

BEGINNING BAND INSTRUMENT SELECTION PREFERENCES AND
PERFORMANCE SCORES OVER TIME

by

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ABSTRACT

This quantitative study examines the process of guiding students in beginning band instrument selection at Monforton Middle School, in Bozeman, MT. Data from 46 students was collected to identify if correlations exist between students initial instrument tone production and preference ratings and the students' performance throughout the first 15 months of playing the instrument they selected. Data for this study was collected through instrument tryout forms prior to students selecting an instrument and playing assessment rubrics for each of the 12 playing assessments, all of which were requirements of beginning band class. While data did not suggest that stronger initial tone production and preference ratings correlated with higher scores on playing assessments, there is evidence to suggest the overall instrument selection process was beneficial in guiding students to select an instrument that is well suited to them, as students, on average, scored 82% on their playing assessments. Further research to better prove the effectiveness would likely require a control group of students not receiving guidance in the instrument selection process; this would likely not be possible because student education would be inhibited through the lack of guidance.

CHAPTER ONE

INTRODUCTION

Music teachers in middle and elementary schools use many different methods to guide students to select instruments for beginning band. In some schools, students are given free reign over the instrument selection process, where students are allowed to play any instrument they like with little or no guidance from a music teacher. In other schools, students are strictly assigned an instrument with or without validated rationale as to why the student has been assigned the specific instrument. Between these two extremes are a variety methodologies that take into account numerous variables in guiding students to select an instrument for beginning band. Some of these variables include mouthpiece testing, musical aptitude tests, timbre listening tests, comparing the students' and the instruments' physical characteristics, instrument demonstrations, and considering the balance of the ensemble. While many teachers use some element of a trial and error to help students select an instrument, it is important to determine if a specific process is, in fact, effective in providing students with a strong start to band class.

This project will serve to provide the researcher, who is also the band teacher at Monforton Middle School, with insight about the effectiveness of the instrument selection process used at that school. Other teachers working with a beginning band will be able to benefit from the project as well, and possible correlations may show strengths in the process currently used at Monforton Middle School. Additionally, information or results may be drawn as to how to improve upon the process of selecting instruments for

students. The overall value of this project is in the goal of determining how to best guide students to selecting an instrument for beginning band class so that they experience success and, hopefully, continue their involvement in music. Other beginning band teachers can also benefit by examining the way this music teacher guides the students to selecting instruments. In this examination, strengths and weaknesses will likely become more apparent, and can serve as guidelines for others working with beginning band students to select instruments. While the process involved may not be exactly the same, general concepts and ideas will likely apply to other scenarios, and insights should enable teachers to improve their own processes.

Problem Statement

All students in 5th grade at Monforton School are required to participate in beginning band class. As part of the preparation for this class, students tryout the different typical band instruments such as flute, clarinet, alto saxophone, trumpet, and trombone. During the tryout process, students receive an instructor assigned rating on initial tone production and rate each instrument themselves based on their own preferences regarding that instrument. When both sets of data have been collected, the band teacher recommends an instrument based on the highest scores in each category, prior knowledge of the student, recommendations from the elementary music teacher, and current instrumentation needs and availability. This study seeks to examine this process to identify possible strengths or shortcomings as students progress over time.

Purpose of Study

The purpose of this study is to determine if there is a significant correlation between students' top scores in both initial tone production and personal preference on an instrument and their performance on the instrument they play for beginning band over time. Additionally, this study seeks to determine if students playing the instrument corresponding with their highest initial tone production rating and preference rating perform better on playing assessments than students who play an instrument that does not correspond with the top rated instrument in both categories.

If data analysis shows that students playing the instrument on which they received the highest initial tone production and preference ratings perform better on playing assessments than students who are playing an instrument they were not rated highest in both categories, it will be a strong indicator that students will experience more academic success while playing their instruments if they select an instrument with the top tone and preference rating. Because not all students will have the highest tone and preference score on the same instrument, data will also be examined to determine if either of these variables indicates more academic success in band class than another. Additionally, data will be compared to determine how important, if at all, the initial tone production ratings and personal preference ratings are as indicators on later student success.

Research Question

This study seeks to determine if there is a relationship between the results of a student's instrument tryout results and their performance in beginning band class by

answering the following research questions. 1) Is there a correlation between students' initial tone production scores and their performance on playing assessments over time? 2) Is there a correlation between students' initial instrument preference rating and their performance on playing assessments over time? 3) Do students who select the instrument given both the highest initial tone production and preference ratings perform better on their instrument than students who select an instrument that was not rated highest in both categories?

Limitations and Delimitations

A limitation of this study is that the setting is a medium sized K-8 school district that feeds into a AA high school. Results of this study may not be applicable to all other settings. Additionally, the population for this study has been limited due to students unenrolling from the district after initial results were gathered, resulting in fewer data points available for consideration.

Another limitation of this study is the timeframe in which student data was collected. For this study, data was collected between September of 2018 and November of 2019. Additional data over a broader time frame would provide greater validity of conclusions regarding performance over time, as well as information regarding student retention from year to year.

A third limitation of this study is that there is no control group. Because the entire population of this study received treatment, that is, guidance in selecting the instruments, there is no opportunity to compare to students who did not receive this. Due to this, data

can only be compared using the instrument tryout ratings and the twelve playing assessment scores.

A delimitation of this study is that student data collected is solely numerical results of assessments. There are no interviews or discussions that could further expand on other aspects influencing results. There is no control group for this study, rather all students in the population are considered.

CHAPTER TWO

REVIEW OF RELATED LITERATURE

The literature review for this study examined existing research regarding the process in which students select instruments for beginning instrumental classes in school. As existing literature was considered, various themes become apparent as major factors that should be considered when guiding students to select an instrument as a beginner. These issues, while significantly different from one another, all contribute to creating a successful system with the end goal of providing the students with opportunities for positive learning and growth over time. The literature review for this study is organized in three sections: student recruiting for instrumental music, existing systems and methods for instrument selection, and student retention issues related to instrument selection.

Student Recruiting for Instrumental Music

All instrumental music directors have to recruit their members to some point. Even in schools that require student involvement in band class, the director has the responsibility to ensure their students are informed about the program through various methods of recruiting. Often, students have preconceived notions that may or may not be accurate. Some students may not believe that they are even able to participate in school music programs (Katzenmoyer, 2003). Often, students from families with lower socioeconomic status have lower rates of participation in beginning band due to perceived limitations such as instrument expenses and extracurricular time commitments

(Kinney, 2010). Without effective interventions by music teachers, students may not realize the opportunities available to them.

In addition to reducing misconceptions and misinformation, instrumental music teachers are also, in conjunction with elementary music teachers, responsible to teach students about the instruments commonly found in band class. In Barazan's (2005) study, the author declared "students should know more about an instrument than whether it is, for example, 'shiny' or 'golden' in order to make wise selections" (p. 18). When students are familiar with how instruments work, what sounds they produce, and what they look like, they are much better prepared to participate in a variety of instrument trials, and will demonstrate a stronger understanding of terminology used in many of the tests.

Recruiting activities can also be a time band directors can personally explain some of the intricacies related to each instrument. As Fortney, Boyle, and DeCarbo (1993) found, some students may avoid instruments because they perceive them as difficult. Often, students will trust the knowledge and advice of music teachers, and recruiting events provide teachers with the opportunity to create personal connections with their future students. Together with elementary music teachers, instrumental music teachers can positively influence students to participate in instrument music programs (Katzenmoyer, 2003).

Another theme that emerged as a benefit of promoting and recruiting for instrumental programs is increased parental buy-in. Katzenmoyer (2003) reported that in addition to teachers, parents can also be a significant influence on students on the participation in instrumental programs. Recruiting events provide teachers with the

opportunity to actively communicate with parents of students, thus establishing a strong foundation for the coming years. Further, music teachers can explain the method they use to guide students in selecting a band instrument. With this information, parents will be better informed to make decisions about student participation in instrumental music programs (Payne, 2009).

Existing Systems and Methods for Instrument Selection

The next major theme that emerges is the importance and benefit of establishing an effective and meaningful system in which students are able to select or are guided in selecting an instrument that is a good fit for them. There are several methods in which music teachers work with students to select instruments for beginning instrumental music classes. These methods can be broken into three primary categories: selection based on physical attributes of the student and instrument, selection based on personal student preferences, and selection based on a battery of tests including musical aptitude, mouthpiece/instrument playing, and timbre tests. While each of these three categories have valuable traits, this review of literature will examine the reasoning and application of each method in order to better draw conclusions as to what aspects should be included in the instrument selection process.

There are many reasons that instrumental music teachers take time to match students to instruments that best suit them. Students often experience higher retention rates, perform better on their selected instrument, and encounter success in band class frequently if they have been carefully matched with an instrument (Bazan, 2005; Cannava, 1994; Chang, 2007; Delzell & Leppla, 1992; De Vous, 2011; Hardin, 1990;

Kovacs, 1985; Millican, 2012; Payne, 2009). For many music educators, the process of pairing students with instruments on which they may find success is often done through trial and error (Bazan, 2005; Bayley, 2004). Though teachers often experiment with a variety of methods for guiding students to select the instrument on which they may best experience success, on occasion “single tests are being used for predictive purposes” (Hufstader, 1974, p. 52). Unfortunately, Hufstader found “it is impossible for a single test to be effective in predicting success in all facets of music,” thus underscoring the importance of experimenting with a variety of methodologies in this process (p. 52).

