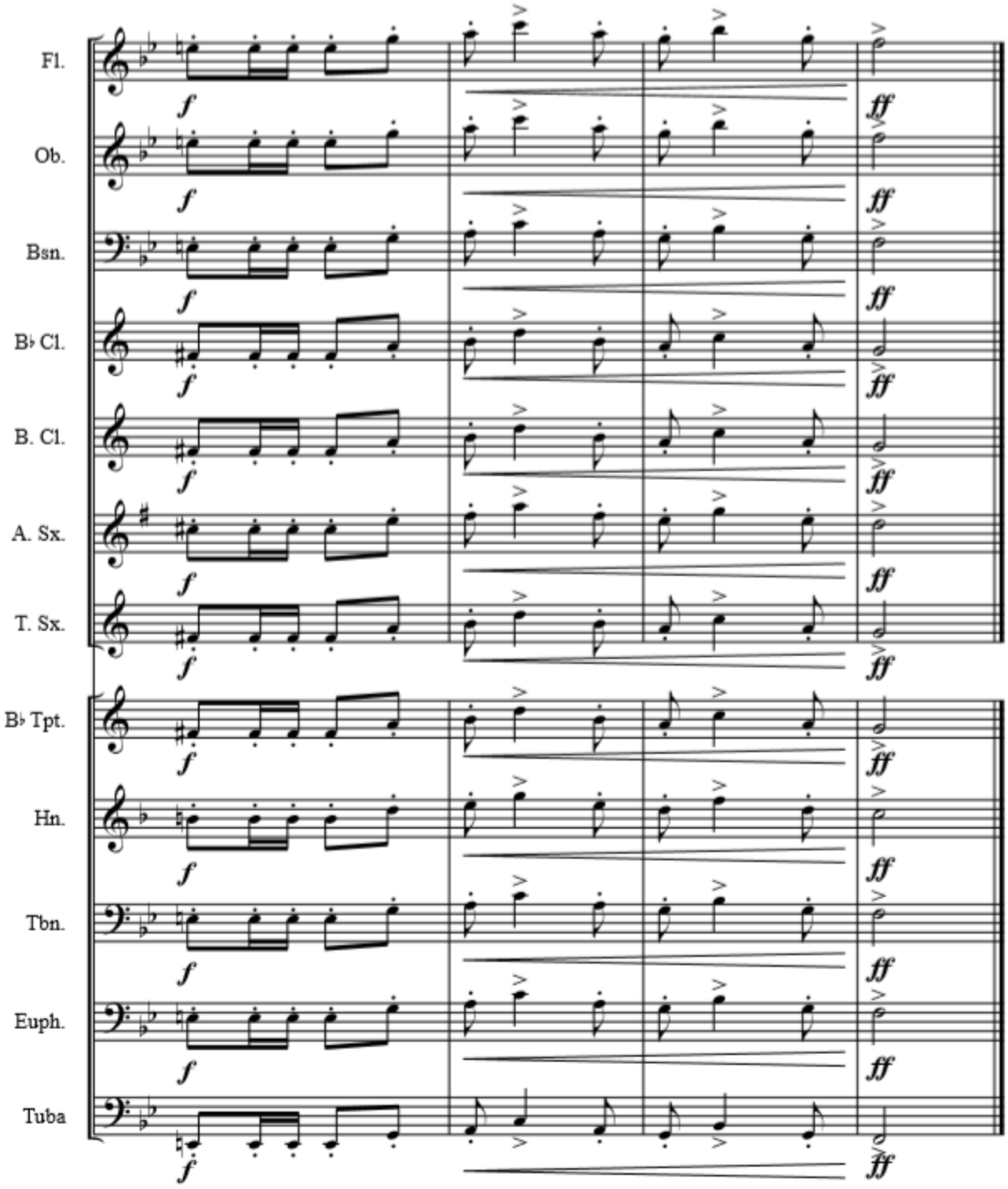


Shenandoah arranged by Michael Sweeney. Hal Leonard, used with permission.

Musical Excerpt #2.




Fl.
Ob.
Bsn.
B♭ Cl.
B. Cl.
A. Sx.
T. Sx.
B♭ Tpt.
Hn.
Tbn.
Euph.
Tuba
mp



National Emblem March by E. E. Bagley and arranged by Matt Conaway. CL Barnhouse Publishers, used with permission.

Appendix B. Permission Letters

Dave Bechdolt (Hal Leonard Permissions)
Dec 9, 2020, 5:08 PM CST

Title	Writer	Additional Comments
Shenandoah	American Folksong/Michael Sweeney (arr.)	

Dear Molly:

Thank you for your request dated November 20, 2020.

