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Practice Habits of Instrumental Music Students in Elementary School VAPA Programs: An Empirical Mixed-Methods Survey

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PRACTICE HABITS OF INSTRUMENTAL MUSIC STUDENTS IN ELEMENTARY SCHOOL VAPA PROGRAMS: AN EMPIRICAL MIXED-METHODS SURVEY

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Abstract

The purpose of this empirical research study was to gain knowledge about the practice habits of elementary school students in Grades 5 and 6. Sixty-five instrumental music students served as research subjects. They were enrolled in the newly established string orchestra supported by the Fairfax Elementary School District. Drawing upon my empirical experiences and instrumental music training, I identified and examined practice habits affecting motivation to learn music. Data generated from five open-ended and ten closed-ended questions were analyzed and contributed to the findings from the survey. An examination of published literature also contributed to the collection of resource data. Problems of practice were then identified in three primary areas that contributed to substandard practice habits: inconsistent or random practice time, lack of support structure, and the need for additional adult support. The results of this study provide further insight on how to better serve instrumental music students and leverage effective support systems, such as aural skills and rubrics, to improve practice habits. Students can improve their substandard practice habits by recognizing and correcting problematic areas in instrumental control, rhythm, intonation, as well as their ability to read and apply standard notation. Improvements in these areas are crucial for increasing student interest and sustaining enrollment in school music programs.

Keywords: aural skills, elementary school, instrumental music, practice habits, rubrics, self-determination theory

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Chapter 1

Purpose Statement

The primary purpose of this study was to gain an understanding of the practice habits of beginning instrumental music students in Grades 5 and 6. The research subjects in this study were students currently enrolled in instrumental music programs at three elementary school sites supported by the Fairfax Elementary School District's Visual and Performing Arts (VAPA) program. Findings, analysis, and conclusions generated from the survey data and the review of literature contributed to the collection of resource data for further analysis. As a result, the study provides new insight on how to better improve practice habits and self-regulatory behavior of instrumental music students. Students can develop cognitive skills to recognize and self-correct errors by accurately applying appropriate technical skills when confronted with challenging musical elements such as rhythm and intonation. Students can close the gaps that prevent them from engaging in consistent and effective independent practice on their primary instrument by applying motivational incentives and drawing on parental (or adult) support.

Problem Statement

In 2018, three secondary students (identified here by the pseudonyms Richard, Michael, and Ruby) enrolled in my beginning instrumental music class and, with no previous experience, expressed an interest in learning to play violin. After they received basic classroom instruction from me, they attempted to learn how to read music during the first semester. It became apparent that all three students were experiencing frustration, as they stated that the violin was too difficult for them to learn. Each of the students cited their inability to read music and comprehend music symbols, as shown in Appendix O, as the primary reason for their failed

attempts to physically play standard music notation in first position on the violin. Thus, the students were not even equipped with the most basic foundational tools to practice.

Consider how difficult it is to read music notation, translate music symbology, and play the specified note on the instrument. Added to this process are the physical challenges of playing an instrument. Combining all of these steps with accuracy is akin to learning a new language. Furthermore, new languages are best taught and learned at the earliest possible age; the earlier the start, the greater the effects (Milovanov & Tervaniemi, 2011). The problem comes into focus when public schools fail to provide comprehensive music programs at the elementary level, including effective instruction on how to independently practice a musical instrument.

Iott (2021) and music experts such as Suzuki, Kodaly, Orff, and Gordon, have provided the valuable insight that music is processed as a language and therefore should be ideally taught to young musicians. Adolescence is the time when children gain proficiency and the ability to self-regulate their efforts to learn languages on their own. Iott's research in this area is aligned with the goals of the California State Board of Education (2010) for visual and performing arts (VAPA) programs, which provide supporting structures for all primary and secondary music students, as shown in Appendix H. The California State Board of Education (2010) define VAPA goals for prekindergarten through Grade 12, such as developing music literacy, discovering the expressive elements of music, understanding the basic concepts of music, gaining knowledge and exposure to the terminology that is used to comprehend music, and developing the physical skills necessary to produce music. However, methodologies for developing practice habits are not brought into focus and do not address the problem of developing poor practice habits.

The California Department of Education (2019) repository provides visual and performing arts (VAPA) standards for Grades 5 and 6. These standards identify detailed

expectations for learning music regardless of style or genre and impart the breadth and depth of the music experience through art-making processes (see Appendices H and I). However, the standards fall short of providing sufficient guidance on how to establish effective practice habits. Music educators and practitioners familiar with the CDE standards understand the implications of adhering to the standards: they inspire students and challenge them to explore the many facets of music, preparing them for a lifelong relationship with music. Unfortunately, the actual practice habits of students are not visible to music teachers. Subsequently, teachers cannot assess whether students truly understand and apply basic knowledge about self-regulated practice in accordance with the CDE standards for developing music skills and achieving proficiency with their instrument (2019). This learning gap is akin to providing students with direction at a macro level with no detailed instructions or self-assessment tools to monitor levels of success with practice habits at a micro level.

A better understanding of students' practice habits is necessary to determine if students have met the criteria for the self-reflection phase. Without this knowledge, there is a possibility of discovering serious problems in the methods students follow when practicing their instruments. Specifically, I want to verify if the practice habits of students are in alignment with the goals of the district's instrumental music program. Ultimately, it is during the self-reflection phase that self-regulated learners are expected to self-evaluate by comparing their performance to their desired goal and to pinpoint the cause of their triumph or failure to adapt future strategies (Schunk & Usher, 2013). This cannot effectively occur until the practice habits of students are verified.

From my observations, many secondary students enrolled in instrumental music programs, like Richard, Michael, and Ruby, never learned to read music, nor did they receive

appropriate technical instruction on how to establish appropriate practice habits at the primary level. Typically, students who are unsupervised, unsupported, and ill-equipped fail to self-regulate when practicing their musical instruments at home. My admonishment to practice music, under the conditions in which the students were working, may have been frustrating and confounding for them. As a result, they most likely experienced ineffective practice time and became disenchanted with playing string instruments. Personal discussions with Richard, Michael, and Ruby identified indifference from their struggle to read standard music notation as the primary reasons for their unwillingness to practice and participate in music classes.

From my observation and experience, the typical problematic patterns with retaining students in instrumental music programs are predictable and avoidable. Students who are offered general music classes where music theory and aural skills are taught will often remain in a music program, because they learn how to overcome problematic areas. Even with assistance from the teacher, students who cannot read standard music notation become irritated when challenged with technical problems, and they usually attempt to play music assignments by rote. Other students simply succumb to their struggles, eventually abandon their dreams of becoming musicians, and move on to other electives. Class time does not give students individual time to adequately practice scales and études, address problematic areas inherent in a challenging passage of music, or improve upon technical skills such as bowing (right hand) and shifting (left hand). Instead, the classroom music instructor often expects students to self-regulate and motivate themselves to practice these technical skills at home; however, they often fail to adequately guide the student or provide instruction on how to practice effectively.

Researchers describe other problems of practice related to self-regulation that need to be addressed. For example, skill acquisition requires deliberate practice (Ericsson et al., 1993). The

benefits of deliberate practice are essential for the sustainability of music programs and student participation (Ericsson et al., 1993; Lehmann et al., 2007; McPherson & Renwick, 2011; Sloboda et al., 1996). Further, students must be clear about why tasks are assigned and how the tasks aid their progress. Well-prepared assignments include material that students find intellectually and emotionally satisfying (McPherson et al., 2012). Beginning music students are unsuccessful in the practice room because they display lower levels of self-regulatory processes during practice efforts, which needs to be addressed (Cleary & Zimmerman, 2004). One specific difference is that "beginning students fail to engage in high-quality forethought and instead attempt to self-regulate their learning reactively. That is, they fail to set specific goals or to self-monitor systematically" (Zimmerman, 2002, p. 69). Several analyses of beginning music practice seem to support that claim, revealing that up to 90% of practice time for new students is spent playing through pieces or exercises from beginning to end without any attempt at self-correction or strategies to improve performance (Gruson, 1988; Hallam, 1997; McPherson & Renwick, 2001; McPherson et al., 2012; Pitts et al., 2000). When beginning students reach the end of a piece or exercise, no matter how many mistakes they make, they typically move on to the next piece, exercise, or task (McPherson et al., 2012; McPherson & Renwick, 2001).

Significance of Study

Conducting this empirical study is significant because it aims to help students establish appropriate practice habits designed to achieve a higher level of success. I was able to analyze data and gain increased knowledge and visibility about the current practice habits of music students by employing a mixed methods survey. This empirical study is guided by Deci and Ryan's (1985) SDT and draws upon my own experiences and concepts of the MCFM for effective instrumental music practice. The conceptual framework guiding this study is relevant to

the theoretical foundations of self-regulation framework found in the literature on self-regulation. Self-regulation is the "set of processes that students draw on as they promote their own learning" (McPherson & Zimmerman, 2011, p. 133).

Technically, this study informs instrumental music students about rudimentary requirements for developing the practice habits required to successfully play fretless instruments. In other words, if instrumental students fail to apply specified rudimentary practice habits, they cannot expect to correct errors embedded into their practice. Mechanical and technical properties associated with playing fretless instruments such as the violin, viola, violoncello, and string bass require special attention to ambulatory details such as left-hand–right-hand positioning. During early stages, beginning instrumental students lack coordination between finger positioning, pressure, and angle when attempting to produce an acceptable level of tone quality. Playing string instruments is challenging even for advanced musicians. Arguably, instruments from the string family closely emulate the human voice and require either perfect pitch or the ability to accurately discern relative pitch (Schubert, 2018).

After observing numerous string programs within Central Valley schools in California, I noticed an immediate need to examine how students actually practice independently and gain understanding of where to improve the technical quality of instrumental music programs. Likewise, all music educators should be concerned and investigate whether their own students understand the established standards of instrumental practice when they practice independently at home. The significance of learning appropriate practice habits is new to young students, and they need to be guided with instruction and explanations.

When my elementary instrumental music students ask why appropriate practice habits matter so much, I share a famous story as follows. Located in midtown Manhattan, Carnegie Hall

is the center of the classical music scene. Many professional musicians consider performing at Carnegie Hall the crowning achievement of their career. The story goes that a famous violinist was once asked by a passerby on the street, “How do you get to Carnegie Hall?” He answered, “Practice, practice, practice!” Practice is synonymous with success, especially when playing fretless instruments from the string family, such as the violin.

Definition of Key Terms

Audiate. “Audiation is the process of . . . hearing and comprehending in one’s mind the sound of music that is not, or may never have been, physically present. It is not imitation or memorization. Edwin Gordon (2010, p. 12). The six stages of audiation are hierarchical–one stage serves as a readiness for the next. The list identified below outlines the stages of audiation as they occur in Type 1 of audiation (*Audiation*, 2017).

1. Momentary retention
2. Initiating and audiating tonal patterns and rhythm patterns AND recognizing and identifying a tonal center and macrobeats
3. Establishing objective or subjective tonality and meter
4. Consciously retaining in audiation tonal patterns and rhythm patterns that we have organized.
5. Consciously recalling patterns organized and audiated in other pieces of music
6. Conscious prediction of patterns

Aural skills training. Also called ear training, it strives to produce a listener or performer who can perceive sound in meaningful patterns, developing a hearing mind and a thinking ear. This is achieved by the tandem development of two types of activities: listening and performance. Listening includes dictation, recognition, or perception of musical events (e.g.,

error recognition, perception of meter or form), and ensemble skills. Performance includes sight reading, prepared performance, conducting, and improvisation (Logan, 2011).

Autonomy. The quality or state of being independent, free, and self-directing (Merriam-Webster, n.d.-a). Musical autonomy is the idea that music's value rises above mundane social and political considerations; pupils can glimpse the possibility of reconceiving not only popular music but also classical music, and by implication any other music. The concept of musical autonomy is linked to the personal autonomy of the learner (Green, 2005).

Instrumental music. Music relating to, composed for, or performed on a musical instrument (Merriam-Webster, n.d.-b).

Motivation. In broad terms, motivation pertains to the energy and drive to learn and perform to the highest level of one's potential (Martin et al., 2016). Motivation for individual practice by students of any age is a concern of music educators, who recognize that to succeed in the area of music performance, students must practice on their own, without one-on-one guidance and support. "Individual students must be intrinsically motivated to move through the stages of development to become proficient" (Marcus, 2020, p. 9).

Practice habits. These are defined by musicologists as activities aimed at improving skills, which can be categorically measured in either technical or personal improvement terms and with the achievement of higher technical precision and greater confidence. Relationally, quality is more salient, whereas quantity is necessary to achieve efficient practice habits (Passarotto et al., 2022).

Parental support. In the context of the practice of instrumental music, parental styles of support help satisfy children's most basic psychological needs; which are to feel competent, to feel that they have some control over the choices made during the learning process, to feel a

strong bond between their parents and their teachers within a non-threatening learning environment, and to enjoy the success that comes from engaging meaningfully as a result of personally rewarding musical experiences (McPherson, 2008).

Rubric. An explicit set of criteria used to assess a particular type of work or performance, which provides more details than a single grade or mark. Content includes criteria, levels of performance, scores, and descriptors that become unique assessment tools for any given assignment (Center for Innovative Teaching and Learning, 2012).

Self-discipline. The correction or regulation of oneself for the sake of improvement in the practice and performance of music.

Self-evaluation. The evaluation of oneself or one's actions in relationship to music performance.

Self-regulation. The ability to control or supervise oneself from within instead of being regulated by an external authority.

Conceptual Framework

Despite the undisputed benefits for children enrolled in public school music programs, sustaining and improving music programs is fraught with interruptions and ongoing battles for survival. Yet stalwart researchers have encouraged music educators to hold their ground, because music improves students' cognitive function and academic performance (Damkohler, 2015). As a beneficiary of the music education program offered in my public school system, I received an uninterrupted and well-supported traditional music education while studying the violin in Grades 3–12. During this period, I achieved an advanced level of development as a music practitioner and was guided by professional music teachers who introduced me to an effective conceptual framework for practicing instrumental music. Ravitch and Riggin (2012, p. 10), have described

the construction of conceptual frameworks as a combination of three primary elements: personal interests, topical research, and theoretical frameworks. My personal interests as a young instrumental music student and practitioner were shaped by my experiences, biases, theories of action, the environment in which I was raised, and my epistemological assumptions. Collectively, these influences established my adherence to an effective conceptual framework.

Opportunities for the Fairfax students mirror my own experiences. For example, extraordinary music instructors can help instrumental students build a strong foundation for supporting appropriate practice habits. Music students must be guided through three stages of music development: amateur, aficionado, and professional performer and music educator. Elliott (1995) concluded that foundational support for music students comes from qualified teachers.

> In teaching students how to practice effectively, it is important to consider that frustration and boredom often arise from disconnected, non-contextual efforts. Teachers must help students understand how their practice leads by steps to chosen ends. Even exercises designed to help correct basic problems must be taught as means to dreams by linking the students' individual efforts to the larger artistic goals of the practicum. (p. 289)

In this statement, Elliott identified the primary role of teachers. I concur; teachers themselves must gain a fundamental understanding of what their students recognize and understand, how students formulate opinions, and how students' opinions influence practice habits. In this way, teachers are better positioned to help students avoid poor practice habits by instructing them to follow an effective conceptual framework designed to guide and establish best practice habits.

School music teachers are well positioned to implement conceptual frameworks, such as instructions related to practice time, content, and the application of tools, as part of classroom instruction. Implementation of structure effectively establishes an enduring platform that shapes

the early development of practice habits for students. Having access to supervised guidance from trained and experienced instrumental music teachers is a game changer for students. For example, a well-trained teacher does not allow students to blitz quickly through music repertoire, especially difficult passages. Master teacher Iott (2021) understood the detrimental effects of poor practice habits upon students. She described students' typical reaction to correcting mistakes: "The practitioner stops and without thinking or strategizing, goes back and immediately plays the passage again with the intention of fixing the mistake the next time" (Iott, 2021, p. 64). To prevent this, teachers help identify the mistake by isolating and blocking the problem location; then the music is practiced slowly, a measure before and after the mistake, until the error is eliminated. Thus, teachers help students to self-regulate by preventing them from going back to the beginning of the piece and repeatedly practicing mistakes.

Students' self-motivation is influenced when both teacher and parents observe, listen, and monitor practice sessions. Adults can support students by monitoring the structured practice content and providing the student with feedback. Experienced teachers give students tools for structured practice, such as a self-assessment rubric checklist (Appendix G), which also serves as an improvement tool to identify problematic areas in the lesson content during independent practice. Applying aural skills and incorporating rubrics while practicing lesson content is essential for students to self-correct bad practice habits, such as pitch and rhythmic problems. Thus, instrumental music students should follow a consistent pattern in home practice.

In alignment with my instrumental music training, I recommend adherence to a repetitive five-course framework designed for beginning instrumental music students. To achieve technical skills designed for orchestral students, practice habits must focus on mastering scales, études, shifting to higher positions, and sight-reading standard music repertoire from the classical,

baroque, and romantic eras, as shown in Table 1. From this experience, students add the final element, choosing their own music and developing their own interests and style.