Physical Attributes

Many instrumental directors assist students in selecting an instrument by examining physical characteristics of both the student and instrument (Bazan, 2005; Cannava, 1994; Hardin, 1990; Kovacs, 1985; Millican, 2012). Guiding students on the basis of physical characteristics can prove to be very beneficial in helping students select an instrument well suited for them. “Coaches guide players to the athletic positions which suit them best. This can lead to optimal performance by the athlete. Beginning band students can also be professionally guided to play the instrument which will suit them best” (Cannavan, 1994, p.17). Just like coaches assess students based on physical traits such as agility, reaction speed, and size, music teachers can assess students based on qualities such as lip shape, dental considerations, arm length, height, as well as possible applicable medical conditions. While these traits are not something students can control, they are considered to ensure students are able to make informed decisions regarding instrument selection.

In addition to simply observing a student, many directors have students actually try out the instruments. According to a study by Bazan (2005), “directors most preferred analyzing the physical characteristics of students and using playing tests for matching students and instruments” (p. 18). “The ‘hands-on’ exploratory procedures assist students in choosing the instrument which suits them best” (Cannava, 1994, p. 18) and can provide the music teacher with valuable insights as to physical considerations that may affect the students’ performance. “Playing tests allow a director to visually diagnose any problems that may hinder student progress due to a mismatch of physical characteristics and the instrument itself” (Barazan, 2005, p. 18-19). This is done, not to dissuade students from playing instruments they like, but to draw attention to aspects that could become major detriments as the student continues to learn to play the instrument at hand.

In addition to the student physically being able to produce a sound, there are numerous aspects that should be considered that directly relate to how the instrument is built and played. “Specific instruments may be more or less suitable for certain physical characteristics such as body size and embouchure type” (Bazan, 2005, p. 10). For example, the trombone requires young students to be able to reach out into the sixth slide position, which could be difficult for students with short arms. The bassoon requires students to spread their fingers out much further than other woodwind instruments, thus students with small hands may experience significant difficulties. Percussion instruments require fluid wrist movements, therefore posing increasing challenges to some students with musculoskeletal health concerns. Some instruments, such as the flute and tuba require the use of increased levels of air flow, which can present challenges to students

with cardiovascular deficiencies. Though the numerous physical conditions discussed are predetermined variables that students and directors cannot change, with insights available, accommodations can be made in some situations. Regardless, it has been shown that “matching students to band instruments that are appropriate for them appears to be an important step; one that may be essential to the students’ lasting involvement with music as well as impacting the success of entire programs” (Bazan, 2005, p. 9).

Student Preference

There are many variables that influence student preference including, but not limited to perceptions of peers, timbre preferences, gender stereotypes, and student motivation. While each of these aspects are not equally weighted for all students, many factors are at play when considering a student’s preference toward an instrument.

One of the most prevalent of these variables in current literature is the effect of gender stereotyping on student instrument preferences. Many studies have concluded that gender stereotyping plays at least some role, if not a major role, in the instrument selection process for students (Bazan, 2005; Cannavan, 1994; Coffman & Sehmman, 1989; Delzell & Leppla, 1992; Fortney, Boyle, DeCarbo, 1993; Payne, 2009). The general themes of the instrument gender stereotypes result in trends in which “females tend to play and indicate preference for flute and clarinet, whereas males tend to play and indicate preference for trumpet, percussion, and low brass instruments” (Fortney, Boyle, & DeCarbo, 1993, p. 38). While this does not mean that gender stereotypes dictate instrument selection choices, the gender associations have been shown to notably influence students’ instrument choices (Fortney, Boyle, & DeCarbo, 1993). In some

cases, gender stereotyping may prevent a student from selecting an instrument they might otherwise enjoy and excel at playing (Coffman & Sehnann, 1989). “Despite the attempts of teachers and directors to weaken gender related influence, it remains a significant variable in the instrument selection process” (Bazan, 2005, p. 10).

Perhaps the reason gender stereotypes continue to influence the instrument selection decisions is in part due to timbre, or sound quality of an instrument, preferences. Current literature indicates that timbre preferences is a significant influential factor in a student’s instrument selection (Chang, 2007; De Vours, 2011; Fortney, Boyle, DeCarbo, 1993; Payne, 2009; Williams, 1996). According to a study done by Fortney, Boyle, & DeCarbo (1993), “data suggest that instrument timbre is an important consideration in the instrument selection for many students” (p. 38). Other studies have examined the relationship between timbre preference and gender stereotypes. Cannava (1994) suggests “a relationship may exist between instrument preference and musical instrument stereotyping,” possibly due to timbre preferences that align with the student’s own voice (pp. 22-23). In another study, it was found that “gender stereotyping was observable regarding both music instrument selection and timbre preference” (Payne, 2009, p. xxii). With this information, it can be inferred that gender stereotyping does not only apply to the instrument preferences Fortney, Boyle, and DeCarbo suggested, but that the gender stereotype is found in other aspects of music as well.

Furthermore, “significant relationships were found between personality traits, timbre preferences, gender, and music instrument selection in public school band students (Payne, 2009, p. xxii). With this information, music teachers can better understand why

students may prefer and play the instruments they do during the beginning band instrument selection process. For example, Payne's (2009) study showed that "results indicate that a student who is extraverted will be more likely to prefer a brass instrument than a woodwind instrument on the basis of timbre preference" (p. 148).

Another aspect that often influences a student's preference is the perception of a certain instrument by others they trust. Bayley (2004) found that the influence of a student's friends was reported as a strong influence on band instrument selection. Additionally, student's preferences and decisions are often influenced by their parents as well (Cook, 2013; Sichivitsa, 2004; Katzenmoyer, 2003). Because students are beginning something new, they tend to rely on others in order to gauge their perceptions, which in turn shape the students own perceptions and preferences.

Finally, an element that influences student's personal preferences is their own motivation. As McPherson & McCormick (1999) wrote, "ultimately, the student's desire and motivation to play an instrument may be the most important factor in making a successful selection" (p. 101). Often, it can be hard to quantify student motivation, however it is important to consider students' interest, attitude, and motivation when guiding students toward instrument selection (Johnson & Stewart, 2004; Solomon, 1983). Students' individual motivations to play a certain instrument can stem from watching YouTube videos, observing family members, or even talking with friends. If students are intrinsically motivated to play a particular instrument, they are likely to work harder and are "more likely to succeed" with their instrument (McPherson & McCormick, 1999, p. 101). In Cannava's (1994) study, the author found "students who play their first choice of

instrument after experiencing the instrument selection test, are more likely to continue playing in band” (pp. 71-71). Regardless of the reason a student is motivated to play an instrument, it is important for instrumental music teachers to value student preferences to continue the success of the instrumental program.

Musical Tests

A review of current literature revealed that there are a wide variety of tests music teachers can administer to students to aid or guide the instrument selection process. These tests include timbre listening tests, mouthpiece or instrument tryouts, music competency or aptitude tests, among others. While the effectiveness of each of these tests largely depends on the administration and interpretation of the results, many studies revealed at least some level of benefit in the instrument selection process (Bazan, 2005; Cannava, 1994; Chang, 2007; Delzell & Leppla, 1992; De Vous, 2011; Hardin, 1990; Hufstader, 1974; Katzenmoyer, 2003; Klinedinst, 1991; Kovacs, 1985; Martignetti, 1965; Millican, 2012; Payne, 2009; Rideout, 1988; Williams, 1996). Regardless of which tests are used, Cannava (1994) stated “it has been recommended that beginning students start on an instrument which is best suited for them in order to achieve optimal success” (p. 1). This should be the goal of all instrumental music teachers, and this matching can be obtained, in part, by using one or more of the tests discussed below.

Timbre tests have been found to be one of the most influential factors in helping students to select an instrument (Chang, 2007; De Vous, 2011; Fortney, Boyle, DeCarbo, 1993; Payne, 2009; Williams, 1996). While the influence was discussed previously in this review, it is important to examine the process in which students identify timbres they

prefer. Williams (1996) wrote, “the philosophy behind the test is that if a student likes the sound of a particular musical instrument, he or she will probably reach a higher level of achievement on that instrument” compared to an instrument they do not prefer (p. 270). To help students with this process, “Edwin Gordon created a test of timbre preference designed to provide information as to which instrument sound would be most favored by the student” (Williams, 1996, p. 269). While this may seem to be an effective means of helping students to identify their preference in instrument, Williams (1996) declared “portions of the design and content deserve questioning” (p. 270). A major concern is that all of the sounds used in this test are synthesized, that is produced digitally, rather than representing the actually timbres. Because of this, students may perceive the sounds in the test differently than in actual instruments (Williams, 1996).