We hereby grant you permission to include an excerpt from "Shenandoah " in your dissertation entitled *Effects Of Musical Content On Student Practice Judgements, Decisions and Improvement.* This permission is limited to use of the above-cited composition for purposes of your dissertation, and does not include any right to use the composition, or any part thereof, in any other publications, or for any commercial purposes.

The fee for this use shall be U.S.$25.00.

The following copyright notice shall appear on the page reproducing the composition:

Shenandoah
American Folksong
Arranged by Michael Sweeney
Copyright (c) 2003 by HAL LEONARD CORPORATION
International Copyright Secured All Rights Reserved
Reprinted by permission of Hal Leonard LLC

This permission is solely for the use described above. No additional use will be made without prior written permission. We hereby reserve all rights not specifically granted under this agreement.

If you wish to proceed, please submit your payment via credit card by clicking on the following link.

Pay by credit card

Upon receipt of your payment, a receipt will be issued, which together with this letter shall constitute permission for the usage set forth herein.

Sincerely yours,

Dave Bechdolt | Licensing Administrator, Business Affairs
Hal Leonard LLC
www.halleonard.com/licensing

Dave Bechdolt (Hal Leonard Permissions)
Dec 14, 2020, 12:08 PM CST

Payment Confirmation: Publication

Thank you for your payment. Please keep this receipt, along with the forthcoming agreement, for your records.

Date Processed: December 14, 2020
Ticket Assignee: Dave Bechdolt
Order Number: 5929321
Request Number: 1542323

Molly Batchelor
mbatchelor@gvr5.net

Processing Fee: $25.00
Payment: ($25.00)
VISA ******3338
Balance Due: $0.00

Publication Info
Name of Licensee
Title of Publication
Arranger/Editor
Edition
Original Release Date
Publisher Name
Publication Type
Publication Date
Distribution Territory
Comments

Component List
Product Number **Product Type** **Retail Price** **# of Units** **# of Songs** **# of Licensed Songs**

Song List

Title	Writer	Additional Comments	Fee	Song Number
Shenandoah	American Folksong/Michael Sweeney (arr.)		$25.00	330746

Molly Batchelor <mbatchelor@gvr5.net> Fri, Nov 20, 2020, 9:52 AM

to aglover

Good morning,

I am currently writing my master's thesis in music education at Missouri State University. I am looking to obtain permission to use an excerpt of a melody from a piece published by CL Barnhouse to be used as an example in my thesis that is currently not planned to be published anytime soon. It will only be used for academic purposes and the completion of my research.

The piece I am requesting to use is the National Emblem March by E. E. Bagley and arranged by Matt Conaway. I will be looking to use the melody from measures 11-28, transposed to be played in unison by all wind instruments. In my study, the excerpt will be labeled as "Excerpt #2", but I would be happy to acknowledge the piece title, arranger, and publisher in my study as well.

Please let me know what I need to do to obtain permission. Thank you so much for your help and time!

Molly Batchelor

aglover@barnhouse.com Fri, Nov 20, 2020, 10:07 AM

to me

Hi Molly,

Thanks for your email.

You are welcome to use the excerpt in your thesis, as you describe below. We would appreciate it if you would please acknowledge the excerpt by title, and cite the composer, arranger, and copyright holder, along with "Used by permission."

Best wishes for your teaching activities as well as continued studies.

AG

Andrew Glover
Executive Vice President
C. L. Barnhouse Co.

Appendix C. Data Collection Materials

Strategy Observation Form.

Etude #1: Lyrical Strategies Used	Etude #2: Technical Strategies Used

Strategy List and Definitions.

Strategy Name	Definition or Cue for Observation
Whole-part-whole	Participant works through larger sections of the music, works smaller sections within it, then works to put the larger section back together.
Check Pitch with Tuner	Participant uses a tuner to check pitch or intonation accuracy during practice.
Inconsistent Metronome Use	Participant uses the metronome sometimes during practice involving rhythm, but not consistently.
Consistent Metronome Use	Participant uses metronome consistently during practice involving rhythm.
Counting Out Loud	Participant isolates rhythmic components of the excerpt by counting out loud.
Small Section Isolation (Chunking)	Participant isolates the improvement of a small section before integrating it back into the music.