Table 1

Five-Course Framework for Structured Music Practice

Practice course sequence	Literary content	Composers	Primary goal	Time (min)
1	Violin scales 1-2 octaves	Hřímalý and others	Gain technical acumen to read and play notation, applying proper fingering, conceptualizing key recognition; establish control in navigating the instrument.	10
2	Violin études (studies)	Kreutzer and others	Develop technical ability and dexterity with right hand-left hand in preparation of performing standard violin repertoire.	10
3	Shifting on violin	Whistler and others	Develop the technical ability to shift from 1st position to 2nd, 3rd, and higher positions.	10
4	Standard violin repertoire	Examples: Haydn, Beethoven, Mozart, Bach	Develop sight-reading skills and familiarity with standard music repertoire from baroque, classical, and romantic periods. (Standard method books such as Hal Leonard publishing are an example of where source content for beginning string students can be found.)	20
5	Music of choice	Solo music repertoire selections	Develop personal goals and gain experience towards discovery of personal style drawing on church music, popular songs, country, jazz, blues, Celtic, Irish.	10
Typical daily practice time				60

Students who establish goals and seek opportunities to play are motivated to improve practice habits because an urgency to improve quality is intrinsically created. When students are satisfied with the way they sound, their love of music grows. It is logical that students who are

determined to develop good practice habits will pursue long-term goals. In my own experience of learning music, I was driven by a combination of my own intrinsic motivation and the encouragement I received from family members who contributed extrinsic motivational support.

Receiving adult support is a critical element for students to develop and sustain habits in practicing music daily. Adult support also influences the student's self-motivation and self-determination. Adult support can also encourage students to self-regulate, self-correct, adhere to structured practice, follow through on opportunities, and establish goals for the future. When adults provide support, elementary students are influenced early on and develop the interest and training necessary to pursue careers in music.

However, variations of success are dependent on the quality of parental goals, practices, and style, as shown in Table 2. The formal music training I received from highly qualified music instructors gave me a disciplined approach designed to correct and improve practice habits when playing a music instrument. Within this discipline, the six independent principles needed for practicing instrumental music are self-motivation, self-regulation, self-correction, structured practice, goals and opportunities, and adult supervision. Adherence to the six components became the primary drivers influencing my formative practice habits during my elementary and secondary years. Table 2 describes the list of the six components, and their functions, as a multidimensional conceptual framework model (MCFM).

Table 2

Principles of Multidimensional Conceptual Framework Model

Description	Function
Self-motivation	Desire to practice consistently without external pressure.
Self-regulation	Adherence to effective strategies which are time bound. However, self-regulation is dependent on the student receiving feedback for the self-regulation to function properly.
Self-correction	In addition to using rubrics and aural skills to identify and correct errors, Mistakes are also corrected using chunking and blocking procedures.
Structured practice	Ability to follow instruction and exercise self-discipline while practicing teacher-led repertoire assignments in sequence.
Goals & opportunities	In context, goals are defined as long-term music performance activities pursued by the student while opportunities are defined as confirmed activities occurring in the present.
Adult supervision	Consists of caring for the student by conducting frequent observations during consistent and predetermined practice time, establishing the home as a learning center, internal and external emotional support, and assistance in establishing technical support for the student.

Principles of MCFM

Self-Motivation

Within the realm of self-determination theory, self-motivation is the primary driver that guides the internal locus of control that resides within individuals. Internal locus of control is defined by psychologists in research literature as "the degree to which a person perceives an outcome as being contingent on their own actions and operating along a continuum from a more internalized orientation to a more externalized orientation" (Rotter, 1966, p. 80). Therefore, individuals with a clear sense of purpose and self-determination operate effectively because they believe outcomes depend on their own behavior or personal characteristics. Studies have asserted

that master teachers seek to extract motivation from their students, rather than forcing or coercing them into intrinsic motivation. Master teachers also believe the students' motivation comes first from observing the self-motivation of the teacher. When motivation is observed as a personality trait instead of a behavior, students recognize this as one of the most important factors in teacher effectiveness (Moss, 2007).

From my observation, improvement in student practice starts with self-motivation which is a driving force in supporting music students. In direct relationship, the sustainability of student enrollment in school music programs is affected by meaningful independent practice. To achieve meaning, students must be emotionally invested. The core features of emotional development include the ability to independently identify and gain an understanding of one's own feelings to achieve the ability to regulate one's own behavior (Holmes, 2019; Thompson & Calkins, 1996). Music educators recognize that to succeed in music performance, students must practice to improve. Students need to be motivated to participate in the act of independent deliberate music practice (Miksza, 2014).

Research suggests students have the desire to succeed even when there is the risk of failure. Many students are willing to make a strong commitment and desire growth. When instrumental music students achieve satisfaction in their accomplishments, they become highly motivated and willing to increase energy toward music practice goals, generally identified by the music instructor. When students doubt their ability to succeed in meaningful ways, they typically hedge their emotional investment in the outcome. An initial spark is often the drive behind students believing in what they are capable of doing (Marcus, 2020). "In other words, the process of becoming conscious of one's knowledge, by engaging in learning that connects concepts to

the learners' own realities, leads students to the point where they know that they know" (Schmidt, 2005, p. 7).

Another factor known to promote and influence student motivation is an environment that facilitates and encourages but also allows personal space and freedom (Hallam, 1997). Musicians' motivation to practice comes from their motivation to improve their performance (Ericsson et al., 1993). Evans and McPherson (2015), however, concluded that motivation goes beyond these factors. They found that musicians who seek long-term goals must first develop a sense of identity to achieve higher levels of technical ability as their personal interest in instrumental music increases. Evans and McPherson described how the quality and enrichment of school music programs influence student interest in and commitment to becoming either short-term or long-term music practitioners (p. 413). Music educators should remember that

> Teachers have the responsibility to observe individual preferences, aptitudes, attitudes, and backgrounds of students and assign learning tasks that are challenging but not overwhelming. Clearly stated objectives and goals with criteria for achievement are essential for students to develop feelings of success, confidence and self-esteem, Teacher expectations of students is a crucial factor. (Schleuter, 1997, p. 167)

Teacher expectations for effective practice habits are directly connected to the social well-being of students.

Diener (2013), a psychologist and leading expert on subjective well-being, theorized that a bottom-up approach to life satisfaction holds that people experience satisfaction in many domains of life; for example, in work, relationships, family and friends, personal development, as well as health and fitness. "People are happier if they have characteristics that are consistent with cultural norms" (Diener, 2013, p. 664). Research also indicates that life satisfaction

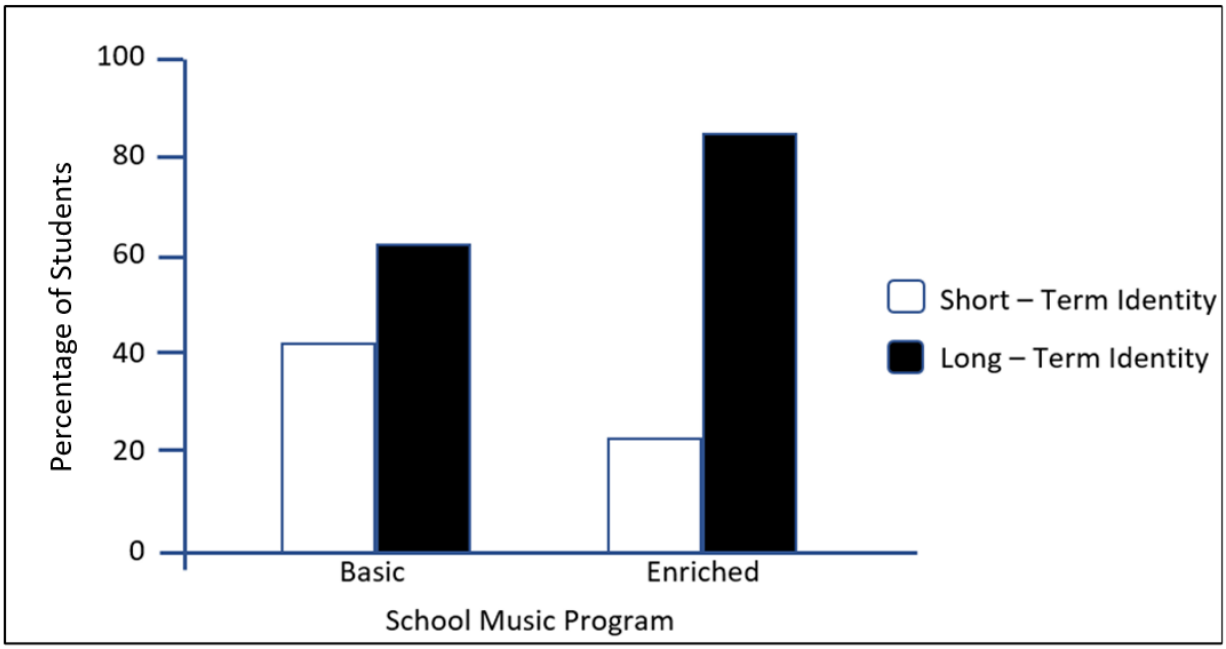
motivates students toward integrating sociocultural, artistic, participatory, and ethics-based concepts that ultimately enhance student values for music education, musical understanding, musical emotions, and creativity (Elliott & Silverman, 2014).

Music educators have found that students believe quality music programs are critical in developing a long-term identity and contribute to structured practice habits. Evans and McPherson (2015) determined the quality of school programs directly influences the outcome of student motivation and sustains long-term musical identity. Practice habits are also improved when students establish regular practice times because disciplined practice is an integral component of self-regulation. When students apply long-term practice habits they achieve higher goals than students who had only a short-term view of themselves as developing musicians.

"Without a strong sense of personal identity as a musician, and an idea where music learning might take them or at least the role it might play in their lives, children may be unlikely to develop long-term motivation" (Evans & McPherson, 2015, p. 421). Students' motivation levels and practice habits are directly connected to the quality of instruction provided within the school music program. Figure 1 illustrates that students who received an enriched music education developed a long-term commitment to participate in school music programs. This research indicates that supporting students' development of practice habits is not only a good investment but also adds value (Evans & McPherson, 2015).

Figure 1

Long-Term Identity of Music Students Before They Began Learning and Music Program Quality



Note. From "Identity and Practice: The Motivational Benefits of a Long-Term Musical Identity," by P. Evans & G. E. McPherson, 2015, *Psychology of Music, 43*(3), p. 413 (https://doi.org/10.1177/0305735613514471). Copyright 2015 by Society for Education, Music, and Psychology Research.

Self-Regulation

The key component of self-determination theory is self-regulation, which is the "set of processes that students draw on as they promote their own learning" (McPherson & Zimmerman, 2011, p. 111). In the context of practicing instrumental music, self-regulated learning refers to how a student's perceptions, environment, and behavior interact to influence learning; it is defined as "self-generated thoughts, feelings, and actions for attaining academic goals" (Zimmerman, 1998, p. 73). Self-regulation is not possible without self-oriented evaluative

feedback. “In the absence of adequate feedback, efficient learning is impossible and improvement only minimal even for highly motivated students” (Ericsson et al., 1993, p. 367). Students rely heavily on their teachers to provide evaluative feedback (McPherson et al., 2012). Because proper practice takes years to develop (McPherson et al., 2012), a teacher or person trained in deliberate practice should monitor beginners. In the absence of a teacher or trained person, rubrics are effective when practicing at home. Researchers have rejected the notion that students cannot successfully self-regulate; rather, solitary deliberate practice is possible through self-regulation (Nielsen, 2001; Zimmerman, 2012). Beginning students are only unsuccessful at practicing music when they fail to self-regulate their practice (Gruson, 1988; Hallam, 1997; McPherson & Renwick, 2001; Pitts et al., 2000).

From my experience and observation of how my instrumental music students self-regulate, consistent adherence to the MCFM has generated positive outcomes and is critical for the sustainability of elementary and secondary instrumental music programs. Self-regulatory success often depends on students asking adults for help in establishing effective practice habits. Unsupported students can only achieve competency, relatedness, and autonomy by seeking continuous improvement strategies. The catastrophic events triggered by the COVID-19 pandemic and subsequent lockdown in March 2020 provide a good example. These events caused major disruptions to traditional classroom approaches to learning and teaching.

During the pandemic, educators were forced to take unprecedented steps, such as the long-term abandonment of traditional instrumental music education models. In some cases, instrumental music educators adopted self-determination framework theories as a solution with favorable comments: “Our students find stimulating and challenging activities intrinsically motivating because they have a basic need for competence. Intrinsic motivation is maintained

when students feel competent and self-determined" (Schnerer & Hopkins, 2021, p. 11). From my experiences during the pandemic, I observed how policy decisions caused chaos and confusion for teachers, such as assessing instrumental music students. For example, some schools decided not to require students to turn on their video cameras during online classes; thus, teachers could not visually monitor the habits and activities of students during the lesson. When the assessment of students is disrupted and efforts to self-regulate are diminished, the relationships between teachers and students are significantly affected.

In contrast, Nusseck and Spahn's (2021) analysis of data collected during the campus closure period revealed an increase in student autonomy, higher levels of self-motivation toward practicing, and a significant increase of self-regulated learning. These effectively shifted the source of knowledge back to the student. It is not clear how Nusseck and Spahn monitored practice habits and provided assessments to students during this period. However, they identified significant improvements when applying a learner-oriented model. Nusseck and Spahn recommended alternative approaches in teaching instrumental music; for example, traditional teacher-mediated methods of instruction could be effectively conducted by students, demonstrating the ability to self-regulate their own learning.

While research has identified alternative solutions for practicing music independently, results from post pandemic research illuminate the need to verify how students practice independently, and what their practice habits are. COVID-19 spurred the development of independent practice habits for instrumental music students because of the shift away from the traditional paradigm of teacher-led classroom instruction. Music practice was prescribed by teachers and became a key component of students' activities during this time period (Kirksey-Diehl, 2021).

From my daily observations of music students in public school classrooms, I have discovered that beginning string students must be introduced to a structured framework enabling them to learn quickly and properly in an urgent effort to take pleasure in the way they sound. There are long-term rewards for successfully instilling a love of music in beginning instrumental students. Pleasurable experience supports the development of intrinsic motivation, which encourages learners to persist for the joy of learning and express themselves musically. Focusing on achievement makes learners more concerned with self-efficacy, such as what others are thinking of them or their performance, rather than expression or exploration (Sloboda, 2005, pp. 269–272). Although instrumental music students always benefit from traditional in-person classroom support systems and instructor supervision, students find themselves increasingly dependent on alternative approaches such as MCFM when engaged in independent study. In brief, instrumental music students need to know how to draw upon the six primary support systems identified in the MCFM.

Self-Correction

Most children play music repertoire from beginning to end, including mistakes, without any attempt at self-correction, rather than identifying difficult sections and working on those (McPherson et al., 2012). McPherson (2012) asserted that music students' ability to self-correct depends on acquiring aural skill proficiency; as a result, children develop a greater readiness for the introduction and learning of notation. The processes of learning in children then yield a more equitable balance of visual, aural, and creative forms of performance skills in later stages of development (McPherson et al., 2012). Prior practice habits play a role in music experience and influence aural skill development and proficiency. Learning the language of music and hearing

the music teacher and other students demonstrate what the melody sounds like enable the student to form an accurate understanding and reach their goals (McPherson et al., 2012).

Aural Skills. Support instruments can be applied to help students self-correct unwanted practice habits by integrating aural skills to their practice strategy. Acquiring aural skills, also known as ear training, is the first of several critical steps in learning to self-correct. The MCFM shows that instrumental music students depend on aural skills when attempting to self-correct during music practice. Rom (2020) pointed out her method when assisting her instrumental students to self-correct.

> My study brought light to obstacles high school musicians face practicing independently. Specifically, they have difficulty audiating a goal image from written notation and detecting performance errors by ear. When I step into my own public-school orchestra classroom, I have two objectives. First, I want to provide support to students so they can practice effectively at home while their aural skills are still developing. Second, I want to target the development of the specific aural skills needed for effective practice. (p. 108)

While gaining knowledge about the mechanical components of playing the violin, I was serendipitously introduced to the concept of aural skills through the art of singing. Singing is an important companion to instrumental music training; it became familiar to me during early adolescence while attending church with my family. In reflecting on my earliest memories of singing, I gained an understanding of how instrumental music students can use their own voice as a tool when self-correcting to recognize musical pitch accurately and apply this process to play fretless instruments such as the violin, accurately and in tune.

Several years later, I came to understand the similarities that existed between pitch recognition when singing and achieving correctness of pitch when playing the violin. After

learning the term *audiation*, coined by musicologist Edwin Gordon (2010), I developed the ability to audiate sound—that is, the ability to hear pitch internally and before notes are actually played on an instrument. Thus, audiation is related to the physical relationship that occurs between the production of sound and vocalizing pitch (Gordon, 2010). Understanding Gordon's concept of audiation in music practice requires the participant to engage in ear training as an effective practice habit. Audiation is a process designed for instrumental music students to first sing the pitches and then play the notes accurately on a musical instrument after audibly hearing them. Audiation has a direct effect upon music students' sense of self-efficacy, especially for those who play fretless instruments from the string family.