Though the design of a timbre test may be called into question, Fortney, Boyle, & DeCarbo (1993) found that “students indicated that their instrument choices were most influenced by the instrument sound” (p. 28). By allowing students to actually try to play each instrument or mouthpiece, music teachers can enable students to identify timbres they prefer in a different way. By teaching students how to hold an instrument and guiding them through the basics of producing sound, teachers can identify students who “may be able to more immediately and effortlessly produce a tone on a particular instrument” (Bazan, 2005, p. 19). Bazan found this sort of test can “allow a director to determine whether a match between an instrument and student may result in some immediate success and progress” (p. 19). Similarly, Cannava (1994) found that “an exploration procedure for the woodwind, brass and percussion instruments is essential for

proper instrument placement” (p. 26). When students are able to try out instruments, they are able to identify if they prefer an instrument based on its sound, tone production method, and even physical sensation the student experiences. Each of these elements may help the student to determine if the instrument at hand will be one they want to learn to play. In addition to guiding the instrument process, students experiencing some level of immediate success are likely to be more motivated to learn to play the instrument they select. Further, “students who are more intrinsically motivated tend to be more cognitively engaged during their learning and therefore more likely to succeed” (McPherson & McCormick, 1999, p. 101). This is likely due to the concept that “students are interested in playing an instrument if they can sound good quickly” (Cannava, 1994, p. 26). Additionally, Bazan (2005) found correlations “among motivation and enjoyment of one’s instrument” which further proves the importance of matching students to instruments they can experience success on (p. 11).

Some studies found other tests to be beneficial to the student instrument selection process. As Martignetti (1965) wrote, it is “suggested that testing the children before they begin instrumental study will help determine ability” (p. 180). Hufstader (1974) wrote “high standings in intelligence, pitch discrimination, rhythmic discrimination, tonal memory, and personal adjustment usually accompany successful performance in instrumental music” and these variables are often determined through various musical aptitude tests (p. 53). Williams found “composite scores on Gordon’s Musical Aptitude Profile (MAP) predicted achievement in instrumental music” as well (p. 268). Other considerations may be based on aspects such as IQ tests or on recorder progress prior to

beginning band, but Bazan (2005) wrote “directors in programs with the lowest retention rates were more likely to consult IQ tests and elementary teachers as part of their instrument selection process” (p. 18). While these elements should not be discounted, “an instrument matching procedure is a better predictor than the *Musical Aptitude Profile* for student success and retention” (Bazan, 2005, p. 10). Further, predicting student success in instrumental music based on other intelligence or academic tests can prove problematic because “higher academically achieving students are more attracted to instrumental programs from the start” (Kinney, 2010, p. 335).

Regardless of the method of testing utilized in the instrument selection process, Bazan (2005) found:

Students who went through the treatment (i.e., selection test) were more likely: (a) to be suited to their instruments, (b) not to switch to a different instrument, (c) to have parental support, (d) to play their first choice of instrument, and (e) to have a higher *Iowa Tests of Basic Skills* composite score than dropout students.” (p. 11)

In examining Bazan’s (2005) study, it became clear that using tests to provide information and insight regarding the student instrument selection process can be beneficial to students if properly administered and implemented. Music teachers must take care to weigh the information they gain with student preference and the physical characteristics of the student to guide the student in this process of selecting an instrument that is best suited for them.

Student Retention Issues

The third major aspect that became clear in a review of related literature is an exploration into the reasons that students give for dropping instrumental music classes.

Retention has become a strong indicator of the success of an instrumental music program, and understanding why students may choose to leave the program can be critical in developing the system of instrument selection.

There are many variables that lead to student dropout including the influence of others, lack of motivation, socioeconomic status, and poor instrument selection. While none of these variables occur independently from one another, it is important to gain an understanding of each of them, so directors can be better informed about what can cause students to leave instrumental music programs. It has been concluded that directors who spend time working to suit students to instruments have higher retention rates (Cannava, 1994). As such, an understanding of what causes students to drop out of a program can also help directors to better guide students to select the best suited instrument.

There are several groups of people who may significantly influence a student to either continue to participate or to drop out of an instrumental music program. Sichivista (2004) found that parental support in their student's musical participation was a significant factor in the decision for the student to persist in musical ensembles. When parents attend performances, encourage practice, and provide the necessary equipment for students to succeed in a music program, students are more likely to continue to participate over time. Meanwhile, a lack of parental support can influence students to drop out of musical ensembles (Cook, 2013). Students also indicated that their peers were a strong influential factor in deciding whether to continue playing or to drop out of instrumental programs (Cook, 2013; Hoffman, 2012). Though the influence of parents

and peers is not the determining factor in dropping out of an instrumental music program, they have been shown to demonstrate significant weight in the decision-making process.

In addition to the influence of others, studies have found that student motivation is a critical element in the decision to either continue participating or to drop out of an instrumental music program (Asmus, 1994; Colwell & Hewitt, 2011; Millican, 2012). Martignetti (1965) found that “lack of perseverance was the greatest reason for dropout” (p. 178). If students are not motivated to persist on their instrument, they are much more likely to drop out of a musical program. Often this motivation is manifest through the perceived difficulty of an instrument. For example, in one study, “children dropped out of the program because they found the instrument too difficult to play” (Martignetti, 1965, p. 181). This lack of motivation to master an instrument becomes apparent in the reasoning students give for dropping out. Martignetti (1965) went on to state “the fact that students give difficulty of the instrument as the chief reason for dropouts might be taken as indication of the need for more individual attention and possibly better matching of student and instrument at the outset” (p. 183). It is important for students to be motivated about their instrument so they can overcome physical, musical, or environmental obstacles that might occur in an instrumental music program (Asmus, 1994; Colwell & Hewitt, 2011; Millican, 2012).

Another variable that has been found to influence student retention in instrumental music programs is the students’ socioeconomic status (SES). From a student’s initial participation in an instrumental music program, they develop an emerging sense of awareness of their own SES as students begin to identify whether or

not they can afford to improve playing through private lessons, higher quality instruments, and even through access to consumables such as reeds or oil (Hoffman, 2012). “Although SES may be a factor that affects retention of students, it does not necessarily influence students’ initial enrollment in instrumental programs” (Kinney, 2010, p. 344-345). This is very important to consider, because when students begin to learn an instrument, their SES is not typically the reason they join. If directors can find ways to maintain equity in programs, perhaps retention based on SES would not be such a significant issue. As Kinney (2010) found, “SES was a significant predictor of retention for fifth- and sixth-grade urban band students; higher-SES instrumentalists remained enrolled in band longer than those with lower SES” (p. 335). Cannava (1994) also concluded that “students who have parents earning high incomes may have a better chance of participating and continuing in instrumental music” due to their access to materials, time, and parents who are more “supportive of their participation in band” than students whose parents earn lower incomes (p. 22). Although SES is not necessarily the strongest factor influencing student retention in instrumental music programs, Kinney “found SES to be a stronger predictor of retention than academic competency or musical aptitude” further underscoring its importance in retention (p. 335).

The final theme that emerged in examining literature regarding student retention in instrumental music programs is the importance of guiding students to select an instrument that is well suited to them (Cannava, 1994). In Cannava’s 1994 study, it was concluded that “a professionally guided instrument selection process, which is included in the recruitment program, may significantly increase the retention of band students” (p.

10). By professionally guiding students to select an instrument that fits their physical characteristics, the student can produce sound on, and the student is motivated to learn, directors help their students find quicker success, and in turn, lead to higher retention rates. “Students who have early success on their instruments, and an overall satisfying experience in beginning band are more likely to continue playing their instruments” (Cannava, 1994, p. 12). This is important because “almost all instrumental music instructors have had students drop out of a program because the students ostensibly disliked the instrument they were playing” (Fortney, Boyle, & DeCarbo, 1993). To reduce this issue, directors need to be flexible in the process of guiding students to select an instrument, and work with the student to make a decision based on various factors that have been found to lead to success. Often, “students drop out because of inefficient instrument selection methods” (Cannava, 1994, p. 26). Teachers can refine instrument selection methods through trial and error, with the goal of developing a program that encourages student involvement in the process and leads to instrument selections that are well suited to the student (Bayley, 2004; Bazan, 2005). Once these methods are in place, students “will be more likely to continue playing their instruments in middle school band” and beyond (Cannava, 1994, p. 71).

CHAPTER THREE

METHOD

Research Questions

This study seeks to determine if there is a relationship between the results of a student's instrument tryout results and their performance in beginning band class by answering the following research questions. 1) Is there a correlation between students' initial tone production ratings and their performance on playing assessments over time? 2) Is there a correlation between students' initial instrument preference rating and their performance on playing assessments over time? 3) Do students who select the instrument given both the highest initial tone production and preference ratings perform better on their instrument than students who select an instrument that was not rated highest in both categories?

Context of the Study

Monforton School District is located in Four Corners between Bozeman and Belgrade. The district is considered a rural district and serves students in grades kindergarten through eighth grade. Upon completing eighth grade, Monforton students enter the Bozeman School District for their high school education.

Monforton School District has had its largest beginning of the year enrollment numbers for each of the past several years. In 2019, there were 621 students in grades kindergarten through eighth grade enrolled at the start of the year; in 2018 there were 575

students, and in 2017 there were 528 students. With this rapid increase in enrollment came an increase in space and staffing. In the fall of 2017, the brand new Monforton Middle School opened to students. In addition to a brand new building with nine new classrooms, a gymnasium, library, commons area, and support spaces came increased staff. As part of the growing staff, the music teaching position that had previously been a single K-8 position was split into two separate positions, requiring two certified music educators. The music teacher who held the position prior to the split chose to remain in the elementary school and was responsible for teaching general music for grades K-4. The new position that became available was responsible for teaching band in grades 5-8. This position also grew to include a choir option for students in grades 6-8 in addition to the band classes.