Look up Fingering	Participant uses fingering chart to reference fingering.
Full Run	Participant plays the whole excerpt from beginning to end.
Writing in Music	Participant writes in the music.
Note Naming	Participant says note names from the music.
Prioritization	Participant first seeks to improve the most pressing musical challenges by beginning with the section needing the most improvement.
Single-Pitch Rhythm Isolation	Participant practices a challenging rhythm by playing the rhythm on a single pitch.
Articulation Isolation or Addition	Participant practices an articulation or purposefully adds it to a section.
Dynamic Addition	Participant incorporates dynamics into a section.
Repetition	Participant plays the same musical section several times.
Slowing	Participant slows down a difficult section to work out musical challenges.
Interval Check	Participant isolates an interval to ensure it is played correctly or sounds correct.
Stopping to Correct Pitch	Participant stops to correct pitch inaccuracies by either playing it again or checking note

	names. May employ other strategy-use to correct this.
Stopping to Correct Rhythm	Participant stops to correct rhythm inaccuracies by either playing it again, going slower, or employing another strategy to correct this.
Start at Beginning	Participant begins practice by starting at the beginning.
Tone Correction	Participant focuses on tone for a section or goes back to correct a section with poor tone.
Silent Fingerings	Participant fingers through a section without counting or saying note names out loud.
Air Playing	Student will work through a small or large section without producing tone on their instrument by just doing fingerings or slide positions with air through the instrument.
Time Check	Participant checks on how much time they have left during the practice period.
Saying Note Names Out Loud	Participant says notes names out loud for a section, with or without fingerings.

Performance Rubric.

	Exemplary (5) Consistently demonstrates proper:	Excellent (4) Frequently demonstrates proper:	Satisfactory (3) Sometimes demonstrates proper:	Developing (2) Infrequently demonstrates proper:	Ineffective (1) Seldom demonstrates proper:
Note Accuracy					
Rhythm and Tempo Accuracy					
Tone and Intonation					
Interpretation (Dynamics, Style, Expression)					
Articulation					

Appendix D. Human Subjects IRB Approval

Missouri State
UNIVERSITY

To:
Daniel Hellman
Music

RE: Notice of IRB Approval
Submission Type: Initial
Study #: IRB-FY2021-356
Study Title: Effects of Musical Content on Student Practice Judgments, Decisions, and Improvement
Decision: Approved

Approval Date: January 7, 2021

This submission has been approved by the Missouri State University Institutional Review Board (IRB). You are required to obtain IRB approval for any changes to any aspect of this study before they can be implemented. Should any adverse event or unanticipated problem involving risks to subjects or others occur it must be reported immediately to the IRB.

This study was reviewed in accordance with federal regulations governing human subjects research, including those found at 45 CFR 46 (Common Rule), 45 CFR 164 (HIPAA), 21 CFR 50 & 56 (FDA), and 40 CFR 26 (EPA), where applicable.

Researchers Associated with this Project:
PI: Daniel Hellman
Co-PI:
Primary Contact: Molly Batchelor
Other Investigators: Molly Batchelor

Appendix E. Overall Results Comparison Form

Participant ID	Number of Strategies Used: Lyrical	Number of Strategies Used: Technical	Overall Score Increase Lyrical (out of 25)	Overall Score Increase Technical (out of 25)	Post Test Score (out of 50)
1111					
1112					
1113					
1114					

Appendix F. Participant Characteristics and Musical Experience

Gender		Years in Band		Private Lessons	
M	F	Two	Three	Y	N
9	11	8	12	6	14

M=Male; F=Female; Y=Yes, N=No.

Appendix G. Instrument Representation

Instrument	*n*
Flute	5
Clarinet	4
Bass Clarinet	2
Alto Saxophone	2
Tenor Saxophone	1
Bassoon	1
Trumpet	2
Trombone	2
Tuba	1

Appendix H. No. of Participants by Strategy & Excerpt Type

Lyrical	*n*	Technical	*n*
Full Run	17	Stop to Correct Rhythm	17
Stop to Correct Pitch	17	Chunking	16
Start at Beginning	16	Stop to Correct Pitch	16
Repetition	12	Repetition	15
Stop to Correct Rhythm	12	Writing in Music	14
Chunking	10	Full Run	14
Prioritization	9	Start at Beginning	13
Consistent Metronome Use	8	Slowing	12
Pitch Check with Tuner	7	Counting Rhythms out Loud	10
Adding Dynamics to Section	7	Prioritization	10
Inconsistent Metronome Use	6	Articulation Isolation/Addition	10
Counting Rhythms out Loud	6	Inconsistent Metronome Use	9
Writing in Music	6	Consistent Metronome Use	8
Whole-Part-Whole	6	Whole-Part-Whole	8
Interval Check	6	Single Pitch Rhythm Isolation	6
Tone Correction	6	Silent Fingerings	4
Articulation Isolation/Addition	6	Air Playing	4
Silent Fingerings	5	Pitch Check with Tuner	3
Air Playing	4	Adding in Dynamics to Section	3
Slowing	3	Time Check	3
Time Check	3	Interval Check	1
Look up Fingering	2	Tone Correction	1
Single Pitch Rhythm Isolation	1	Look up Fingering	1
Saying Note Names out Loud	1	Saying Note Names out Loud	1

Note: *n* represents the number of participants who used each strategy.