Music theory, particularly aural skills and ear training are essential for violin students; this can be effectively included in rubrics, especially when it becomes necessary to teach students the self-help strategies found in aural skill training (Barry & Hallam, 2002). To develop aural skills, a child must have repeated exposure to as many different meters (rhythms) and tonalities (pitches) as possible. Although children are not expected to demonstrate a deep understanding of the meters and tonalities they hear, "the more music students hear and the larger vocabulary of patterns in various tonalities and meters becomes, the better students can audiate" (Bluestine, 2000, Chapter 2, para. 13).

Students must endure numerous difficulties when they first attempt to produce a pleasing sound; therefore, they must persistently self-correct until this is achieved. Students must like the way they sound because personal evaluation is inextricably linked with aural skill training and can have a direct impact on student motivation (McPherson et al., 2012; McPherson & Renwick, 2001). Over time, problems arise when a student's aural skills are underdeveloped; this leads to the "inability to accurately self-assess performance, in an independent setting, and results in an

inability to practice effectively in an independent setting" (Rom, 2020, p. 2). When entry-level music students lack the necessary skill to self-correct, they are also unable to self-regulate practice because their aural skills are underdeveloped. The consequences of ignoring auditory feedback from recordings of their playing cause music students problems, such as "rarely picking out small-scale or even global errors such as inaccurate rhythm or pitch, poor tuning, or unpleasant tone" (McPherson et al., 2012, p. 9). Barry and Hallam (2002) asserted that beginning instrumental students are often unaware of where mistakes occur because they have not yet developed appropriate internal aural schemata to pinpoint and correct their mistakes.

When beginning music students are unable to self-regulate their practice, it is typically an indication they lack perception and ability to audiate music in written notation. Music students who learn through traditional visual orientation, which begins with notation, tend to be inefficient in their ability to audiate music from notation or aurally (Ericsson et al, 1993). If students are unable to figure out what a piece is supposed to sound like, they have nothing to compare their performance to and cannot determine if the notes they are playing are correct. In contrast, "musicians who read music well can hear it in their minds while looking at the score and a musician reading with audiation ability can recognize recurrent motives or melodies and rhythmic patterns" (Iott, 2021, p. 52).

Rubrics. Self-correction, audiation, and rubrics are interrelated and co-dependent because self-regulation is not possible without evaluative feedback (Ericsson et al., 1993). Thus, self-corrective steps can be effectively achieved by using rubrics, especially in an independent study environment, because they serve students well in providing assessment in tandem with written plans and technological playbooks designed by teachers. Well-written rubrics assist and

measure student achievement and make it possible for students to effectively reach their learning goals through structured practice. According to Ericsson et al., (1993)

> Students should be given explicit instructions about the best method and at least be supervised by a teacher to allow individualized diagnosis of errors, informative feedback, and remedial part training. The instructor has to organize the sequence of appropriate training tasks and monitor improvement to decide when transitions to more complex and challenging tasks are appropriate. (p. 367)

Colwell identified the term *rubrics* as hazy because of the lack of rigor and potential damage it poses to the assessment process; nevertheless, Colwell asserted "rubrics to be an excellent tool especially when there is a general consensus as to what constitutes excellence" (Colwell, 2006, p. 208). Rubrics aid in deliberate practice, which Ericsson et al., (1993) described as follows:

> Deliberate practice is an effortful activity that can be sustained only for a limited time each day during extended periods without leading to exhaustion (effort constraint). To maximize gains from long-term practice, individuals must avoid exhaustion and must limit practice to an amount from which they can completely recover on a daily or weekly basis. (p. 367)

From my examination of the literature, rubrics are not often mentioned by leading researchers. In my experience however, effective practice habits improve significantly when instrumental music students apply rubrics under the close supervision of a qualified music teacher. The goal of rubrics then, is to achieve 100% perfection during each planned practice session. From my observation, an overwhelming majority of students participating in violin contests typically practice the music to be played in competition over and over for hours at a time—always with

the same mistakes, at performance tempo. I observed that the problem of practice systematically occurs because the pupil conducts his/her study without the supervision of the teacher; therefore, I conclude the goal of an educator should be aimed at teaching the pupil how to teach his/her own self.

For the purposes of this research, beginning instrumental music students participating in the self-survey were expected to adhere to music practice rubrics to assess their level of improvement of concert repertoire. (See Appendix G). Music educators such as Iott provide their students with rubrics to support independent music practice (Iott, 2021). Other researchers insist that "learners should be given explicit instructions about the best strategic methods to employ for various goals and should be supervised in their practice so errors will be diagnosed through informative feedback, ideally by a teacher" (Ericsson et al., 1993, p. 367).

The benefits of establishing rubrics to assess student improvement cannot be overstated. Research by Nielsen determined that when equipped, students have the propensity to develop extensive self-regulatory skills. When students receive tools such as rubrics, they optimize their learning and performances, considering interpersonal, contextual, and intrapersonal conditions. "When students are equipped to self-regulate, they become better positioned to set specific goals, engage in strategic planning, use self-instruction, task strategies and monitor themselves selectively at a detailed level" (Nielsen, 2001, p. 165).

When rubrics are applied in a practice session, effective strategies are selected by qualified music teachers to target those specific goals, and those strategies are acted on through deliberate effortful performance. The performance is self-monitored to diagnose errors and self-evaluated to elicit feedback. Evaluative feedback informs the creation of the next strategy to identify weakness, or to take the next incremental step toward the goal. Practice continues in

systematic, incremental self-guided cycles, responding to meet the changing needs of the improving performer (Hatfield, 2016; Nielsen, 2001). In other words, the deliberate practice of a student requires strict adherence to well-designed rubrics for the student to self-regulate during solitary music practice.

Structured Practice

The terms *structured practice* and *deliberate practice* are synonymous and are used interchangeably. Iott (2021, p. xxi), a master instrumental teacher, said the most important factor about structured practice is that, "Every single person can benefit when applying better structured practice that works in parallel with the way our minds want to work." Successful instrumental music students engage first in doing, which requires physical action and structured activity to accomplish goals prescribed in structured music practice. Second, students engage in listening, recording, and self-evaluating. Finally, students draw comparisons to transactional goals identified in the practice rubrics.

Structured practice routines are typically scheduled daily for beginning music students in Grades 5 and 6. Although they usually consist of repetitive attempts to play through assigned scales and repertoire from music method books, research indicates this is not the best method. For example, structured practice is recognized as time spent in mindful, carefully constructed, pedagogically sound activities in order to solve problems (Iott, 2021). Properly understood, then, practicing involves contextual repetitions: continual rethinking in relation to intended goals. Practicing is not mechanical duplication. In practice, all errors are detected and corrected; as problems are found and solved, difficulties diminish, and parts are linked to the larger whole. All this requires attention, awareness, and memory (Elliott, 1995).

One of the primary mistakes beginning students make when establishing practice habits is to shy away from challenging sections of music, dismissing them as “too difficult” and unplayable. Worse, I have observed students return to the beginning measures of a piece when the errors are actually located elsewhere in the music, instead of focusing on remediating the actual problem area. Ericsson and Harwell (2019, p. 368) stated, “Deliberate practice is a highly structured effortful activity, specifically designed to systematically target critical components of skill in order to incrementally improve one’s current level of performance by strategically overcoming weaknesses pinpointed through self-monitoring and informative feedback.”

Other researchers have pointed out that repetition alone does not lead to improved performance (Ericsson et al., 1993; Hallam, 1997; Mornell et al., 2020). As a deterrent to students with undesirable typical types of practice habits, Iott (2021) encouraged the use of *deliberate practice theory*, a term coined by Ericsson et al. (1993, p. 363), who defined deliberate practice as “a regimen of colorful activities to optimize improvement”. In simpler terms, deliberate practice consists of “age-appropriate activities for students and seeks to apply thought and physical processes as a means to correct errors caused by practice habits” (Iott, 2021, p. xxii).

Establish Goals and Seek Opportunities

Essentially, students need to establish goals and seek opportunities, which are fundamentally different tasks; however, both have a significant effect on the rigor and urgency of how and why instrumental students’ practice. Instrumental music students’ motivation to practice is significantly influenced by establishing personal long-term goals, such as completing a music degree, starting a band, or performing in a concert hall as the soloist with a professional

orchestra. Preparation for reaching challenging goals is built on careful preparation, planning, and acquiring experience through opportunities that present themselves.

In contrast, opportunities refer to students' willingness to act on invitations received from others to perform in the here and now, such as performing for friends and family, participating in a music ensemble, or being selected to play as a soloist in the school orchestra. Although students at the elementary level have years to dream, set goals, and prepare their musical future, they are influenced and encouraged by family and friends and typically receive opportunities to perform at events outside of school, such as at retirement homes, churches, fairs, and public gatherings. For some students, immediate access to playing music is exciting, something new and interesting to learn. Instrumental music also serves as a source of social and emotional therapy, allowing students to find solace and companionship when they are alone or depressed. Music is an excellent source of therapy for students who feel neglected, abused, or bored with nonproductive activities. It also serves as an antidotal distractor for students with autism spectrum disorder or other neurodevelopmental disorders; research has confirmed that students benefit from music therapy (Mayer-Benarous et al., 2021).

Adult Supervision and Teacher Support

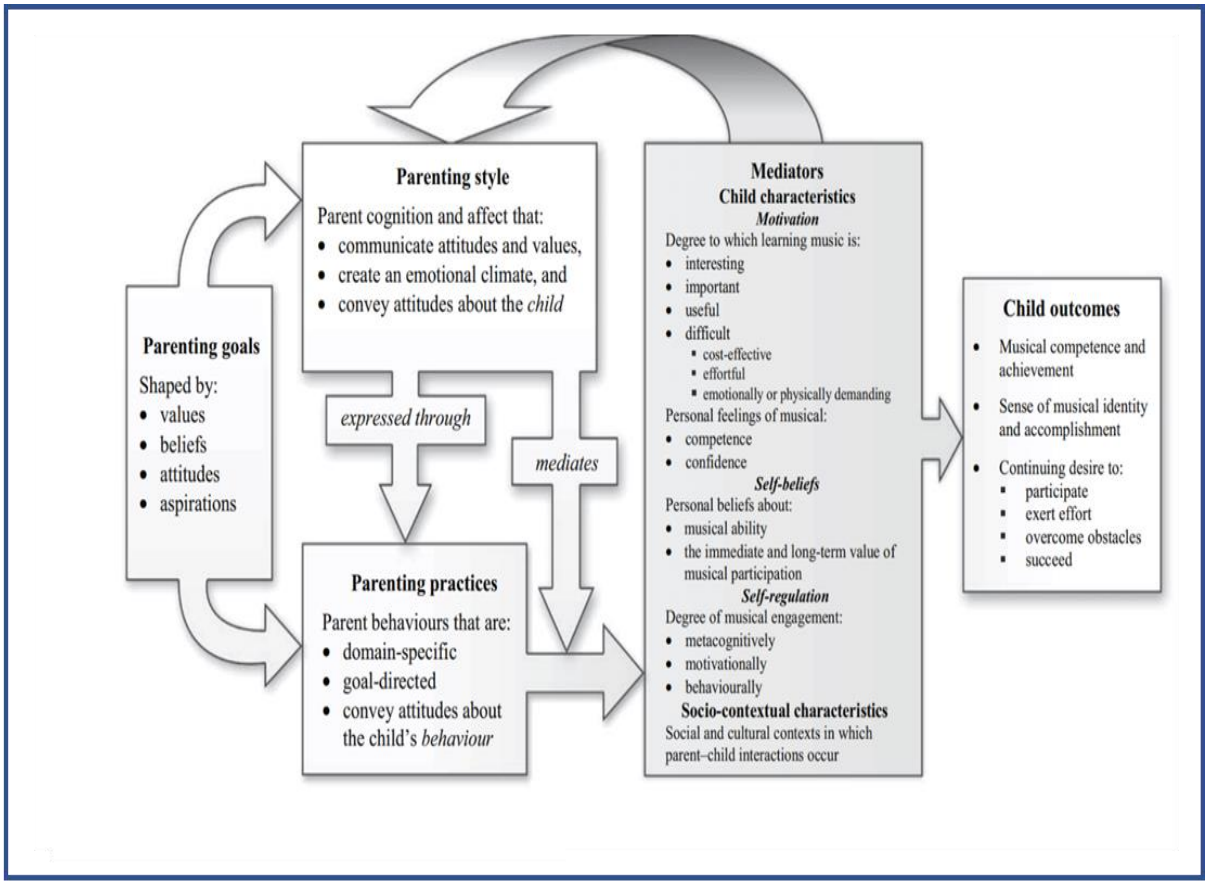
The great musical prodigies of history had in-home music teachers who monitored their daily practice (Lehmann & Ericsson, 1997). Briscoe (2016) identified the immediate benefits of adult supervision when practicing: Students quickly discover that deliberate practice, which involves extensive repetition, attention to weaker areas, and constant and methodical evaluation, requires effort and is not inherently enjoyable. To alleviate the tediousness of practice, parents could incorporate the child's favorite toys or activities and take advantage of simple games to keep the child engaged (Briscoe, 2016, p. 44). Research has indicated that 94% of beginning

music students do not have the luxury of parent musicians or the financial means for private music tutors. Only 6% of parents in close proximity to their practicing child were able to provide any evaluative feedback (McPherson et al., 2012). Adult supervision can be effective when students are guided in competence, constant encouragement, and achievement, generating a sense of musical identity and accomplishment and the continuing desire to participate, exert effort, overcome obstacles, and succeed (McPherson, 2008).

In contrast to these positive effects, the presence of parents during practicing also had a negative effect on musical progress in some cases. These events were observed and documented when parents exhibited their lack of optimism in their child's musical potential, which eventually rubbed off on the music student (Davidson & Borthwick, 2002; McPherson & Davidson, 2002). In a parent-controlled environment, students are more likely to quit playing their instruments (Faulkner et al., 2010). Further, many students drop out of beginning instrumental music for one simple reason: They do not have the necessary musical readiness to learn what beginning instrumental educators are attempting to teach (Gordon, 2010). Although researchers have found compelling confirmation that the self-motivation and determination of young learners are the most significant factors leading to higher levels of achievement, other important factors were natural ability, length of tuition, and the support and care of parents who helped their children overcome obstacles and achieve goals during the early stages of learning, as shown in Figure 2 (Margiotta, 2011, p. 28).

Figure 2

Parent–Child Interactions in Children's Musical Learning



Note. From "The Role of Parents in Children's Musical Development," by G. E. McPherson, 2009, *Psychology of Music,* 37(1), p. 94 (https://doi.org/10.1177/0305735607086049). Copyright 2009 by Society for Education, Music, and Psychology Research.

In addition to parental support and supervision, teacher support is critical in supporting music students with appropriate training and structure. Elliott (1995) concluded that music teachers should be qualified to both perform and teach music and asserted that qualifications of a professional music educator must possess two complementary forms of expertise: musicianship

and educatorship. He stated, “A teacher cannot form the intention for students to learn something if he or she has no knowledge or beliefs about what students should learn" (Elliott, 1995, p. 252).

During the adolescent years, the quality and success of the music students’ personal music training and practice relies heavily on the collaborative effort of two important parties : the parents who oversee weekly music practice at home, and the school’s music teacher who monitors technical progress and adherence to structured practice. Appropriate adult support is an important component of the conceptual framework because the student depends on the teacher’s guidance to meet technical challenges. Although practice habits are established early on, there is no end to this process, especially when decoding the complexities of challenging instrumental passages increases over time as the level of difficulty in the repertoire increases. Therefore, the process of identifying problematic areas in music and exploring the best method to negotiate and resolve technical difficulties should be a serious concern for all students. Instrumental music students who desire to succeed must hold themselves accountable while navigating through complex combinations of notes, rhythmic figures, tempo, range of notation, effective bowing strategies, and applying appropriate left-hand fingerings.

Researchers have pointed to relationships between the student, parent(s), and teacher as the key to establishing accountability. However, musicologists such as Iott, assert motivation in students depends on establishing a link and building a quality relationship with parents and teachers. Most importantly, students want to have fun. In fact, Iott (2021, p. 3) stated, “The most important teacher a musician will ever have is his/her first one. This concept is recognized by many in the field of general education, and we can see the effect of it in our children.” However, a cooperative relationship must be established between music students, music teachers, and adult support; this becomes embedded into a conceptual theoretical framework and put into practice.

Adherence to a well-rounded, effective conceptual framework must provide an essential foundation for other aspects of practicing instrumental music, such as relatedness, found in SDTs. Relatedness to this concept is where two or more elements strongly influence each other. Students typically enjoy a long-lasting and pleasurable relationship with music instructors consisting of mutual respect and admiration. The high level of such a relationship effectively seals the student's commitment to practice, and teachers are committed to teaching students effectively. In balancing the rigorous and strict achievement-oriented approaches to music practice, music practice can also be fun for students. Music researchers have suggested that practice can be displayed as play and that quality relationships and "pleasurable experiences prove to support the development of intrinsic motivation" (Iott, 2021, p. 3).