The band program in the Monforton School District has, currently, and in the recent past, required all students in fifth grade to be in beginning band class, which meets twice a week, as part of the students specials rotation. Additionally, all sixth grade students are also required to be in band class, which meets 2.5 times a week. When students enter seventh and eighth grade, participation in band class is optional, and alternative courses are available if students opt out of band.

Although there are numerous instruments that can be played in a band class, the instruments that are most often recommended in the Monforton School beginning band class are flute, clarinet, alto saxophone, trumpet, trombone, and percussion (consisting of primarily snare drum, bass drum, and bells or marimba). Though these are the typical recommendations, some special circumstances may allow students to play less common

instruments in beginning band such as the oboe, French horn, bassoon, or tuba. It is recommended by the 5-8 music teacher that students continue to play the same instrument for both fifth and sixth grade. Sometimes, in rare cases, when students enter sixth grade, there are some instances when switching instruments is deemed to be beneficial for either the student or the balance of the ensemble, or both, and as a result, the student will receive instruction necessary to successfully change instruments. For this study, five students switched instruments between fifth and sixth grades. Three of these students were high achieving players who switched to instruments that helped the band achieve a better balance. The other two students switched to a new instrument due to exceptional physical challenges that limited their playing on their initial instrument.

During the last month of school for fourth grade students, both the middle school and the elementary school music teachers work together to plan time with each fourth grade class for students to see each instrument, learn a little bit about them, listen to the instruments, and tryout the mouthpieces for each instrument. In addition to trying to get a sound on each instrument, students are asked to rate each instrument based on how well they like the instrument. Students base their answers on a variety of variables including the sound the instrument makes, the way it feels to play the instrument, the success or lack thereof in producing a sound, the size of the instrument and case, and their overall perception of the instrument. Furthermore, students are given a rating corresponding to how well they could produce sound on the instrument. Together with these two variables, the middle school music teacher makes a recommendation for what instrument the student might be most successful at for the upcoming fifth grade school year. Once the

recommendation is made, the music teacher contacts the parents or guardians of the students so they can begin planning for the upcoming school year. In most cases, the student's choice of instrument aligns with this teacher recommendation; occasionally, students will select an instrument that was not recommended. Though the music teacher may try to provide the student and their parents with additional data and reasoning regarding the initial recommendation, the decision on what instrument a student will play ultimately lies with the parents and the student.

Participants

The sample for this study was the total population of the 51 fifth-grade students enrolled in beginning band at Monforton Middle School in Bozeman, Montana at the start of the 2018-2019 school year. The population was made up of 29 males and 22 females. Although the population started at 51, some students unenrolled from the Monforton School District.

When students arrived back at school for the start of the 2018-19 school year, it was discovered that several students had either moved or unenrolled from the Monforton School District. The data from these students was removed from the data spreadsheets. In addition, some students had been added to the class roster, and these students were able to participate in the same instrument selection process on an individual level. Their data was added to the spreadsheet for later consideration, as they would receive the same beginning band experience as the students who tested instruments in the spring.

Additionally, some students joined partway through the year, and because they did not receive the same instruction due to their late arrival, they will not be considered in this study.

When this report was compiled, data from 46 students were considered for this study. The population consisted of 18 females and 28 males, all of which were in sixth grade at Monforton Middle School during the 2019-2020 school year.

None of the students had formal instruction on a band instrument prior to beginning class, and all students selecting an instrument went through the process of trying out as many instruments as possible in which they were interested prior to making their decision. None of the students in the population are required to complete any tasks beyond the required course content for this study, and the outcomes of this study will not affect student grades in any way.

Instruments of Data Collection

This study used two tools for collecting data. The first tool, the Instrument Tryout Form (see Figure 1) was used to collect data about students' initial tone production as well as their perception of each instrument. In addition to the data collected for this study, this form also collected information used in the logistics of getting students school-owned instruments if other options are not possible, though this information was not considered in this study. The Instrument Tryout Form utilized a Likert scale with the numbers one through five, with one being the best and five being the worst. Each student, as part of the preparation for beginning band in fifth grade, was asked to try flute, clarinet, alto sax, trumpet, and trombone with the guidance of the music teacher, though not all students did

this due to lack of interest and limited time available. Only 24 of the 46 students tried all five instruments. Of the total population, all but five tried three or more instruments. As students tried each instrument mouthpiece, they were given a rating by the music teacher. In order to maintain the validity of the data, the class tired out one instrument at a time before moving on to the next instrument. This helped ensure that student tone production was compared to other students in the same class trying the same instrument, as opposed to comparing to another instrument the student tried. This was important because each instrument is played differently, and a “one” score on tone production on one instrument will sound different on another instrument. In addition, the teacher/researcher spent time explaining the Likert scale to the students to ensure they understood that one is the highest and five is the lowest rating for this set of data.

Figure 1. Instrument Tryout Form

Student Name: _____		Class: _____		Grade: _____	
(1 is high, 5 is low)					
Instrument		Tone Production		Preference	
				Do you have one	
Flute					
Clarinet					
Alto Sax					
Trumpet					
Trombone					
Percussion					

Preference given to students with their own instruments.

First Selection: _____ Backup: _____

Do you have your own instrument to use? yes/no

Are you planning to rent an instrument from Eckroth Music? yes/no

Are you planning to purchase an instrument from a reputable dealer? yes/no

Would you be interested in renting an instrument from Monforton School? yes/no

****you are not guaranteed a school instrument, we have a limited number available****

The second tool for collecting data was the Playing Assessment Rubric (see Figure 2). This rubric was used to assign a numerical value to student achievement, which was used for both this study, as well as the students’ grades in band. This rubric was used for all playing assessments throughout both fifth and sixth grades, and used a scale of one to four points for both note accuracy and rhythm accuracy. For this study, students recorded their playing assessment using an iPad, and then all recordings were listened to and scored by the teacher/researcher to ensure consistency from one recording to the next. As part of the fifth grade band curriculum, students are expected to complete one playing assessment recording approximately three times per trimester, or about one playing assessment every three to four weeks.

Figure 2. Playing Assessment Rubric

Name: _____				
Playing Assessment				
	Exceeds Expectations (4 pts)	Meets Expectations (3 pts)	Approaches Expectations (2 pts)	Does Not Meet Expectations (1 pt)
Note Accuracy	Nearly all notes played correctly	Most notes played correctly, errors quickly corrected	Many notes played incorrectly and were not quickly corrected	Most notes were incorrect.
Rhythm Accuracy	Nearly all rhythms played correctly and in tempo.	Most rhythms played correctly. Errors quickly corrected	Many rhythms played incorrectly. Tempo varied greatly	Most rhythms were incorrect. Song lacked steady tempo.
Total Points ____/8 points possible				

Design

The design used in this study was correlational research. The participants of this study were guided in trying out each instrument and then filling out a form as part of their coursework in the instrument selection process. Throughout the span of this study, students also completed all playing assessments as part of their coursework in the beginning band class. Data collected from both the instrument tryouts as well as the playing assessments was compiled and analyzed for correlations.

The design of this study was selected to avoid interfering with student learning during beginning band class, by analyzing data from results already available as part of the fifth and sixth grade curriculum. Additionally, all assessments were scored by the same teacher using a consistent method and rubric, thus helping to maintain the validity of the data.

Procedure

Prior to the start of the 2018-19 school year, fourth grade students at Monforton Elementary School participated in an instrument selection activity in which the Middle School Music Teacher visited their classroom to demonstrate each instrument. During this time, students learned about each instrument, got to listen to brief demonstrations, received instruction regarding the Likert scale they used, tried out instruments they were interested in, and then filled out the Instrument Selection Form (Figure 1). During this activity, students rated instruments by their preference for each instrument (on a scale of one to five) and then got to try out any instruments they were interested in playing for band class. For the preference portion of the tryouts, students could rate each instrument any number on the scale. Because of this, student could rate multiple instruments with any given preference rating. The students, under the direction of the Middle School Music Teacher, played the instruments, and received a tone rating (on a scale of one to five). Upon completion of this activity, the Instrument Tryout Forms were collected and data was input into a Google Sheets spreadsheet for later review. The music teacher used this data to help students identify the instrument that would be the best fit for fifth grade band the following fall based on both student preference and initial tone ratings.

This study was designed to last four trimesters, each of which was 12 weeks of student instruction. The total time for this study was 15 months, with summer break occurring between the third trimester of the 2018-2019 school year and the first trimester of the 2019-2020 school year. During this time, students received instruction on the instrument they had selected as a full mixed ensemble. The total number of students who

were included in this study was 46, and these students were split into two homerooms for the entire fifth grade school year, and attended band in two separate groups. Both groups received similar instruction, moving at approximately the same pace through the *Essential Elements Interactive* band methods book. When students entered sixth grade, they were again split into two classes, though these classes were not the same as the fifth grade groupings. Again, both classes of sixth grade students progressed through the *Essential Elements Interactive* band method book at approximately the same pace, and received comparable instruction throughout the span of this study.

During the fifteen months, there were twelve required playing assessments. These playing assessments were over material directly from the *Essential Elements Interactive* band methods book, and were assigned as follows:

- Playing Assessment #1: Song #4, *Two's A Team* (due 10/11/18)
- Playing Assessment #2: Song #14, *Hot Cross Buns* (due 10/29/18)
- Playing Assessment #3: Song #17, *Rolling Along* (due 11/14/18)
- Playing Assessment #4: Song #31, *Mozart Melody* (due 12/14/18)
- Playing Assessment #5: Song #41, *Eighth Note Jam* (due 1/25/19)
- Playing Assessment #6: Song #51, *Play the Dynamics* (due 2/11/19)
- Playing Assessment #7: Song #57, *Ode to Joy* (due 3/11/19)
- Playing Assessment #8: Song #62, *Camptown Races* (due 4/10/19)
- Playing Assessment #9: Song #90, *Variations on a Familiar Theme* (due 5/22/19)

-- End of 2018-2019 School Year, Start of 2019-2020 School Year --

- Playing Assessment #10: Song #90, *Variations on a Familiar Theme* (due 9/25/19)
- Playing Assessment #11: Song #100, *The Cold Wind* (due 10/11/19)
- Playing Assessment #12: Song #107, *The Flat Zone* (due 10/30/19)

In order to reduce classroom interruptions for individual playing assessments, each student was dismissed from class rehearsal to record their playing assessment on an iPad. Students could also come into the band room before or after school or during lunch hour to record if that was more convenient for them. In order to identify each recording, the student stated their name and which playing assessment they were recording prior to playing the song. Each recording was then saved and assessed at a later time by the music teacher. A rubric was filled out (see Figure 2) and a score was given to each student. In addition, comments regarding student strengths or possible ways to improve were included at the bottom of the rubric sheet, though this information is not considered for this study. Data from these rubrics was entered in the Google Sheets spreadsheet for later analysis, as well as in the online Infinite Campus gradebook. The students were then given the completed rubric, and had the opportunity to improve their scores by redoing the assessment at any time before the due date.

Validity and Reliability

Throughout this study, consistency in student playing assessment scoring is very important. The researcher and teacher who scores the student work has a Bachelor of Arts in Music Education and is a licensed K-12 Music Educator. In addition to this expertise, the researcher/teacher has taught beginning band for four full years and has worked to

establish consistency in the student grading process. Because the scores could be relatively subjective, the researcher/teacher has listened to some scores on multiple occasions in order to compare scores. In nearly every example of this, identical scores were determined, thus helping to ensure the validity of the data collected. In addition, on several occasions throughout the timeframe of this study, the criteria on the rubric were explained and demonstrated for students to ensure they understood how their score would be determined.

Ethical Concerns

A primary ethical concern for this study is to ensure that any student information remains confidential. In order to achieve this, all student data had been kept confidential throughout the entire process. Information such as student name, age, instrument selection, and gender had been removed. Students were coded and assigned a numerical code that all of their data is attached to. Students in this study are referred to as “Student (#)” and neutral pronouns are used throughout to help ensure confidentiality. Furthermore, no information about student course final grades are used in any way in this study, the only student grade information used is information regarding playing assessment scores.

Another ethical concern for this study is student performance in relation to the final results of this study. The major issue in this regard is that student grades should not be affected in any way by this study. Because all data collected for this study come directly from course content, students will not be required to do any additional tasks, nor will their course grade be affected by any elements of this study.

Finally, this study was deemed to operate at no more than minimal risk to all participants, and involves no procedures in which students wouldn't normally participate in. The study has prior approval from the Internal Review Board at Montana State University.

CHAPTER FOUR

RESULTS

Throughout the entire study, data was compiled into a spreadsheet using Google Sheets. Raw data were entered beside each student's name. Once all the data was entered, students were given random numerical codes in order to maintain confidentiality. To do this, the labels "Student 1" through "Student 46" were entered on the Google Sheets spreadsheet, and then the labels were randomized using the Google Sheets randomize range tool to remove any alphabetical order. Once coded, individual information such as gender or initials was removed, leaving only the following information: student code, score of initial tone production for each instrument, score of initial instrument preference rating for each instrument, teacher recommended instrument selection, student instrument selection, playing assessments note accuracy, and playing assessments rhythm accuracy.

An important consideration for the data collected is that two scale systems were used for the two different instruments of data collection. In the Instrument Tryout Form, a Likert scale ranging from one to five was used. In this case, a rating of one is the best, whereas five is the worst. On the Playing Assessment Rubric, the scale used ranged from one to four, where four was the best, and one was the worst. To account for this, the researcher has inverted correlation coefficients to reflect an accurate representation of the data.

This data was used to answer the following research questions. 1) Is there a correlation between students' initial tone production ratings and their performance on playing assessments over time? 2) Is there a correlation between students' initial

instrument preference rating and their performance on playing assessments over time? 3) Do students who select the instrument given both the highest initial tone production and preference ratings perform better on their instrument than students who select an instrument that was not rated highest in both categories?

Question One

Data was used to answer the first research question: Is there a correlation between students' initial tone production scores and their performance over time? To determine the answer to this question, data was considered in several ways. First, data from the 46 students' initial tone production score for the instrument they chose to play for beginning band class was isolated. This data was entered, alongside with students average playing assessment combined note and rhythm accuracy score for all 12 playing assessments and the average score on note accuracy for the playing assessments (see Table 1). It should be noted that the Selected Instrument Tone Score is on a scale from one (best) to five (worst), the Average Playing Assessment Score is on a scale from eight (best) to two (worst), and the Average Note Accuracy score is on a scale from four (best) to one (worst).

Table 1. Instrument Tone Rating, Average Playing Assessment, and Average Note Accuracy

Student Code	Selected Instrument Tone Score (1-5)	Average Playing Assessment Score (8-1)	Average Note Accuracy (4-1)	Student Code	Selected Instrument Tone Score (1-5)	Average Playing Assessment Score (8-1)	Average Note Accuracy (4-1)
Student 01	1.5	7.958	4.000	Student 24	1	7.125	3.500
Student 02	1	7.792	4.000	Student 25	1	6.250	2.958
Student 03	2	5.500	2.455	Student 26	1.5	6.125	2.625
Student 04	1	7.182	3.682	Student 27	1.5	6.417	2.875
Student 05	1	7.208	3.625	Student 28	2.5	6.708	3.125
Student 06	2	7.000	3.208	Student 29	1	7.750	3.875
Student 07	2	6.167	2.750	Student 30	1	7.625	3.875
Student 08	3	7.375	3.583	Student 31	1	6.375	2.875
Student 09	1	6.455	2.909	Student 32	1.5	5.583	2.750
Student 10	1.5	7.750	3.875	Student 33	2	7.000	3.417
Student 11	1.5	4.200	1.950	Student 34	2.5	6.083	2.667
Student 12	1.5	6.625	3.208	Student 35	1.5	7.792	3.958
Student 13	1	5.125	2.417	Student 36	3	7.083	3.333
Student 14	1.5	6.792	3.542	Student 37	1	5.958	2.625
Student 15	1	7.958	4.000	Student 38	1	6.792	3.000
Student 16	2	7.500	3.667	Student 39	1.5	5.708	2.583
Student 17	1.5	7.045	3.455	Student 40	2	6.667	2.875
Student 18	2.5	6.875	3.208	Student 41	1	8.000	4.000
Student 19	2.5	5.292	2.500	Student 42	1	5.700	2.600
Student 20	1	5.333	2.333	Student 43	1.5	7.750	3.833
Student 21	2	7.625	3.958	Student 44	2	6.136	2.818
Student 22	1	5.227	2.318	Student 45	1.5	4.583	1.875
Student 23	1	6.417	2.708	Student 46	1	5.542	2.375

By examining this data, students can performance can further be analyzed by sorting students based on their initial tone production rating on their selected instrument.

There were 19 students who scored one, the best possible score, for initial tone production on the instrument they chose to play for band class. The remaining 27 students scored between one and a half and three on the instrument they chose for band class. The averages of these three groups of students is shown along with the full population averages in Table 2. This data is also represented in Figure 3. As Table 2 shows, the average playing assessment score for the total population is 6.59 out of a possible 8 points, which is an 82% on a 100-point scale.