Teacher-provided technology scaffolds are influential in helping students reach their independent practice goals. For example, teacher-generated recordings help students understand the repertoire better, address specific technical aspects of negotiating music practice, and serve as an ancillary rubric. Student-managed technological tools are used to access recordings, identify musical terms, access an electronic tuner to tune their instrument, and use a metronome to guide them with practice tempos, while practicing independently.

Theoretical Framework Concepts

In discussions of which theoretical framework researchers should use, Elliott (1995) argued the following:

> to select one direction of thought over another would bias our inquiry from the outset. We must use them all. We must consider all these dimensions and their interrelationships as they contribute to our understanding of the nature and significance of music as a diverse human practice. (p. 45)

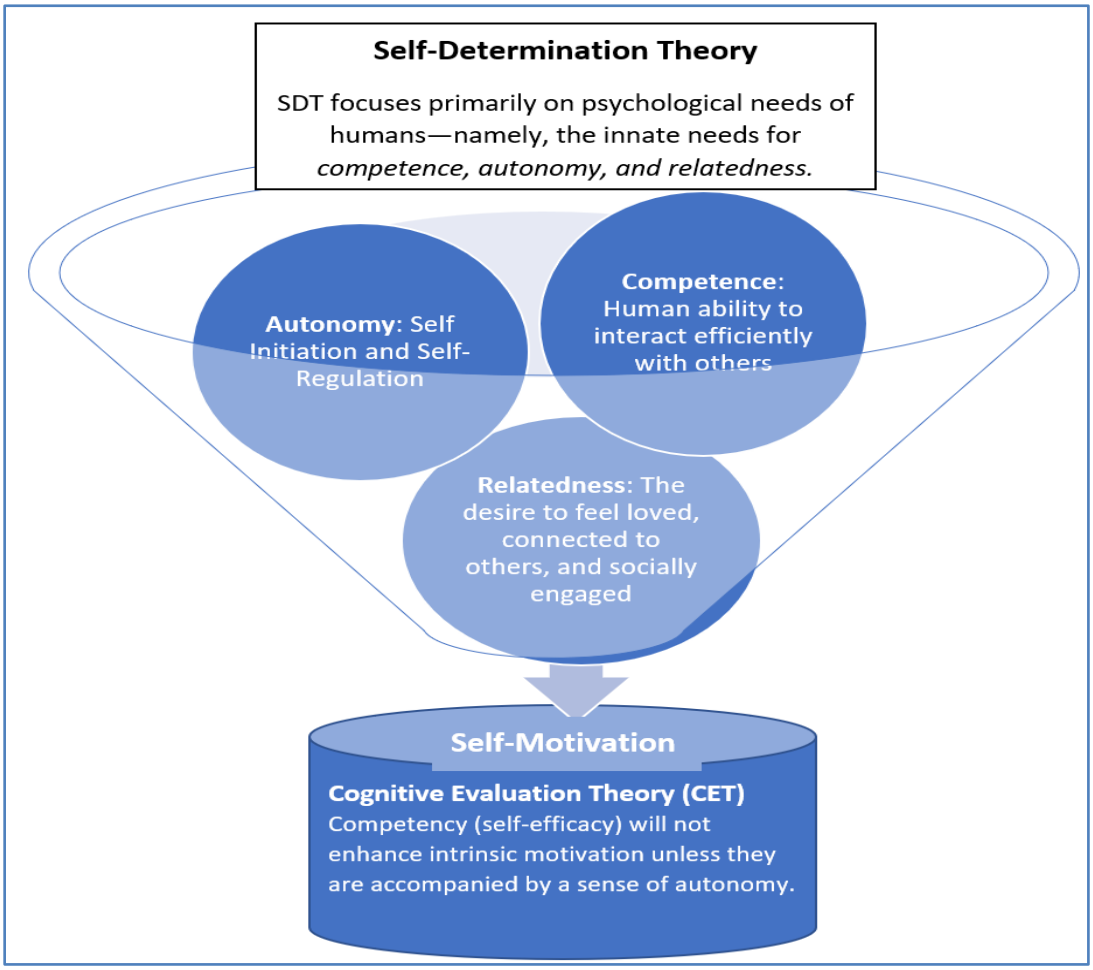
In drawing out the complexity of Elliott's argument to establish further inquiry, it appears logical to establish priorities concerning human practice when employing a multidimensional framework model. Gaining an understanding of complexity starts with the acknowledgment that music is a human activity as a self-evident principle. Elliott (1995, p. 42) stated, "we now understand that music is a multidimensional human phenomenon consisting of an interlocking relationship called music practice." Sparshott (2017, p. 114) described human practice as "something that people do, and know they do, and are known to do." Hence, research findings suggest conditioning such as self-determination, self-regulation, and so forth, may be required to motivate humans to practice music, specifically at the beginning stages.

Self-Determination Theory

In 1985, Deci and Ryan established groundbreaking progress with their book *Intrinsic Motivation and Self-Determination in Human Behavior*, which was accepted as a sound empirical theory. The SDT, as shown in Figure 3, is based on three primary concepts: competence, the need to feel effective in one's pursuits and successful in the acquisition and execution of skills; relatedness, the need to feel socially connected and integrated; and autonomy, the need to feel that one's activities or pursuits are self-endorsed and self-governed (McPherson et al., 2012, p. 86). A comparative examination of the grounded theory of self-determination and its three motivational principles of autonomy, competence, and relatedness suggests the SDT can effectively guide the practice habits of instrumental music students during independent practice (Ryan & Deci, 2000a; Schnerer & Hopkins, 2021).

Figure 3

Self-Determination Theory Model



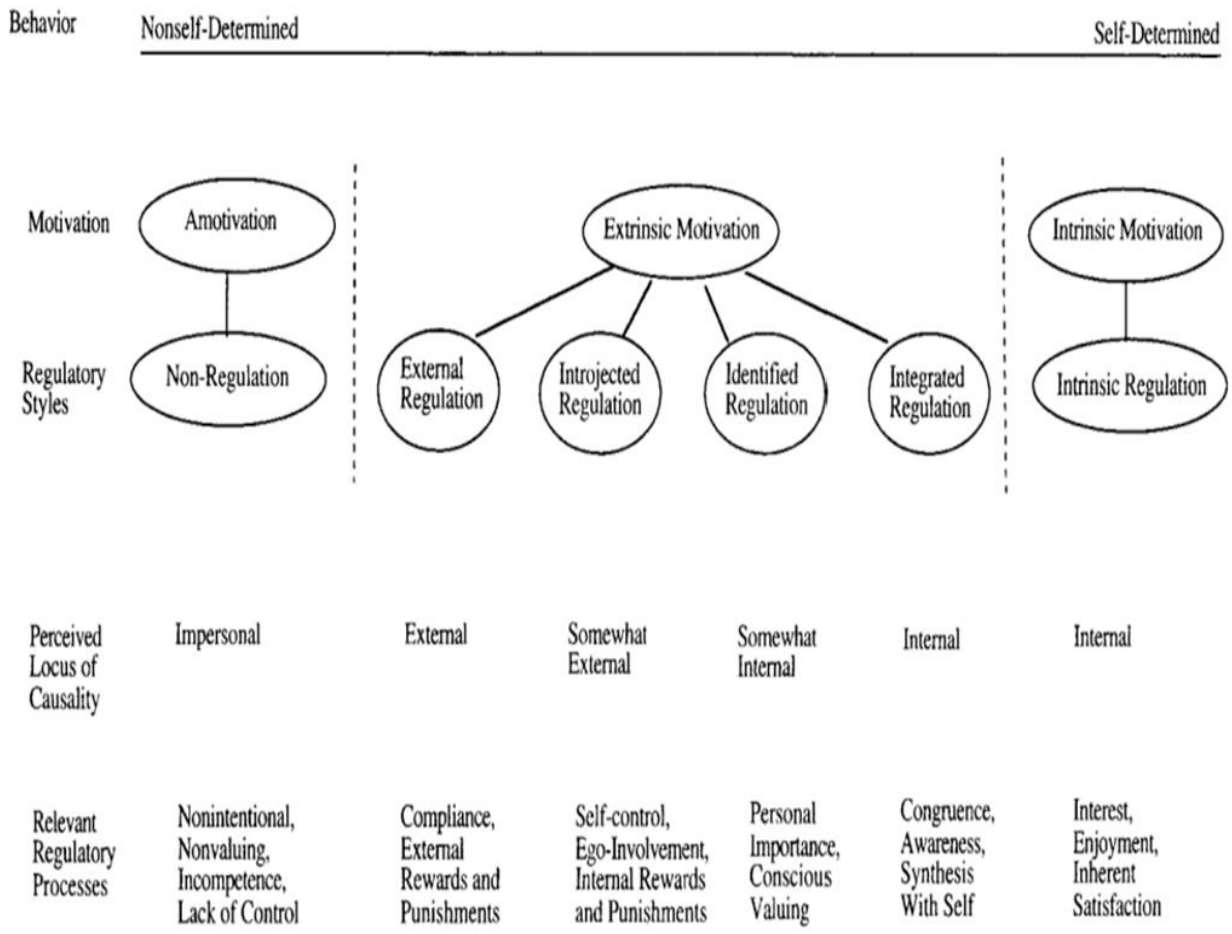
Note. Concepts are from Deci and Ryan (2000a).

As an effective theoretical framework, SDT offers well-grounded theories and explanations describing the differences (Figure 4) between three different types of motivation that typically drive the behavior of humans; *intrinsic motivation*, related to factors that are not dependent on external circumstances; *extrinsic motivation*, related to factors that are dependent on external circumstances; and *amotivation* (also known as *avolition*), a psychological condition

defined as "a reduction in the motivation to initiate or persist in goal-directed behavior" (Barch & Dowd, 2010, p. 919).

Figure 4

Self-Determination Continuum Showing Types of Motivation



Note. From "Intrinsic and Extrinsic Motivations: Classic Definitions and New Directions," by E. L. Deci and R. M. Ryan, 2000, *Contemporary Educational Psychology, 25*(1), p. 61 (https://doi.org/10.1006/ceps.1999.1020). Copyright 2000 by Academic Press.

Since 2000, research into practical applications of SDT has increased significantly in several fields of interest such as education, sports, and business (Ryan & Deci, 2000b). The key

research that led to the emergence of SDT included research on intrinsic motivation (Deci, 1971, p. 105). Intrinsic motivation refers to initiating an activity because it is interesting and satisfying in itself, as opposed to doing an activity for the purpose of obtaining an external goal (extrinsic motivation). To be truly intrinsically motivated, a person must feel free from pressures, such as rewards or contingencies. SDT theory asserts that "intrinsic motivation will be operative when action is experienced as autonomous, and it is unlikely to function under conditions where controls or reinforcements are the experienced cause of action" (Deci & Ryan, 1985, p. 29). Intrinsic motivation is essential in establishing the will for students to embrace good practice habits; in the context of this study, this refers to the practice habits developed by music students. From well-grounded empirical studies in various work settings, autonomous motivation in relationship to SDT is the desirable outcome (Deci et al., 198).

Recent reports by other researchers indicate that in recent years, the SDT contributions have expanded in other disciplines. In fact, SDT pioneers Deci and Ryan have "championed a strong conceptual organismic perspective from which a number of other theoretical models have been launched" (Vallerand, 2021). SDT, on the other hand, was not listed by Miksza and Johnson (2012) in their publication of theoretical frameworks applied to music education.

Dimensions of Musical Self-Regulation

The dimensions of musical self-regulation are a relevant conceptual framework described as the "set of processes that students draw on as they promote their own learning" (McPherson & Zimmerman, 2011, p. 111). In their conceptual framework, McPherson & Zimmerman (2011) defined the six physiological dimensions of their processes for musical self-regulation as motive, method, time, behavior, physical environment, and social. In Table 3, each dimension is

accompanied by a scientific question for guiding research, a socialization process for facilitating development, and the self-regulation process itself.

Table 3

Dimensions of Musical Self-Regulation

Scientific question	Physiological dimension	Socialization process	Self-regulation process
Why?	Motive	Vicarious or direct reinforcement by others	Self-set goals, self-reinforcement, and self-efficacy
How?	Method	Task strategies are modeled or guided socially	Self-initiated, covert images, and verbal strategies
When?	Time	Time use is socially planned and managed	Time use is self-planned and managed
What?	Behavior	Performance is socially monitored and evaluated	Performance is self-monitored and evaluated
Where?	Physical environment	Environments are structured by others	Environments are structured by self
With whom?	Social	Help is provided by others	Help is sought personally

Note. From "Self-Regulation of Musical Learning: A Social-Cognitive Perspective on Developing Performance Skills," by G. E. McPherson & B. J. Zimmerman, in R. Colwell & P. R. Webster (Eds.), *MENC Handbook of Research on Music Learning* (p. 134), 2011, Oxford University Press. Copyright 2011 by Oxford University Press.

Multidimensional Conceptual Framework Model

Guided by the SDT, expanding on McPherson and Zimmerman's (2011) conceptual framework (Table 3), and applying argument from Elliott (1995) of "using them all" in reference to other related theoretical frameworks, the MCFM is used in this study because it is pragmatic

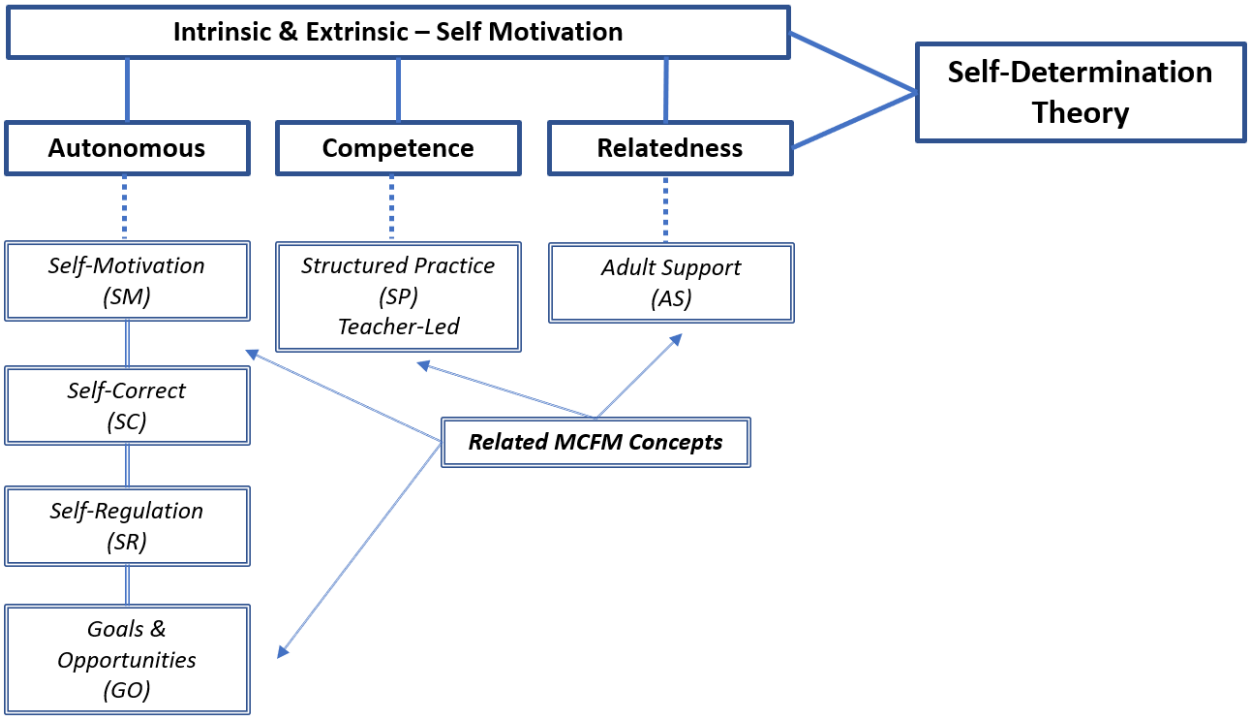
for practitioners; also, it is the framework in which I trust and most familiar with. SDT is based on self-determination, but there are significant differences between the MCFM and SDT requiring detail and clarity, such as adult support and structured practice.

The primary purpose of the MCFM provided the foundation from which I amassed the structural support required to develop accurate and balanced practice habits when first learning to play the violin. From an empirical platform, I observed instrumental music students who appeared to practice without knowledge of any framework. As a student in high school, I was asked to serve as a student aid. During this period, I observed how unguided students quickly developed poor practice habits that became the cause of failure and prevented many students from becoming an instrumental musician.

Although the MCFM presented in this study is not grounded as a proven theory, the SDT of Deci and Ryan (2000a) is. The self-motivation, self-regulation, self-correction, structured practice, goals and opportunities, and adult supervision concepts of the MCFM for establishing effective instrumental music practice habits fundamentally align with the three major areas of psychological need (autonomy, competence, and relatedness) identified as the pillars supporting the SDT (Figure 5).