Table 2. Student Averages Based on Initial Tone Production Rating

	Selected Instrument Tone Rating (1-5)	Average Playing Assessment Score (8-1)	Average Note Accuracy Score (4-1)
Population Average	1.533	6.590	3.125
Top Score (1) on Initial Tone Averages	1	6.622	3.141
Scores Higher than 1 on Initial Tone Averages	1.907	6.568	3.115

Figure 3. Student Averages Based on Initial Tone Production Ratings

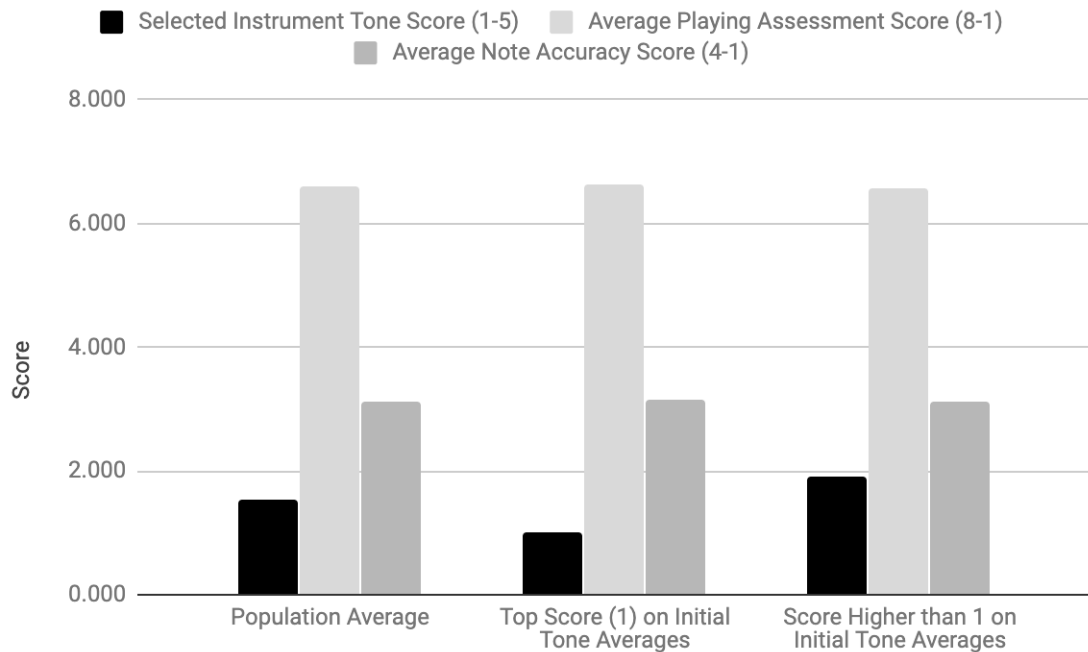


Table 2 and Figure 3 show that though the students' initial tone production ratings change, the class average is nearly identical in all three categories. It was found, using the Pearson product-moment correlation coefficient, that the correlation coefficient for initial tone production and playing assessment average score is $-.026$ and the correlation coefficient for initial tone production and note accuracy score is $.005$, thus neither is statistically significant.

Question Two

Data was further examined to identify if there was a correlation between students' initial instrument preference rating for the instrument they selected for beginning band class and their performance on playing assessments over time. For this portion, data regarding the preference rating, which was determined by each student during the in-class

tryout time, was compiled along with student average scores on their playing assessments. Additionally, an average was found of each students instrument preferences during the tryout process. Again, it should be noted that the Selected Instrument Preference Rating is on a scale from one (best) to five (worst), as is the overall Instrument Preference Rating, and the Average Playing Assessment Score is on a scale from eight (best) to two (worst). Table 3 shows this data for all 46 students in the population.

Table 3. Selected Instrument Preference, Average Preference, and Average Assessment

Student Code	Selected Instrument Preference Rating (1-5)	All Instrument Average Preference Rating (1-5)	Average Playing Assessment Score (8-1)	Student Code	Selected Instrument Preference Rating (1-5)	All Instrument Average Preference Rating (1-5)	Average Playing Assessment Score (8-1)
Student 01	3	2.667	7.958	Student 24	1	2.000	7.125
Student 02	1	2.200	7.792	Student 25	1	2.800	6.250
Student 03	3	2.600	5.500	Student 26	1	1.600	6.125
Student 04	1	1.667	7.182	Student 27	1	2.000	6.417
Student 05	1	1.833	7.208	Student 28	1	2.800	6.708
Student 06	1	1.750	7.000	Student 29	1	2.250	7.750
Student 07	1	2.000	6.167	Student 30	1	2.333	7.625
Student 08	1	2.400	7.375	Student 31	1	1.667	6.375
Student 09	2	1.667	6.455	Student 32	1	2.800	5.583
Student 10	1	1.000	7.750	Student 33	1	3.000	7.000
Student 11	1	2.500	4.200	Student 34	1	2.333	6.083
Student 12	1	1.000	6.625	Student 35	2	2.833	7.792
Student 13	1	2.333	5.125	Student 36	1	2.500	7.083
Student 14	3	2.000	6.792	Student 37	2	2.800	5.958
Student 15	1	1.833	7.958	Student 38	1	2.833	6.792
Student 16	2	1.800	7.500	Student 39	1	3.000	5.708
Student 17	1	2.000	7.045	Student 40	1	2.500	6.667
Student 18	1	3.000	6.875	Student 41	1	1.500	8.000
Student 19	1	2.333	5.292	Student 42	1	3.000	5.700
Student 20	1	2.200	5.333	Student 43	1	2.000	7.750
Student 21	1	2.167	7.625	Student 44	1	2.833	6.136
Student 22	1	2.167	5.227	Student 45	1	3.100	4.583
Student 23	2	2.833	6.417	Student 46	1	2.600	5.542

Further examination of this data led to the sorting of students based on their preference rating for the instrument selected. The population average preference rating was 1.239 on a Likert scale of one to five, with one being the best, and 38 students selected an instrument they rated one based on their preference. The remaining eight students selected an instrument they had either rated two or three on the Likert scale from one to five. Additionally, data regarding the students preference for all of the instruments they rated was compiled. It was found the population, on average, marked down a preference rating for all of the instruments of 2.283 on the Likert scale from one to five. Both of these ratings, the selected instrument preference and the average of all instruments preference were examined for possible correlations with the average playing assessment scores. These averages are displayed in Table 4. Figure 4 shows this data as a bar graph, where it can be seen how closely related the playing assessment scores are.

Table 4. Averages Based on Instrument Preference

	Selected Instrument Preference Rating (1-5)	All Instrument Average Preference Rating (1-5)	Average Playing Assessment Score (8-1)
Population Average	1.239	2.283	6.59
Instrument Preference Rating 1	1	2.259	6.547
Instrument Preference Rating Higher than 1	2.375	2.4	6.796

Figure 4. Instrument Preference Rating and Playing Assessment Scores

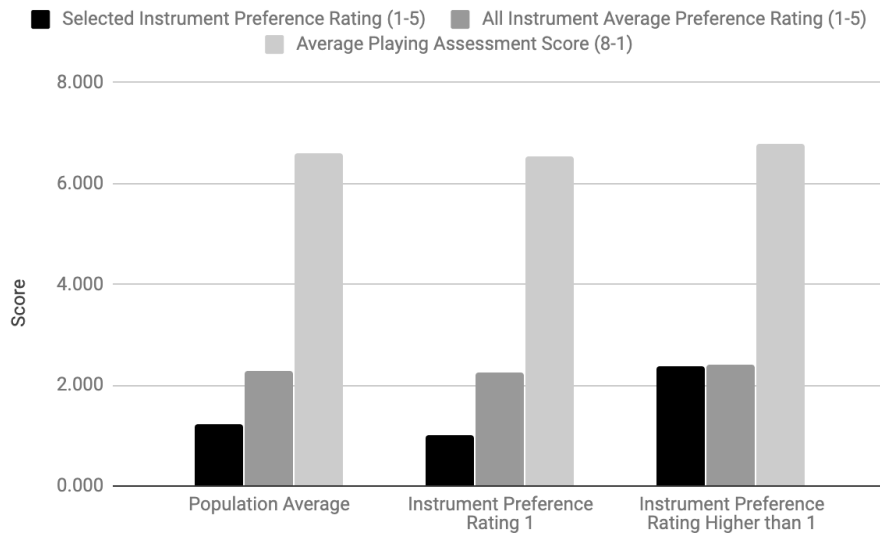


Table 4 and Figure 4 show that though the students' initial instrument preference ratings change, the average playing assessment score is nearly identical in all three categories. It was found, using the Pearson product-moment correlation coefficient, that the correlation coefficient for initial instrument preference rating and playing assessment average score is $-.087$, which is statistically insignificant. Using this same method, a correlation coefficient of $.352$ was found for the average instrument preference rating for all instruments and playing assessment average scores. This correlation, while weak, does show some connection between these two variables.

Question Three

The final research question examined for this study is whether or not students who select the instrument given both the highest initial tone production and preference ratings perform better on their instrument than students who select an instrument that was not rated highest in both categories. To compile this data, students' instrument tryout data

was examined to determine if students selected the instrument in which they rated the highest on both tone production and preference. Once this was determined, the answer was coded using one and zero. If students selected an instrument that was rated the highest for initial tone production and preference, a one is notated. Similarly, if students did not select an instrument that was rated highest for both initial tone production and preference, a zero is notated. Additionally, the average playing assessment score was also used again to seek possible correlations (see Table 5).