Figure 5

Self-Determination Theory as Support for Related Multidimensional Conceptual Framework Model (MCFM) Concepts



Note. Theoretical merging of MCFM concepts guided by self-determination theories of Deci and Ryan (1985).

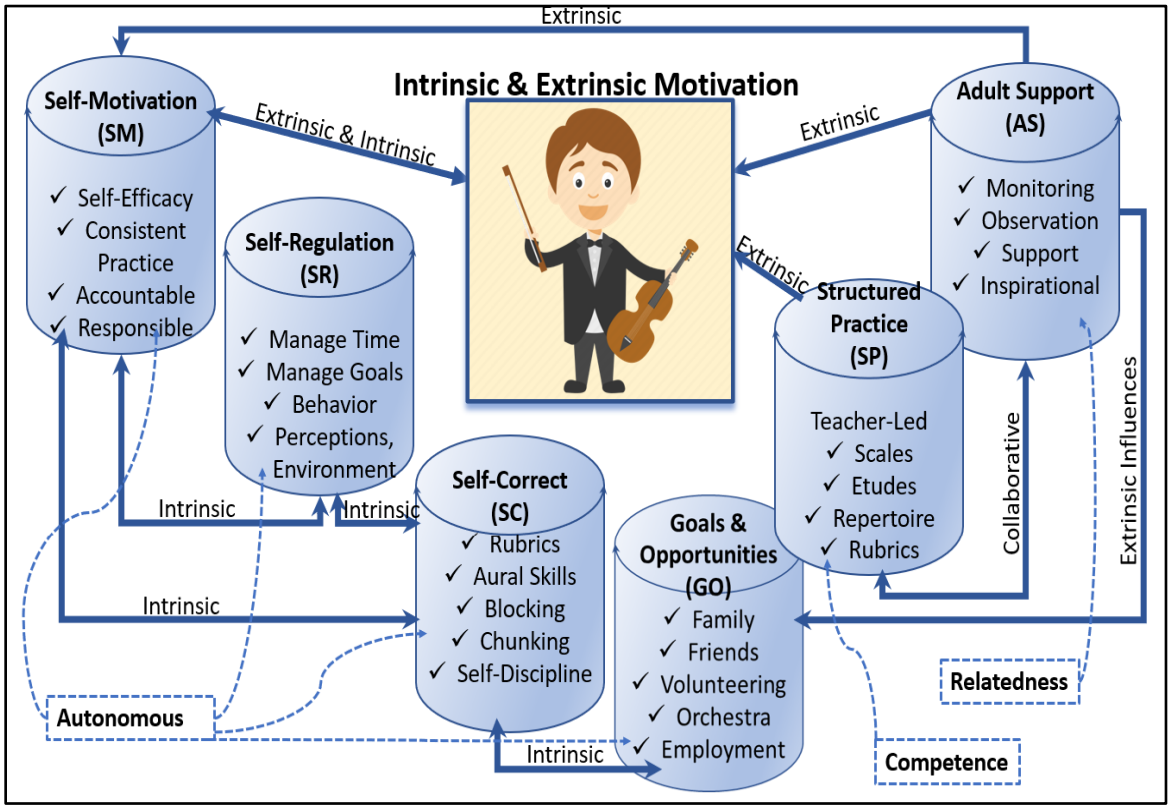
Autonomy, competence, and relatedness are essential for constructive social development, personal well-being, and optimal human functionality (Deci & Ryan, 2000b, p. 68). Currently, SDT is well-established and centered primarily on nonmusical domains such as sports, work, parenting, teaching, health, morality, and technology design. The literature holds very little research on how SDT affects instrumental music students, such as the idiosyncratic nature of establishing appropriate practice habits. Thus, SDT may lack the rigor required to establish an all-encompassing framework necessary for the domain of music practice. For the

purposes of this study, the MCFM essentially pairs the empirical concepts of student practice habits with the established theory of self-determination.

Although I became aware of a few principles of the MCFM during early adolescence, such as support from my parents and self-motivation, I did not have immediate access to all of the MCFM principles associated with autonomy, as shown in Figure 5. Beginning in my second year of music, I began receiving instruction from my private teacher on how to self-correct and apply structured practice; this effectively impacted my ability to self-regulate and self-correct. Consequently, my practice habits and discipline exponentially improved the quality of my music practice. In consideration of the SDT of Deci and Ryan, Figure 6 shows what MCFM concepts of improving practice habits would look like when merged with the SDT.

Figure 6

Multidimensional Conceptual Framework Model and Self-Determination Theory



Ethics and the Role of the Researcher

This empirical survey study was approved by the George Fox University Institutional Review Board as well as the Fairfax County School District Office (see Appendices C and D). Both the students and their parents signed the survey consent form, and parents agreed to allow their child to participate in the survey while children also provided assent. As a teacher, my interpersonal relationship with the participating group of students had not yet developed requiring me to explore the field of literature. Research suggests teachers spend most of their working time in the classroom; therefore, teacher–student relationships are the most likely source for fulfilling the need for belongingness (Split et al., 2011). In contrast, I anticipated that my role as the researcher would require me to adjust my interpersonal relationship with students. As a

researcher I was able to gather new knowledge I observed about the students. In my effort to balance the power differential between myself and my students, I sought to develop a relationship of trust; in parallel, I informed my students of their roles as participants in the self-survey study.

As the researcher for this study, my role was to serve school districts in building effective music programs which encourage students to practice instrumental music effectively. Since 1978, I have maintained a private music studio and successfully taught instrumental music to elementary and secondary school students. Since 2006, I have taught instrumental music and built string programs in the State of California. Since 2016, I have directed music programs within the California public school system as a certificated public school teacher and qualified school administrator. As a professional musician and educator, I have developed mastery in teaching students how to apply rubrics toward developing appropriate practice habits and in preparing for their own careers as professional music teachers.

In launching this study, one of the first tasks was to identify and construct rubrics designed specifically for the structured practice assignments of entry-level instrumental string students. As the researcher, I facilitated the self-survey instrument, monitored student participants during the implementation, and collected the data responses. Following the collection of the survey data, I prepared the raw data for analysis by sorting, cleaning, and scrubbing.

Summary

Guided by Deci and Ryan's (1985) SDT, Zimmerman's (2011) dimensions of musical self-regulation, and the principles introduced in my MCFM for instrumental music practice, I conclude that all students should be provided with a solid foundation of support and effective assessment tools aimed at improving practice habits. The MCFM is in alignment with SDT motivational theory and the goals of established music educators: "We want practice to be deliberate, effortful, distributed, goal-oriented, problem-solving in nature and interleaved" (Iott, 2021, p. 138). Gaining a more comprehensive understanding of the practice habits of beginning instrumental music students is a fundamental component music educators must have to improve the technical skills of instrumental music students and increase long-term student retention at the secondary and postsecondary levels.

From my observation and experience, students typically fall into four primary categories that contribute to the development of poor practice habits; (a) some play difficult pieces once, (b) students play the piece a couple of times with no concentrated effort, (c) students play the piece more than twice with some improvement, and (d) students typically display an increase in concentrated effort and often reach their goal (Iott, 2021, McPherson. et al. 2012, Evans et al., 2012).

Based on my empirical experiences and survey of the literature, music students tend to abruptly decide to cease music instruction or stop playing an instrument in response to what music educators have diagnosed as diminished feelings of competence, relatedness, and autonomy, compared to when they were most engaged (Evans et al., 2012). Researchers have identified problems with practice habits as the cause of increased deficiencies related to pitch and

rhythmic errors (Elliott, 1995; Iott, 2021; McPherson, 2008). Observations from instrumental teachers conducting research in the field, such as Rom (2020), confirm a greater need for self-assessment, self-correction, and other self-regulatory behavior during independent music practice. Rom has also indicated that instrumental students who do not have the luxury of parent musicians or private music tutors are disadvantaged when learning to play an instrument in public school orchestral settings. Music teachers are encouraged to support and assist students in establishing effective habits during independent practice time (Prichard, 2020).

Finally, with the current demand for public schools to either reestablish pre-existing music programs or build new music programs, there is a timely opportunity to identify deficiencies associated with the practice habits of instrumental music students. In this study, the practice habits of elementary school students is assessed through the lens of SDT and focuses on the following six areas of improvement: self-motivation, self-regulation, self-correction, structured practice, establishing clear opportunity and goals, and receiving consistent adult supervision and teacher support.

Chapter 2

Methodology and Research Design

Validating the rationale of using a convergent design is akin to explaining why a chamber orchestra requires multiple instruments such as a violin, viola, cello, and string bass to create sonorities that can only occur when all instruments are played simultaneously. The great music composers from the baroque, classical, and romantic periods fully understood this phenomenon as the key to performing beautiful music. In parallel, a mixed methodology is useful when either the qualitative or quantitative approach alone falls short of developing "multiple perspectives and a complete understanding about a research problem or question" (Creswell et al., 2011, p. 6).

The prescribed design provided the framework for this empirical study, which required collecting qualitative and qualitative data for conducting an analysis and comparing or relating the two in parallel and then interpreting the results. Areas of convergence or divergence between the qualitative and quantitative results are analyzed in this chapter. I interpret how the quantitative and qualitative results help to explain the mixed methods results in chapter 03(Creswell et al., 2003). The following aspects of the study methodology are discussed: design, data collection procedures, sampling plan, instrumentation, analytical strategy, data analysis, role of the researcher, and ethical considerations.

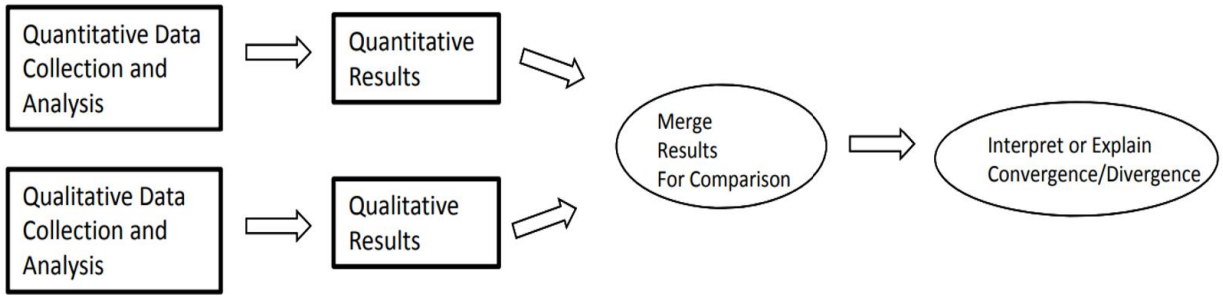
Design

This study employs a convergent mixed-parallel design in which qualitative and quantitative data were collected in parallel from survey activities. A convergent design stipulated that qualitative and quantitative data would be collected and analyzed during a similar timeframe. An interactive approach was used during the iterative data collection and analysis influenced changes in the data collection procedures. For example, quantitative findings

influenced the focus and kinds of qualitative data that were collected and vice versa. Figure 7 depicts the process flow.

Figure 7

Convergent Mixed-Parallel Design



Note. Adapted from *Steps in Conducting a Scholarly Mixed Methods Study* by J. W. Creswell (slide 40), 2013, DigitalCommons@University of Nebraska - Lincoln (https://digitalcommons.unl.edu/dberspeakers/48). Copyright 2013 by University of Nebraska.

Research Questions

Five research questions are associated with this study .

1. Are instrumental music students practicing effectively, following prescribed rubrics, and reaching their goals?
2. What are the primary drivers preventing elementary music students from reaching their goals to practice consistently?
3. How can the practice habits of instrumental music students be improved with adult involvement?
4. How are the subjects' practice habits impacted when applying the prescribed rubrics?
5. How can the data collected from the subjects' quantitative, qualitative, and mixed responses impact the practice habits of instrumental music students?

Participants

The total population of the Elementary Schools within the Fairfax District in 2021 was 2,115 students (CDE, n.d.). Of these, 87.9% were economically disadvantaged and eligible for free or reduced-price meals; 33.3% of the total school population are English learners (see Table 4).

Table 4

Fairfax District Elementary School Populations by Race/Ethnic Group

School	Population	Black	Asian	Hispanic/Latino	White
SLE	640	3.0	0.8	87.7	5.0
VAE	674	4.2	0.9	92.7	1.0
ZLE	801	1.0	2.9	87.8	6.4
Total students	2,115	8.2	3.8	268.2	12.4

Note. Hispanic students represent on average 89.4% of the Fairfax School District's total student population (CDE, n.d.). SLE = Shirley Lane; VAE = Virginia Ave.; ZLE = Zephyr Lane.

Sampling Plan

Using the district's Parent Square communication platform, all Grade 5 and 6 students and their parents received an invitation and introductory video advertising the new string orchestra program. A total of 66 music student subjects in Grades 5 and 6 were invited to an orientation meeting. They were all enrolled at Zephyr Lane (ZLE), Virginia Avenue (VAE), and Shirley Lane elementary (SLE) schools in the Fairfax School District.

Upon acceptance into the music program, students were then invited to participate in the survey research study. All but one of the students who applied were accepted into the orchestra program. The final group consisted of: 40 Hispanic students in Grade 5 with 1 Black Student, and 25 Hispanic students in Grade 6, as shown in Table 5. In this population (N = 65) 35% were

bilingual and classified by the district as English learners.

Instrumental students in Grades 5-6 were selected by convenience sampling and all but one of the students agreed to participate in the student self-survey (N=65). This is 10.4% of the Grades 5–6 student population within the district's K–6 population of 622 (29%). 63 student participants in the self-survey were Hispanic, with the exception of two Grade 6 female students; one Black and one White. Hispanic students are identified as the largest demographic group of students enrolled in the district and in the survey (see Table 5).

Table 5

Grades 5–6 Self-Survey Participants by School, Grade Level, Gender, and Race/Ethnic Group

	Frequency		
School	Grades K–6	Grades 5–6	% (*n* = 622)
SLE	640	189	30.4
VAE	674	196	31.5
ZLE	801	237	38.1
Total	2,115	622	100.0

	Grade 5		Grade 6				
	Hispanic		Hispanic				
School	Male	Female	Male	Female	Female Black	Female White	Frequency
ZLE	8	13	7	9		1	38
VAE	4	3	3	3	1		14
SLE	4	2	2	5			13
Total (*n* = 65)	16	18	12	17	1	1	65
% (*N* = 622)	2.6	2.9	1.9	2.7	0.15	0.15	10.45

Note: Student demographics are represented as percentages. ZLE = Zephyr Lane; VAE = Virginia Ave.; SLE = Shirley Lane.

Instrumentation

The primary instrument used for this empirical research was a modified version of the motivated strategies for learning questionnaire (MSLQ). This instrument was developed to measure the types of learning strategies and academic motivation used by college students

(Pintrich et al., 1993). Guided by the recommendations of Bernhardt & Bernhardt (2013), I implemented the student self-surveys by adapting a modified MSLQ 5-point Likert-type model instead of the standard 7-point Likert Scale from the MSLQ manual. I modified the questions identified in the MSLQ manual because I wanted to know if the students were being motivated in alignment with the rubrics I designed for the student survey, as shown in Appendix F.

After I created the research questions for this self-survey, I took an ex post facto mixed-methods approach consisting of five mixed questions and 10 quantitative questions. The self-survey instrument was intended to determine the practice habits of instrumental music students in elementary string programs. The questionnaire consisted of age-appropriate items with simple and shortened directions so that students in Grades 5 and 6 could easily read them and respond accordingly. The anonymous self-survey questions gave participating students an opportunity to respond with valid, honest, truthful, reliable, understandable, and succinct answers. The following items and scales represent the modified MSLQ that was used in this study to categorically measure students' motivational beliefs and learning strategies. Scales associated with each of the fifteen self-survey questions and the numbered items match the numbering scheme from the MSLQ manual referenced in this study (Pintrich, et al., 1993). The cross-reference chart in Table 6 shows the alignment and relationship between the self-survey questions created by me and the list of survey questions found in the MSLQ manual. From the 15 MSLQ scales available, there are a total of six motivational scales from which I used five as noted in the Table 6 notes. There are also a total of nine learning strategy scales from which I used three. In total, I used eight of the 15 MSLQ scales for the design of my self-survey instrument. The type of scale for each MSLQ question and the corresponding self-survey question associated with this study are found in the notes section of Table 6.

Table 6

Cross-Reference Chart: Between MSLQ Questions and Student Self-Survey Questions

MSLQ Scale & Key Reference	MSLQ Item	MSLQ Item Questions (X)	Student Survey Question Number & Type	Student Self-Survey Questions (Y)	Relationship between X and Y
1	43	I make good use of my study time for this course.	QUAL-1	Describe your practice this week; how many minutes total did you practice?	Students are urged to describe details about their practice habits and experiences to validate reporting of practice time and how students use their time in practicing music
2	78	When I study for this class, I set goals for myself to direct my activities in each study period.	QUAL-2	What music content from the homework assignments did you practice this week?	The researcher is attempting to identify if students are practicing the lesson content.
3	1	In a class like this, I prefer course material that really challenges me so I can learn new things.	QUAL-3	What challenges from the rubrics are you having when practicing?	Students are asked to confirm areas where additional support is necessary such as LH and RH bowing and rhythm errors during their practice time.

1	52	I find it hard to stick to a study schedule.	QUAL-4	Describe what time you usually practice.	The researcher is attempting to determine if students are following a consistent schedule of practice time in the home.
3	26	I like the subject matter of this course.	QUAL-5	What music (songs) do you like learning?	Students are asked to confirm their level of interest in the songs they are assigned to practice.
4	11	The most important thing for me right now is improving my overall grade point average, so my main concern is getting a good grade.	QUAN-1	How important is practicing your instrument to you?	The Researcher needs to determine the level of student interest to determine how practice time may be affected by the choice of songs selected for the students.
5	29	I'm certain I can master the skills being taught in this class.	QUAN-2	What level of music skill would you like to achieve?	The motivational level of students could be quantified when learning more about the aspirations and confidence of students.
5	6	I'm certain I can understand the most difficult material presented in	QUAN-3	How accurate is your rhythm when you practice?	The level of students' confidence and self-determination is sought by asking questions about their abilities. In turn, student responses can be confirmed through triangulation which requires the researcher to

		the readings for this course.			observe the student during rehearsals in the classroom.
3	1	In a class like this, I prefer course material that really challenges me so I can learn new things.	QUAN-4	If I were challenged more, I would practice more.	Students tend to practice music that works for them. If students like the way they sound, they practice. If students are not provided with proper guidance they lose interest.
7	25	If I don't understand the course material, it's because I didn't try hard enough.	QUAN-5	The music is too hard for me.	Teachers must observe and monitor student activity during rehearsal and be prepared to redirect students when music assignments are too difficult. I want to know what the students are thinking about the level of difficulty.
8	58	I asked the instructor to clarify concepts I don't understand well.	QUAN-6	The teacher encourages me to practice in class.	Teacher-student relationships are critical in helping the student achieve their goals and continue participating in a music program. As the researcher, I want to know the perceptions of students and their level of confidence.

6	17	I am very interested in the content area of this course.	QUAN-7	How often do you think about becoming a professional musician?	Practice habits of students improve when students are motivated. Interest in a career can propel students and increase their practice time.
6	27	Understanding the subject matter of this course is very important to me.	QUAN-8	How well do you read standard notation?	Bringing an awareness to students about the importance of improving music theory skills is critical in establishing sustainability in a music program. When students develop the ability to read music, they tend to stay in music programs.
6	27	Understanding the subject matter of this course is very important to me.	QUAN-9	How well do you play by rote (without using music notes)?	This question is to determine two things; if students are failing to read music and memorizing music as a substitute or if students are gifted in memory to the extent that reading music is not a problem for the student
5	23	I think the course material in this class is useful for me to learn.	QUAN-10	What is the likelihood you will continue playing the same instrument you play now until you graduate from high school?	It is hoped that the results from this question can provide further supporting data to determine if students are motivated to practice consistently. This data can help determine the health of the district's music program.

Note. There are five motivational scales associated with the numbered list of survey questions found in the Scale Key reference column of Table 6; these are numbered as #3- Intrinsic Goal

Orientation, #4- Extrinsic Goal Orientation, #5- Self-Efficacy for Learning & Performing, #6- Task Value, and #7- Control Beliefs about Learning. In addition, there are also three learning strategy scales in the numbered list of survey questions; these are identified as #1- Time & Study Environment, #2- Metacognitive Self-Regulation, and #8- Help Seeking.

Administrative Procedures for Data Collection

In laying a foundation for collecting data, I established formal procedures and established relationships with key stakeholders as a first step in conducting this study.

1. On August 1, 2022, I formed a partnership with the Fairfax Elementary School District in Bakersfield, California, to establish a new District Orchestra for Grades 3–6.
2. Approval to conduct a survey using human subjects was received from the George Fox University Institutional Review Board on August 9, 2022.
3. Via the district's Parent Square communication platform, all Grade 5 and 6 students and their parents received an invitation and reviewed a video introducing the new string orchestra program and the instructor. As a result, 66 music students in Grades 5 and 6 enrolled at Zephyr Lane, Virginia Avenue, and Shirley Lane elementary schools in the Fairfax School District. They and their parents were invited to an enrollment orientation meeting on September 9, 2022.
4. Permission was received from the Fairfax District Superintendent on September 19, 2022, to send an invitation letter to parents and subjects in Grades 5 and 6 enrolled in the District Orchestra to participate in a student self-survey (see Appendix E).
5. Invitations to the study and consent forms were sent to parents and student participants on November 1, 2022.

6. Signed consent forms to participate in the study were received from parents and student participants on November 7, 2022.

Prior Experience of Student Participants

While meeting with members of the new Grades 5–6 orchestra members on October 10, 2022, I assessed students' level of experience with instrumental music prior to applying the self-survey instrument. I determined none of the instrumental music student participants had previous experience in playing string instruments or formal music training, and they could not read standard music notation. I confirmed this through assessment, observation, and discussions with the students. To participate in a self-survey of their practice habits, students needed to first gain a reasonable level of technical experience in playing string instruments. Thus, a critical step in this study was generating meaningful data related to practice habits of students and conducting a student self-survey to collect and examine data.

Preparation for Survey

In preparing music students to participate in the self-survey, all participants required 6 weeks of rigorous basic technical training on how to play string instruments in a classroom setting. During this compressed time frame, the students received intensive training on note reading, properly holding the instrument with the left hand and bow in the right hand, applying appropriate bow pressure when engaging the string, moving the bow to adjoining strings, developing pitch perception, applying pitch correction, and using basic tuning concepts on the instrument.

This training was followed by providing students with an additional four weeks of instruction on how to accurately apply standard music notation and play five songs in first position on the violin. The students learned how to accurately and efficiently leverage the fingers

of the left hand to produce tone and play a one-octave scale in the key of D Major. To accomplish this, all student participants received in-person instructions from me using lesson content from the self-guided *Essential Elements for Strings* (Book 1; Allen et al., 2003). In addition, students received their music methods book and music for the five songs they were instructed to learn for their first Fall concert performance.

During their first week of training, instrumental students also received instructions on how to use the practice rubrics, focusing on the students' self-assessment during their independent practice (see Appendix G). This was an important step because the compressed schedule to prepare students to perform the Christmas program depended on students' commitment to practice at home. Students were also given instruction on how to access video tutorials from Hal Leonard Corporation. Online tutorials effectively assist the student with gaining further comprehension about each lesson component when practicing independently.

Four weeks prior to conducting the self-survey, all participants were provided with a rubric and accompanying instructions identifying the homework assignments to be practiced (see Appendix G). Students were tasked with practicing the following content daily: a one-octave scale, a selected classical étude, Kreutzer bowing exercises, an ensemble technique-building selection from the *Essential Elements for Strings: Violin Book 1* (Allen et al., 2003), and as the district music teacher, I provided the students with music from *Essential Elements for Strings, Methods Book 1*, (Allen et al., 2003) as shown in Appendix I.

During classroom rehearsal, I provided all student subjects with music materials, rubrics, a practice log, and detailed instructions on how to use the rubrics. As the teacher, I also guided the student participants through exercises on how to apply right- and left-hand technique when practicing the violin, as shown in the rubrics (see Appendix G). Two weeks prior to the student

self-survey, participants were provided with simple definitions related to the MCFM in anticipation of identifying which concepts students might be familiar with while practicing independently.

Data Analysis Plan

Qualitative Data

1. Qualitative data were generated, collected, and sorted from participant responses to five open-ended questions.
2. Observations of student participants practicing during orchestra rehearsals were conducted with notes and memos collected during the time frame of the study.
3. Content from qualitative data was read and analyzed.
4. Relevant sections and aspects of the data were highlighted.
5. Data were aligned with the six components identified in the MCFM for effective sorting of the codified evidence.
6. Findings were analyzed and reviewed, then coding of data was compressed.
7. Analysis and interpretation of findings from the survey were documented.
8. Research findings were described and validated in narrative format.

Quantitative Data

1. Quantitative data were generated from participant responses to 10 closed-ended (Likert-type) questions or comments and were collected and sorted.
2. Likert-type scores from quantitative data results were added to an Excel spreadsheet.
3. Relevant sections and aspects of the data were highlighted.
4. Quantitative data were codified and aligned with the six MCFM components for sorting codified evidence.

5. Findings were reviewed further at a micro level and coding of data compressed.
6. Analysis and interpretation of findings from the survey were documented.
7. Relational impact between qualitative and quantitative research findings was evaluated for possible triangulation and analyzed in narrative format.
8. Research findings from analysis of quantitative data were validated in narrative format.

Mixed Methods

A mixed-methods approach was used for implementing this convergent parallel design. Using the variable data collected from responses to the qualitative and quantitative survey questions in this study, I was able to examine and assess the mixed effects from multiple variables. For example, I wanted to know what level of parental/adult support students received and how this support affected the students. After I analyzed data related to practice time I was able to draw inferences on how increased practice time improved student confidence levels. One of the important functions of applying a mixed methods approach is determining which objectives of the study have equal or unequal status (Creswell, 1994, P. 176).

Data Collection Procedures

On September 9, 2022, the Fairfax Elementary School District in Bakersfield, California, approved funding for the purchase of 150 new string instruments. In response to the high volume of student enrollment and limited rehearsal space on the elementary school's stage, it became necessary to create two string orchestras: one for Grades 3–4 and another for Grades 5–6. This study specifically focused on new orchestra students in Grades 5 and 6, whose ages ranged from 10 to 11 years.

Gathering student participants was the second step in developing the methodology for this research. In October 2022, a total of 65 beginning string students in Grades 5 and 6 from the

combined students from all three elementary schools in the Fairfax School District (and their parents/guardians) signed contracts to join the newly organized instrumental string program (see Appendix F). As a result, 40 students in Grade 5 and 25 students in Grade 6 accepted my invitation to participate in the student self-survey.

Survey Response Rate

Sixty-six students in Grades 5 and 6 were asked to participate in the self-survey. Sixty-five consented to participate in the student self-survey. From the total population of 622 students in Grades 5 and 6, 10.4% (65) students participated in the student self-survey. The participating students consisted of 37 female students and 28 male students.

Implementation of Survey

The student self-survey was conducted by the researcher on November 14, 2022, in the all-purpose room located on the Zephyr Elementary School campus in the Fairfax Elementary School District. To maintain complete anonymity and to prevent participants from collaborating during the survey, student participants were seated 6 ft (1.83 m) apart from each other during the student self-survey. I proctored the survey with assistance from an instructional aide to ensure students-maintained anonymity with their responses and avoided contact with other participating students. Students were instructed to provide complete sentences to the five qualitative questions but no more than a paragraph long.

Quantitative Data Findings of MCFM Concepts

All students (N = 65) responded to the self-survey questions to determine students' knowledge and application of concepts associated with the six areas of the MCFM previously identified in Figure 6. Several areas of significant interest emerged from the analysis of the data. Data in Table 7 revealed that while girls scored higher than the boys in five of the six MCFM

categories, boys were within close range of the girls in the areas of self-regulation and structured practice. While self-motivation as reported by boys was 6% higher than girls, significant gaps influencing practice habits were found between the girls and boys. For example, out of 28 boys, 14 (50%) reported they receive no monitoring or support from adults during their practice time. In contrast, only seven girls (19%) reported they received no adult support. While 24% of girls said they did not apply self-correction when practicing, 43% of boys reported they were not applying self-correction when practicing. While 38% of the girls expressed no interest in establishing goals and opportunities, 54% of the boys expressed no interest in establishing goals and seeking opportunities. When students were asked if they self-regulate themselves during practice, 70% of the girls indicated that they do. The boys reported nearly the same percentage as the girls at 68%.

Table 7

Analysis of Student Participant Knowledge of Six Multidimensional Conceptual Framework Model (MCFM) Concepts

	Boys		Girls		Δ (%)
MCFM component	*n*	%	*n*	%	(Boys − Girls)
Self-motivation					
Has self-motivation	22	79	27	73	6
No self-motivation	6	21	10	27	−6
Total	28	100	37	100	
Self-regulation					
Has self-regulation	19	68	26	70	−2
No self-regulation	9	32	11	30	2
Total	28	100	37	100	
Self-correction					
Has self-correction	16	57	28	76	−19
No self-correction	12	43	9	24	19
Total	28	100	37	100	
Structured practice					
Has structured practice	16	57	22	59	−2
No structured practice	12	43	15	41	2
Total	28	100	37	100	
Goals & opportunities					
Has goals & seeks opportunities	13	46	23	62	−16
No goals & opportunities	15	54	14	38	16
Total	28	100	37	100	
Adult support					
Has adult support	14	50	30	81	31
No adult support	14	50	7	19	31
Total	28	100	37	100	

Note: Analysis of self-survey data received from students (N = 65) shows a lack of knowledge about the six principles students need as identified in Figure 6. Adherence to these principles typically prevents students from developing substandard practice habits.

Data Processing and Coding

Upon completion of the MCFM portion of the questionnaire, participants were instructed to proceed with responding to the following five qualitative and 10 quantitative self-survey questions selected for this empirical mixed methods study. After collecting student-survey responses for questions 1-5, data was coded and sorted. Students were provided an opportunity to describe their experiences without restrictions typically associated with closed-ended questions. As a result, students provided responses that yielded a mixture of qual and quan data. In comparison to quantitative or qualitative design, mixed-methodology design represents the highest degree of the three designs. Mixed-methodology design is a powerful approach because it allows the researcher to triangulate qual and quan data when analyzing possible outcomes and generalizing the results of data collected from self-surveys Creswell, 1994). Mixed data collected from the student self-survey participant responses in questions 1-5 are expected to provide data allowing the researcher to discover new revelations about the practice habits of instrumental music students (see Table 8).

Table 8

Open-Ended Student Self-Survey Questions

Type of data	Ex post facto: open-ended QUAL+QUAN question
Mixed-1	Describe your practice this week; how many minutes total did you practice?
Mixed-2	What music content from the homework assignments did you practice this week?
Mixed-3	What challenges from the rubrics are you having when practicing?
Mixed-4	Describe what time you usually practice.
Mixed-5	What music (songs) do you like learning?

Note. Data source: observations and nominal data from student self-survey.

Creswell describes the quantitative survey design contributing to the mixed methods of this study as a numeric representation of a population. From the collection of quantitative data, a researcher generalizes the findings from a sample of responses of a population. In addition, the sampling design for this population is described as single stage sampling because the researcher has access to all of the students by name. As previously mentioned, data generated from quantitative survey questions 1-10, as shown in Table 9, were collected from a convenience non-probability sampling process where participant responses were selected because access to this group was convenient for the researcher.

Table 9

Closed-Ended Student Self-Survey Questions

Type of data	Ex post facto: closed-ended quantitative question
QUAN-1	How important is practicing your instrument to you?
QUAN-2	What level of music skill would you like to achieve?
QUAN-3	How accurate is your rhythm when you practice?
QUAN-4	If I were challenged more, I would practice more.
QUAN-5	The music is too hard for me.
QUAN-6	The teacher encourages me to practice in class.
QUAN-7	How often do you think about becoming a professional musician?
QUAN-8	How well do you read standard notation?
QUAN-9	How well do you play by rote (without using music notes)?
QUAN-10	What is the likelihood you will continue playing the same instrument you play now until you graduate from high school?

Note. Instrument: student self-survey using 5-point Likert-type scale.

Mixed Data Collection Process

After collecting the student's completed self-survey instrument, all responses to qualitative (open-ended) and quantitative (closed-ended) questions were extrapolated from the survey instrument and recorded in a formatted MS Excel document for sorting, scrubbing, and preparing raw data for analysis. (See Appendix K for quantitative data and Appendix L for

qualitative data). Creswell et al. 's (2003, p. 176) provided recommendations and procedures for assimilating mixed methods research and in converging QUAL+QUAN data. Similarities in form, assumptions, strengths, and limitations found in the student self-survey data were identified and grouped for further comparison and analysis. From a macro perspective, QUAL and QUAN data derived from the self-survey were subsequently paired and regrouped using a convergent parallel design process theory. (See Appendix M.)

Reliability

Self-assessment findings from the result of this student self-survey were reasonably positive in terms of consistency across tasks, across items, and over short time periods. “Studies show adequate consistency involving students who have been trained in how to evaluate their work. However, there was less consistency over longer time periods, particularly involving younger children, and there were variations among subjects” (Ross, 2006, p. 3). While comparing my observations of the students’ skills during orchestra rehearsal, I was able to assess the level of students’ technical ability. After examining the survey data, I found the content reasonably accurate and close to what I expected to receive from most students, thus, I believe the reliability of the survey results is moderately high.

Validity

Questions associated with the student self-survey instrument identified a high level of appropriate items with respect to lesson content, instructions, and the rubrics. The survey instrument contained items that offered participants an opportunity to respond anonymously with either a positive or negative answer, decreasing the possibility of a response set bias. Content validity for both qualitative and quantitative data analysis was good with minimal risk, especially when interpreting data accurately from the survey instrument’s 5-point Likert-type scale and

measurement system. Teaching students in a group setting increased validity as the participants received instruction simultaneously. The degree of differential validity, such as potential favoritism of male students over female students or vice versa, was fair and unbiased.