Table 5. Instrument Tryouts and Student Average Playing Assessment Scores

Student Code	Strongest on Both Tone and Preference? Y (1) or N (0)	Average Playing Assessment Score		Student Code	Strongest on Both Tone and Preference? Y (1) or N (0)	Average Playing Assessment Score
Student 01	0	7.958		Student 24	1	7.125
Student 02	1	7.792		Student 25	1	6.250
Student 03	1	5.500		Student 26	1	6.125
Student 04	1	7.182		Student 27	0	6.417
Student 05	1	7.208		Student 28	1	6.708
Student 06	1	7.000		Student 29	1	7.750
Student 07	0	6.167		Student 30	1	7.625
Student 08	0	7.375		Student 31	1	6.375
Student 09	0	6.455		Student 32	1	5.583
Student 10	0	7.750		Student 33	0	7.000
Student 11	1	4.200		Student 34	0	6.083
Student 12	0	6.625		Student 35	1	7.792
Student 13	1	5.125		Student 36	0	7.083
Student 14	1	6.792		Student 37	0	5.958
Student 15	1	7.958		Student 38	1	6.792
Student 16	0	7.500		Student 39	1	5.708
Student 17	1	7.045		Student 40	1	6.667
Student 18	1	6.875		Student 41	1	8.000
Student 19	1	5.292		Student 42	1	5.700
Student 20	1	5.333		Student 43	1	7.750
Student 21	1	7.625		Student 44	1	6.136
Student 22	1	5.227		Student 45	0	4.583
Student 23	0	6.417		Student 46	1	5.542

With the data from Table 5, it is possible to sort students into two groups: those that selected an instrument which had the highest ratings for both tone production and preference and those who selected an instrument that did not have the highest ratings for

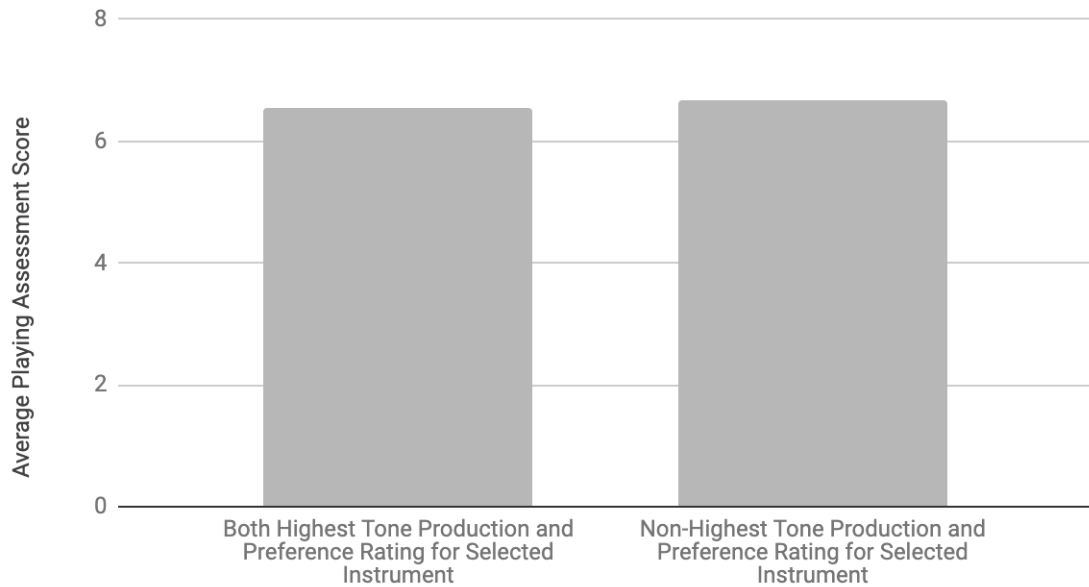
both tone production and preference. Table 6 and Figure 5 show this data, and reveal very similar average playing assessment scores between both groups. Further analysis of this data reveals the correlation coefficient between whether students select an instrument with both the highest tone production and preference ratings or not and their average playing assessment scores to be .055, which is not statistically significant.

Table 6. Average Playing Assessment Scores and Instrument Selection Choice

	Average Playing Assessment Score
Selected Instrument with Both Highest Tone Production and Preference Ratings	6.556
Selected Instrument Without Both Highest Tone Production and Preference Ratings	6.669

Figure 5. Average Playing Assessment Scores and Instrument Selection Choice

Average Playing Assessment Score vs. instrument Selection



CHAPTER FIVE

DISCUSSION

Conclusions

The purpose of this study was to answer three questions regarding the instrument tryout process and student achievement on playing assessments at Monforton Middle School in Bozeman, MT. For this study, confidential data for 46 students was collected and anonymized over the course of a year and a half. All students for this study received similar treatment and data points came from material required for their participation in fifth and sixth grade band. As part of the course work for band class, students completed a teacher-guided instrument tryout process where data was collected regarding each student's initial tone on each instrument they tried with teacher instruction and guidance. Additionally, students recorded their preference rating for each instrument using a Likert scale. With this information, the music teacher recommended an instrument for each student, though students were able to make the final decision regarding instrument selection for fifth grade band.

During both fifth and sixth grades, students were required to complete playing assessments that were graded by the music teacher based on their note and rhythm accuracy. For this study, data from 12 playing assessments was collected and analyzed. With the data combined, the researcher sought to answer three questions: 1) Is there a correlation between students' initial tone production ratings and their performance on playing assessments over time? 2) Is there a correlation between students' initial

instrument preference rating and their performance on playing assessments over time? 3) Do students who select the instrument given both the highest initial tone production and preference ratings perform better on their instrument than students who select an instrument that was not rated highest in both categories?

Upon analyzing the students' initial tone production ratings and their average playing assessment scores, it was discovered that the correlation coefficient between these two variables was $-.026$, a statistically insignificant value. As a result of this, it becomes clear that students receiving the teacher-guided instrument selection instruction who then tried out instruments and were able to produce a good initial tone were not more likely to perform better on their playing assessments than students who had lower ratings on initial tone. Furthermore, the initial tone ratings were compared to students note accuracy, rather than note and rhythm accuracy combined, because tone production is more likely to influence how the student is able to perform notes for playing assessments. When this data was compiled, it was discovered that a correlation coefficient of $.005$ was found, again indicating a statistically insignificant value.

Further analysis of the data regarding students' initial tone production ratings reveal that through the teacher-guided instrument selection process, students selected an instrument that they scored an average of 1.538 on a scale of one to five, with one being the highest possible. This indicates that students, while not necessarily more likely to perform better in fifth and sixth grades, did select an instrument they could get a good sound initially. Additionally, of the 46 students, 19 selected an instrument that they received a rating of one on the initial tone production, 13 selected an instrument they

received a tone production rating of one and a half, and only 14 selected an instrument they received a tone production rating of two to three.

In examining the second research question, data from students' preference rating for the instruments they tried was organized into two categories. First, the preference rating for the instrument each student selected was gathered, and second, each students' average preference for all of the instruments they tried in the teacher-guided instrument selection process. When the preference rating of the instrument students selected was compared to their average playing assessment score, a correlation coefficient of $-.087$ was found, thus indicating this is statistically insignificant. This is likely due to the fact that all students were given the same treatment, and on average, the instrument students selected was given a 1.29 rating on a Likert scale of one to five, with one being the best. Because students overall preferred their instrument, the range of this data was limited. Of the 46 students, 38 selected an instrument that they rated their preference as a one. Only eight students rated the instrument they selected a two or three in regards to their own preference of that instrument. Between these two groups, average playing assessments scores were within two-tenths of a point, thus showing the variation in preference was not a significant factor in predicting student success using this method.

One aspect that did stand out in this study, however, is considering a student's average preference rating for all of the instruments they tried during the teacher-guided instrument tryout process. When comparing this data to the average playing assessment scores for the first 12 playing assessments, a correlation coefficient of $.352$ was found. While this correlation is still statistically weak, it does indicate that students who are

more excited about band instruments in general, as shown by their average preference rating for all instruments they tried, perform slightly better in class. When considering student preference ratings for all instruments, when the average rating was two or less, on a scale of one to five, students scored an average of 7.028 on their first 12 playing assessments. Students who averaged higher than a rating of two on their preference of all instruments they tried scored an average of 6.334 on the first 12 playing assessments. This difference of .694 points on the playing assessments reflects nine percentage points on the 100 point scale; that is to say students rating their preference of all instruments a two or better averaged 88% on playing assessments compared to students rating instruments higher than 2 who received an average of 79% on playing assessments. This finding, while statistically weak, does show students who are excited from the onset may perform better overall on playing assessments in class.

To answer the third research question, data regarding initial student preference and tone production ratings were compiled along with the choice of instrument each student selected. With this data, students were coded based on whether or not they selected an instrument they received both the highest initial rating on instrument preference and tone production. If they did, students were given the code one, and if they selected an instrument that was not rated highest in both categories they were given the code zero. With this information, along with average playing assessment scores, it was discovered that a correlation coefficient of .055 was present. This indicated that, again, there was no statistical significance in the relationship between students selecting an

instrument with the highest rating in tone and preference and their playing assessment scores.

It was discovered, however, that of the 46 students, 32 selected an instrument they received the highest ratings on both tone production and preference. This is a strong indicator in the value of the teacher-guided instrument selection process. In addition, when considering the average score of all 12 playing assessments included in this study, students scored an average of 82%, or a B- on the 100-point scale. To receive this score, most notes and rhythms must be played accurately with corrections made quickly. This average score of all students indicates students are fairly well suited to the instrument they selected, and that each student, on average, experiences success in playing their instrument. Because 70% of students selected an instrument that they found to be well suited to them, it is the opinion of this researcher that the overall process is beneficial to student achievement in band class. While the statistics examined for this study do not show conclusions that prove the effectiveness of this process, there are other factors that could be considered in future research.

Recommendations

Due to the nature of this study, a control group was not included in the research. To further identify the effectiveness of the teacher-guided instrument selection process used for this study, a control group that does not receive the same treatment as the students examined would be needed to determine if the process does result in positive correlations between initial ratings and playing assessment scores.