Analysis of Data Findings

In following Creswell's (1994, p. 183) recommendations for analyzing data associated with a mixed-methods study, grounded theory and procedures identifying two purposes for the study, one qualitative and one quantitative, are presented in the language characteristic of both paradigms.

1. Analysis of student responses to QUAL, QUAN, and mixed questions are guided by the five research questions in this study.
2. QUAL and QUAN data related to each of the five research questions were separately identified, paired, grouped, and matched to appropriate research question themes. Taking this approach allowed an opportunity for methodological triangulation to occur during the comparative analysis process. (See Analysis in Appendices K and L.)
3. In this mixed-method study, QUAL and QUAN data appeared equally balanced and dependent upon the other. For this research, identification of relationships between research questions and coding were identified (see Table 10).

Table 10

Relationship Between Research Questions and Coding

Research question	Major categories for coding procedure
RQ1 (Mixed): Are instrumental music students following prescribed rubrics, practicing effectively, and reaching their goals?	Effective practice Rubrics Reaching goals
RQ2 (Mixed): What are the primary drivers preventing elementary music students from reaching their goals to practice consistently?	Primary drivers Practice goals
RQ3 (Mixed): How can the practice habits of instrumental music students be improved with adult involvement?	Practice habits Adult support
RQ4 (Mixed): How are the subjects' practice habits impacted when applying the prescribed rubrics?	Errors between practice habits and rubrics are manifested
RQ5 (Mixed): How can the results collected from the subjects' quantitative, qualitative, and mixed methods data impact the practice habits of instrumental music students?	Triangulation from analyzing data from the mixed results may offer explanations

RQ1 (Mixed)

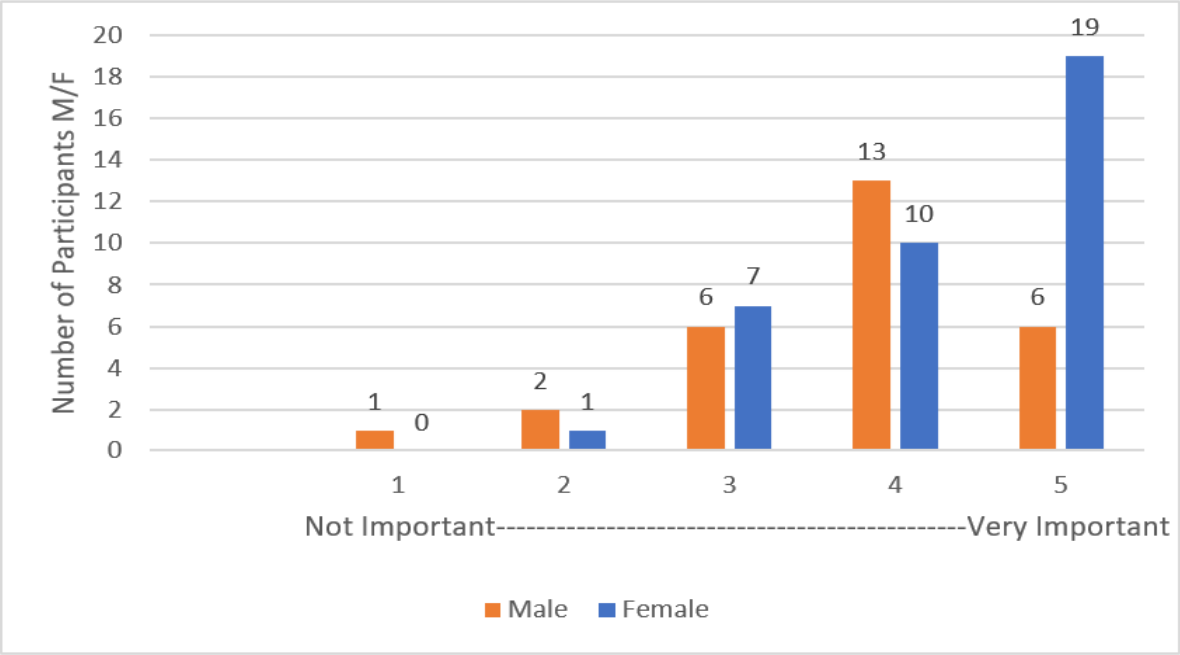
To what extent are instrumental music students practicing effectively, following prescribed rubrics, and reaching their goals to improve practice habits?

QUAN-1. How important is practicing your instrument to you? Upon examination of QUAN data identified in Figure 7, the student self-survey results shown in Likert 3–5 ranges

indicate 36 (95%) of the female students collectively believed practicing their instrument was average to very important. Comparatively, male students (*n* = 28) acknowledged ranges similar to those reported by female students, 25 (89%). Overall, 61 (94%) of the participants (*N* = 65) acknowledged the importance of practice, as shown in Figure 8.

Figure 8

Quantitative Question 1: How Important Is Practicing Your Instrument to You?



Note. *N* = 65; 28 boys, 37 girls.

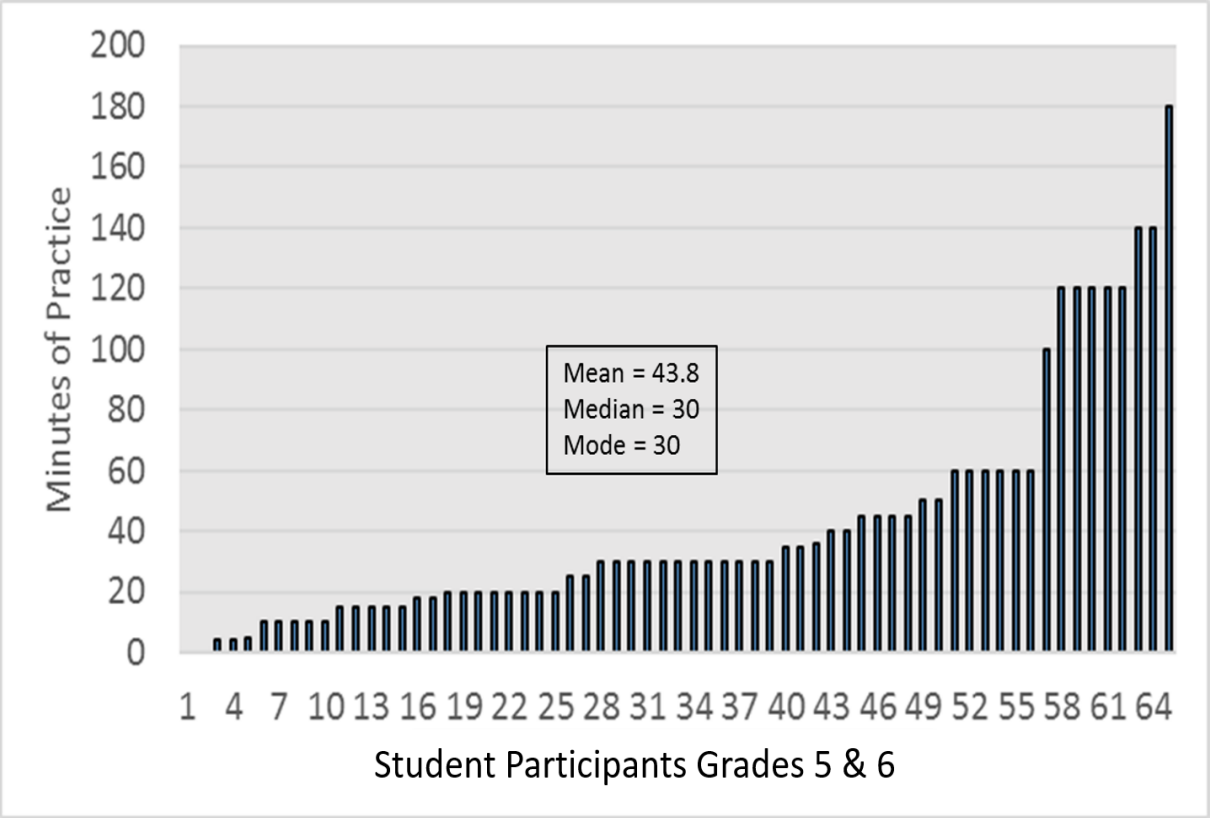
QUAL-1. Describe your practice this week; how many minutes total did you practice? My collection of notes, memos, and emails describes the esprit de corps of students, which consisted of a range of emotions, excitement, and challenges students experienced after first receiving their new music instruments. My observations also confirmed qualitative efforts of students who were committed to practice. Typically, small groups of orchestra students were documented Monday through Thursday every week; they asked me to confirm their progress in

playing song selections such as “Joy to the World,” “Ode to Joy,” and others. Student progress was often assessed during class time by using rubrics to determine dexterity improvements in the right hand and left hand (see Appendix G). Students were incentivized with continuous reminders that practice is the key to how seating assignments in orchestras are determined. Rotation of section leader positions made it possible for several students to become section leaders in the new orchestra, which served as an effective rewards system for students who demonstrated the ability to play the lesson content well.

Minutes Practiced. The survey instrument was used to verify if students were reaching the goal to practice at least 30 min daily at home and a total of 150 min per week. Analysis of practice time identified ranges between three students reporting no practice time to nine (14%) of the students reporting more than 100 min of practice time. With a reported range of 0–180 practice minutes per student, the mean weekly practice was 42 min and the median and mode were 30 min, 18% (n = 12) of the participating students (see Figure 9).

Figure 9

Student Independent Practice Time, November 7–13, 2022



During the self-survey, participating students identified how well they reached their goals. The results, on a Likert Scale of 1-5, were as follows: nine (14%) students (N = 65) exceeded their goal, 12 (18%) either met or nearly met their goal, 12 (18%) nearly met their goal, and 32 (49%) did not meet their practice goal, as shown in Table 11. Interpretatively, there is an opportunity for this group of students to improve self-motivation and increase their practice time. There is also a need for increased adult support to sustain an increase in student practice time.

Table 11

Minutes Practiced Weekly by Student Participants

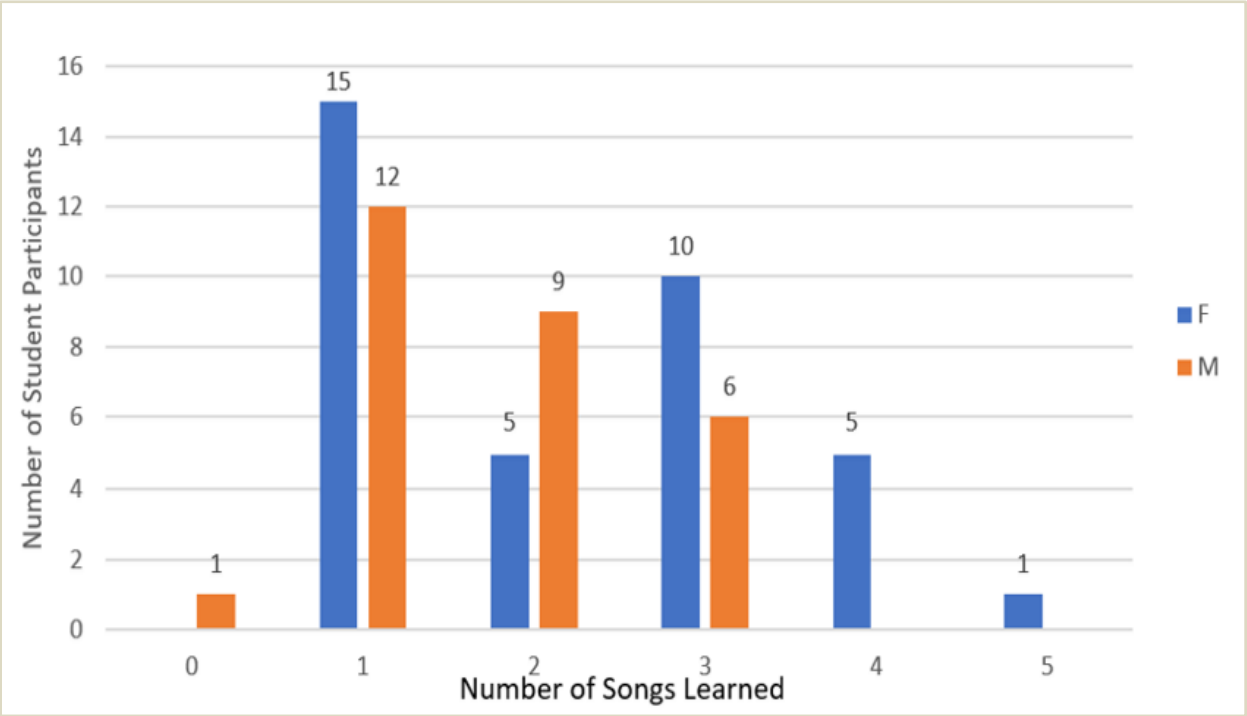
		Minutes practiced			
			During		Practice goal
Range	*n* (%)	At home	school	Total min	(150 min/week)
Very high	9 (14)	100–180	90	190–270	Goal met by all students
High	12 (18)	45–100	90	135–190	Goal met by 80% of students
Average	12 (18)	30–45	90	120–135	Goal was nearly met
Below average	12 (18)	20–30	90	110–120	Goal was not met
Low	20 (31)	0–20	90	90–110	Goal was not met

Note. Data on a Likert scale of 1-5, low to very high, were collected from student participant self-survey on November 14, 2022.

QUAL-2. What music content from the homework assignments did you practice this week? During a 6-week period, close monitoring of students' uses of rubrics and strict adherence to structured practice was observed and verified as a major impact in some of the students (*n* = 15), who logged between 1 hour and 3 hours of practice time during the week. As indicated in Figure 10, 25 (38%) of the students learned to play three or more songs, and one student managed to learn all five of the songs as part of the repertoire selected for the Fairfax School District 2022 Christmas concert. Students were defined as having learned a song if they managed to play the entire song with minimal errors.

Figure 10

Qualitative Question 2: How Many Songs Did You Practice This Week?

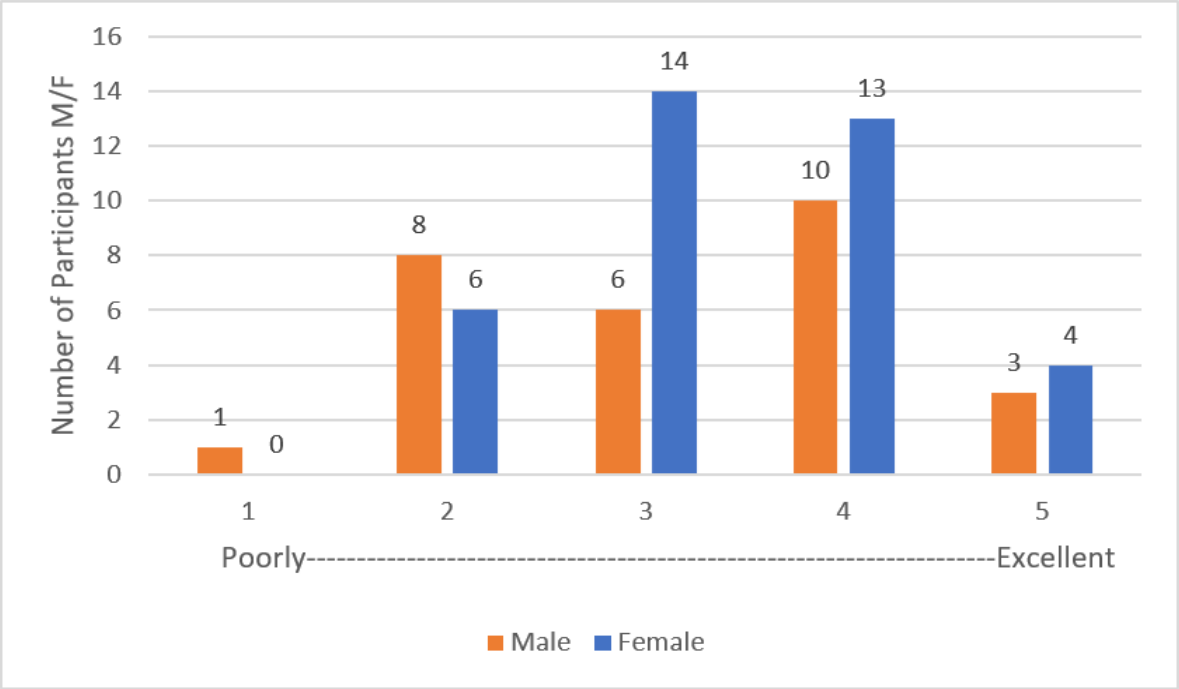


Note. N = 65, 28 boys, 38 girls. Songs (learned in order) were "Jingle Bells," "Mary Had a Little Lamb," "Twinkle, Twinkle Little Star," "Ode to Joy," and "Joy to the World."

QUAN-8. How well do you read standard notation? When asked how well their note reading was, 50 (77%) of 65 students reported their note reading skills as average and above. This group was composed of 31 (84%) female students and 19 (68%) male students. These data showed female students (average to excellent) advancing faster with reading music than boys were (see Figure 11).