Further research with these same students could also continue as students advance into seventh grade. At Monforton Middle School, students are not required to participate in band class for seventh or eighth grades. Data regarding which students decide to participate in band beyond when it is required could be compared to initial tone production and preference ratings as well as playing assessment scores throughout all of fifth and sixth grade to determine if there are any correlations exist between retention and performance over time.

Limitations of Study

A major limitation of this study was the lack of a control group. While for educational research purposes, having a control group of students who were not guided in the instrument selection process, and instead selected any instrument they wanted would be helpful in determining if correlations between the treatment and later performance existed, this is not ethical in the current setting. It is the opinion of this researcher that the education of all of the students entering fifth grade at Monforton Middle School is much more important than creating a control group. Students who do not participate in the teacher-guided instrument selection process would not have the information, guidance, and expertise in selecting an instrument for beginning band. As current literature indicates, this process is important in leading to the success of students in instrumental music programs (Bazan, 2005; Cannava, 1994; Chang, 2007; Delzell & Leppla, 1992; De Vous, 2011; Hardin, 1990; Kovacs, 1985; Millican, 2012; Payne, 2009). In this case, the success of students outweighs the need for a control group, as educational research must not inhibit student learning.

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APPENDICES

APPENDIX A

IRB EXEMPTION APPLICATION

MONTANA STATE UNIVERSITY
Request for Designation of Research as Exempt from the
Requirement of Institutional Review Board Review
(12/1/2017)


THIS AREA IS FOR INSTITUTIONAL REVIEW BOARD USE ONLY. DO NOT WRITE IN THIS AREA.
Confirmation Date:
Application Number:

DATE: November 25, 2018

I. INVESTIGATOR(s):

Name: Joseph Quinones
Complete Department and/or Home Address (where you want the approval letter sent):
527 Red Barn Dr.
Belgrade, MT 59714
Telephone: (406) 461-5437
E-Mail Address: josey.quinones@gmail.com
DATE TRAINING COMPLETED: October 21, 2018 [Required training: CITI training; see website for link]

Name of Faculty Sponsor (if above is a student; also must complete CITI training): Dr. Michael Brody

SIGNATURE (INVESTIGATOR or ADVISOR): 

(If more than one investigator, repeat information for all investigators or team members.)

II. TITLE OF RESEARCH PROJECT: Beginning Band Instrument Selection Preferences And Performance Scores Over Time

III. BRIEF DESCRIPTION OF RESEARCH METHODS (also see section VII). If using a survey/questionnaire, provide a copy with this application: I will be collecting data from playing assessments and the instrument selection process that students complete as part of the course work for 5th grade band.

IV. RISKS AND INCONVENIENCES TO SUBJECTS (also see section VII; do not answer 'None'): The students involved in this study will already be completing playing assessments as part of their grade for 5th Grade Band, of which I am the instructor. There will be no additional requirements for the students to partake in, and as such, the risk and inconvenience to participants will be minimal to none.

V. SUBJECTS:

- A. Expected numbers of subjects: 53 students
- B. Will research involve minors (age <18 years)? Yes No
(If 'Yes', please specify and justify.)
- C. Will research involve prisoners? Yes No
- D. Will research involve any specific ethnic, racial, religious, etc. groups of people?

(If 'Yes', please specify and justify.)

Yes No

- E. Will a consent form be used? (Please use accepted format from our website. Be sure to indicate that participation is voluntary. Provide a stand-alone copy. Do not include the form here.): **A consent form will not be used as all data collected will be directly form required course work, so there is no risk or inconvenience. All individual identifiers will be removed and students will be coded.**

VI. FOR RESEARCH INVOLVING SURVEYS OR QUESTIONNAIRES:

(Be sure to indicate on each instrument, survey or questionnaire that participation is voluntary.)

A. Is information being collected about:

Sexual behavior?	Yes	No
Criminal behavior?	Yes	No
Alcohol or substance abuse?	Yes	No
Matters affecting employment?	Yes	No
Matters relating to civil litigation?	Yes	No

- B. Will the information obtained be completely anonymous, with no identifying information linked to the responding subjects? Yes No

C. If identifying information will be linked to the responding subjects, how will the subjects be identified? (Please circle or bold your answers)

By name	Yes	No
By code	Yes	No
By other identifying information	Yes	No

- D. Does this survey utilize a standardized and/or validated survey tool/questionnaire? Yes No

VII. FOR RESEARCH BEING CONDUCTED IN A CLASSROOM SETTING:

- A. Will research involve blood draws? (If Yes, please follow protocol listed in the "Guidelines for Describing Risks: blood, etc.", section I-VI.): **This research will not involve any blood draws.**

VIII. FOR RESEARCH INVOLVING PATIENT INFORMATION, MATERIALS, BLOOD OR TISSUE SPECIMENS RECEIVED FROM OTHER INSTITUTIONS:

- A. Are these materials linked in any way to the patient (code, identifier, or other link to patient identity)? Yes No
- B. Are you involved in the design of the study for which the materials are being collected? Yes No
- C. Will your name appear on publications resulting from this research? Yes No
- D. Where are the subjects from whom this material is being collected?
- E. Has an IRB at the institution releasing this material reviewed the proposed project? (If "Yes", please provide documentation.) Yes No

F. Regarding the above materials or data, will you be:

- Collecting them Yes No
- Receiving them Yes No
- Sending them Yes No

G. Do the materials already exist? Yes No

H. Are the materials being collected for the purpose of this study? Yes No

I. Do the materials come from subjects who are:

- Minors Yes No
- Prisoners Yes No
- Pregnant women Yes No

J. Does this material originate from a patient population that, for religious or other reasons, would prohibit its use in biomedical research?

- Yes No Unknown source

IX. FOR RESEARCH INVOLVING MEDICAL AND/OR INSURANCE RECORDS

A. Does this research involve the use of:

- Medical, psychiatric and/or psychological records Yes No
- Health insurance records Yes No
- Any other records containing information regarding personal health and illness Yes No

If you answered "Yes" to any of the items in this section, you must complete the HIPAA Worksheet.

APPENDIX B

IRB APPROVAL FORM



INSTITUTIONAL REVIEW BOARD
For the Protection of Human Subjects
FWA 00000165

2155 Analysis Drive
 c/o Microbiology & Immunology
 Montana State University
 Bozeman, MT 59718
 Telephone: 406-994-6783
 FAX: 406-994-4303
 E-mail: cherylj@montana.edu

Chair: Mark Quinn
 406-994-4707
 mquinn@montana.edu
Administrator:
 Cheryl Johnson
 406-994-4706
 cherylj@montana.edu

MEMORANDUM

TO: Joseph Quinones and Michael Brody
FROM: Mark Quinn, Chair *Mark Quinn Ch*
DATE: November 30, 2018
RE: "Beginning Band Instrument Selection Preferences and Performance Scores Over Time" [JQ113018-EX]

The above research, described in your submission of November 30, 2018, is exempt from the requirement of review by the Institutional Review Board in accordance with the Code of Federal regulations, Part 46, section 101. The specific paragraph which applies to your research is:

- (b) (1) Research conducted in established or commonly accepted educational settings, involving normal educational practices such as (i) research on regular and special education instructional strategies, or (ii) research on the effectiveness of or the comparison among instructional techniques, curricula, or classroom management methods.
- (b) (2) Research involving the use of educational tests (cognitive, diagnostic, aptitude, achievement), survey procedures, interview procedures or observation of public behavior, unless: (i) information obtained is recorded in such a manner that human subjects can be identified, directly or through identifiers linked to the subjects; and (ii) any disclosure of the human subjects' responses outside the research could reasonably place the subjects at risk of criminal or civil liability, or be damaging to the subjects' financial standing, employability, or reputation.
- (b) (3) Research involving the use of educational tests (cognitive, diagnostic, aptitude, achievement), survey procedures, interview procedures, or observation of public behavior that is not exempt under paragraph (b)(2) of this section, if: (i) the human subjects are elected or appointed public officials or candidates for public office; or (ii) federal statute(s) without exception that the confidentiality of the personally identifiable information will be maintained throughout the research and thereafter.
- (b) (4) Research involving the collection or study of existing data, documents, records, pathological specimens, or diagnostic specimens, if these sources are publicly available, or if the information is recorded by the investigator in such a manner that the subjects cannot be identified, directly or through identifiers linked to the subjects.
- (b) (5) Research and demonstration projects, which are conducted by or subject to the approval of department or agency heads, and which are designed to study, evaluate, or otherwise examine: (i) public benefit or service programs; (ii) procedures for obtaining benefits or services under those programs; (iii) possible changes in or alternatives to those programs or procedures; or (iv) possible changes in methods or levels of payment for benefits or services under those programs.
- (b) (6) Taste and food quality evaluation and consumer acceptance studies, (i) if wholesome foods without additives are consumed, or (ii) if a food is consumed that contains a food ingredient at or below the level and for a use found to be safe, or agricultural chemical or environmental contaminant at or below the level found to be safe, by the FDA, or approved by the EPA, or the Food Safety and Inspection Service of the USDA.

Although review by the Institutional Review Board is not required for the above research, the Committee will be glad to review it. If you wish a review and committee approval, please submit 3 copies of the usual application form and it will be processed by expedited review.