Figure 11

Quantitative Question 8: How Well Do You Read Standard Notation?



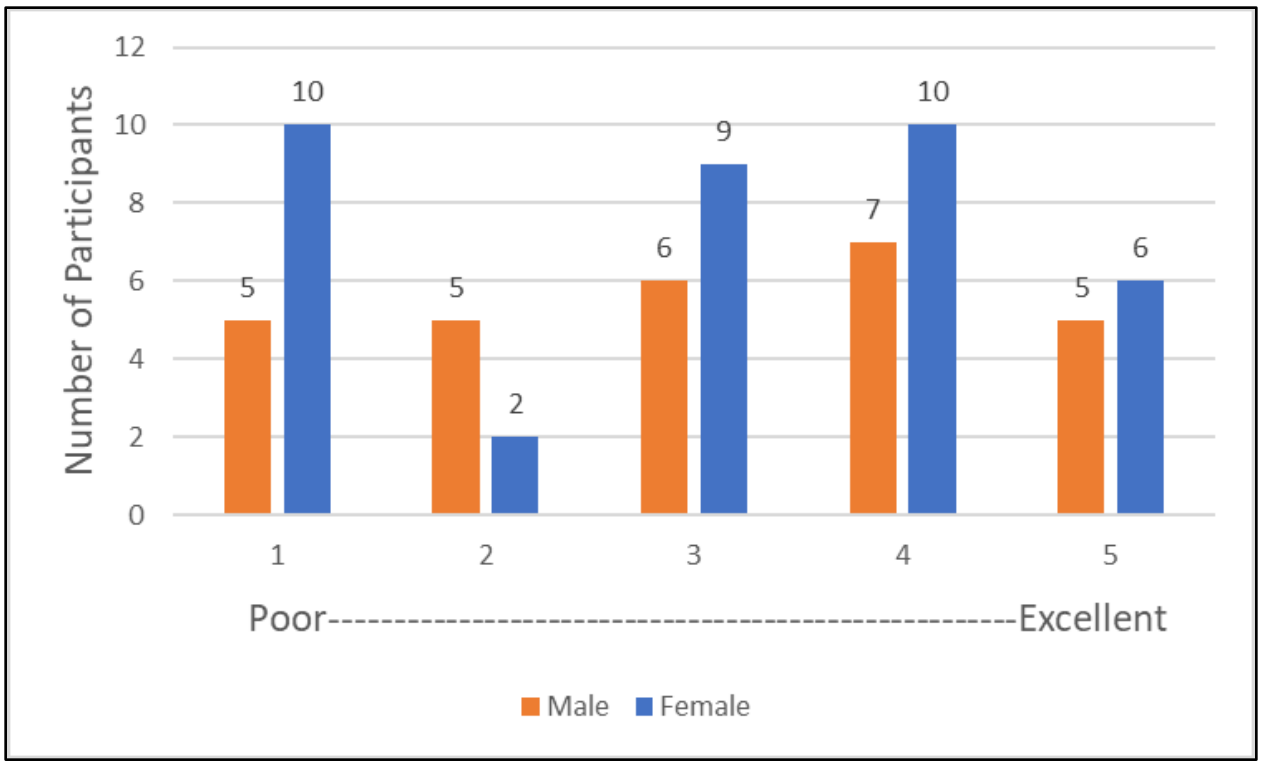
Note. *N* = 65, 28 boys, 37 girls.

QUAN-9. How well do you play by rote? (For example, playing without notes). Students responded as follows: 43 (66%) of students (*N* = 65) reported their ability to play by rote as average and above. This group was composed of 25 (68%) female students (*n* = 37) and 18 (64%) male students. Statistically, girls were slightly higher than boys.

QUAN. 66% of students (Likert 3, 4, and 5) reported they were playing by rote, suggesting two possibilities: (a) students had not achieved note recognition and needed to improve, or (b) students were purposely memorizing the music. Analysis of the data indicated students were most likely challenged with note reading. Likert scale 1 reflects 10 girls believe they play poorly by rote (see Figure 12).

Figure 12

Quantitative Question 9: How Well Do You Play By Rote (Without Notes)?



Note. *N* = 65, 28 boys, 37 girls.

RQ2 (Mixed)

What are the primary drivers preventing elementary music students from effectively reaching their music practice goals? In context of the research question and study, the term "driver" refers to SDT, which asserts that motivation is the antecedent of three psychological areas humans need: autonomy, competence, and relatedness (Ryan & Deci, 2000b, p. 68). Data indicate there are several primary drivers from both quantitative and qualitative data that may be preventing participants from reaching their goals. The primary drivers are collectively identified through the collection of mixed data and consist of the following:

- Random practice time: 25 (38%) of the students are practicing at random times (QUAN).

- Insufficient practice time: 56 (86%) of students reported insufficient practice time (QUAN).
- Missing orchestra rehearsals (QUAN) and wasting time during orchestra rehearsal (QUAL).
- Random or insufficient practice time increases technical errors in observable areas (QUAL).
- Note reading: The student cannot discern the correct string and proper finger.
- Intonation: The student cannot make a distinction to self-correct flat or sharp pitches.
- Right-hand control over the bow: The student pulls the bow crooked, plays the wrong string.
- Left-hand finger control: The student is not able to leverage sufficient pressure on the string.
- Rhythm: The student is not counting eighth, quarter, half, and whole notes accurately while playing.

RQ3 (Mixed)

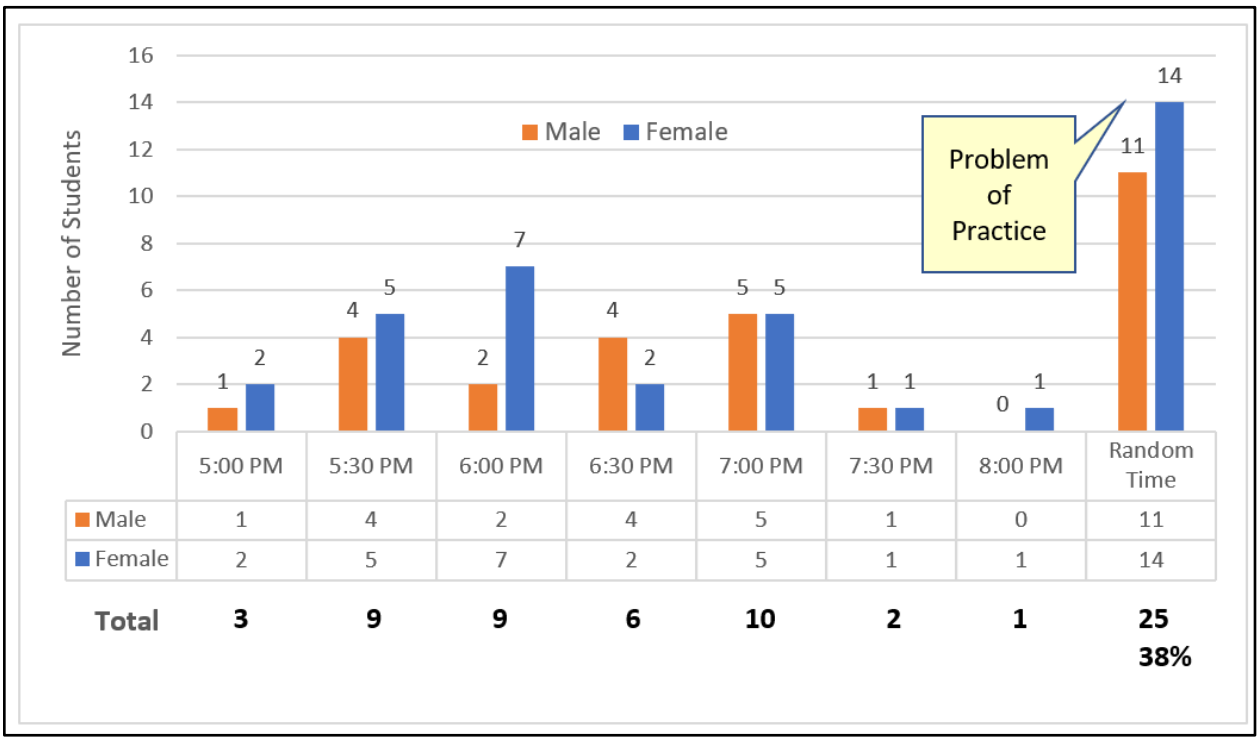
How can the practice habits of instrumental music students improve with adult support? Responses to this question indicate areas that adults typically supervise, such as the time students typically schedule their practice.

QUAL-4: What time do you usually practice?

Analysis of quantitative data can help to determine if students are establishing good practice habits, because consistent time and location to practice are components of self-discipline, self-motivation, and self-regulation. Focus on attributes are essential for all instrumental students desiring stability, progress, and success. From the self-survey data, 25 (38%) of the students identified their practice time as random, which may be a primary driver preventing students from reaching their goals to practice daily. This could also suggest a lack of supervisory support in the home, lack of an adequate practice space, or other roadblocks, such as self-motivation, which may be preventing students from establishing repetition while developing strong practice habits (see Figure 13).

Figure 13

*Qualitative Question 4: Time When Students Practice (*N = *65)*



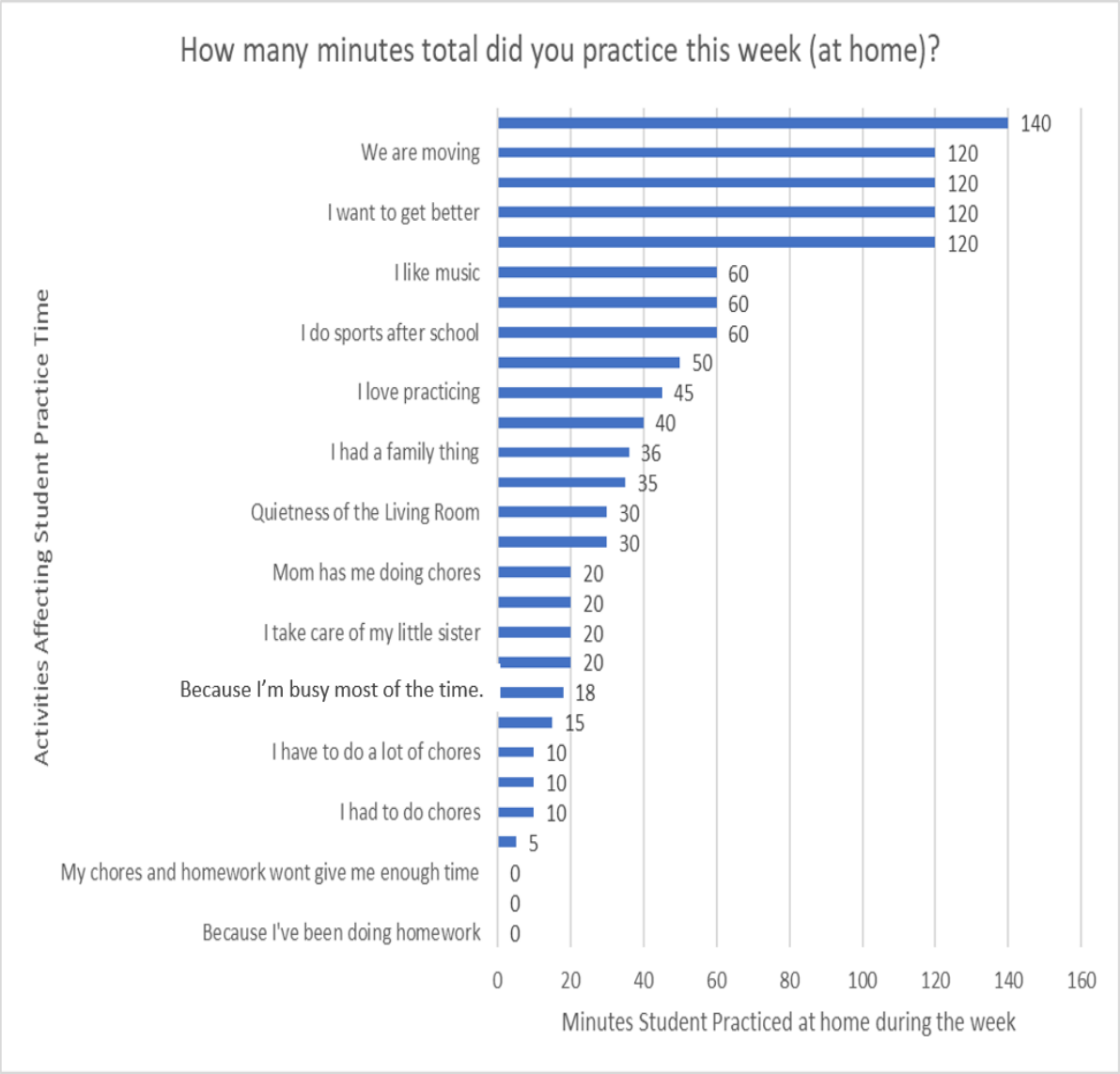
Note: From the self-survey data, 25 (38%) of the students identified their practice time as random, which may be a primary driver preventing students from reaching their goals to practice daily.

From the QUAL-1 data analysis results, student participants identified how self-motivation may be connected to the goals of effective practice. Qualitative descriptions from a subset of the students' practice time (*n* = 14) describe challenges they encountered after joining the new orchestra. From this data set, some students described how they managed to fit in practice time while simultaneously reworking schedules to stay on track with important after-school activities, such as homework, dinner, chores, and babysitting siblings. Other students described interference with other activities, which became primary drivers that prevented them

from reaching their goals. Adult support could be the key in assisting students to improve their practice time by establishing a stable time to practice, as shown in Figure 14.

Figure 14

Incentives and Deterrents of Practice Time Reported by Students (n = *14)*

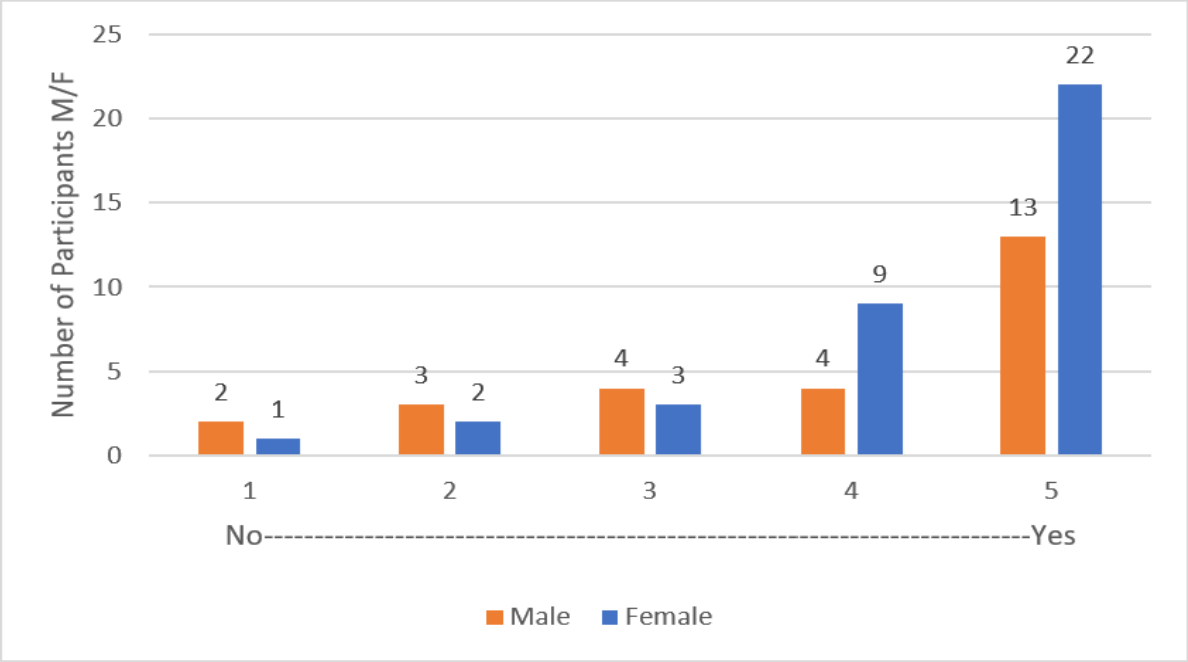


Note. Students generated qualitative responses in self-surveys describing reasons why they are either motivated to practice or distracted from practicing at home.

QUAN-4. If I were challenged more, I would practice more. Analysis of the self-survey data (Likert 4-5) show that 74% of student participants in grades 5 and 6 want to succeed as a music instrumentalist. In fact, 35 (54%) of the students indicated strong commitment to practice more (Likert-5). In contrast, eight (12%) participants (Likert 1–2) did not accept the challenge to practice which is confirmed by my observations of students during orchestra rehearsal. From this data, it is likely students in this category may require alternative methods and assistance in generating personal interest. This data also suggests adult support could be a key driver in assisting students to self-motivate and self-regulate as a vital step to take on the challenges of achieving their goals, as shown in Figure 15.

Figure 15

Quantitative Question 4: If I Were Challenged More, I Would Practice More

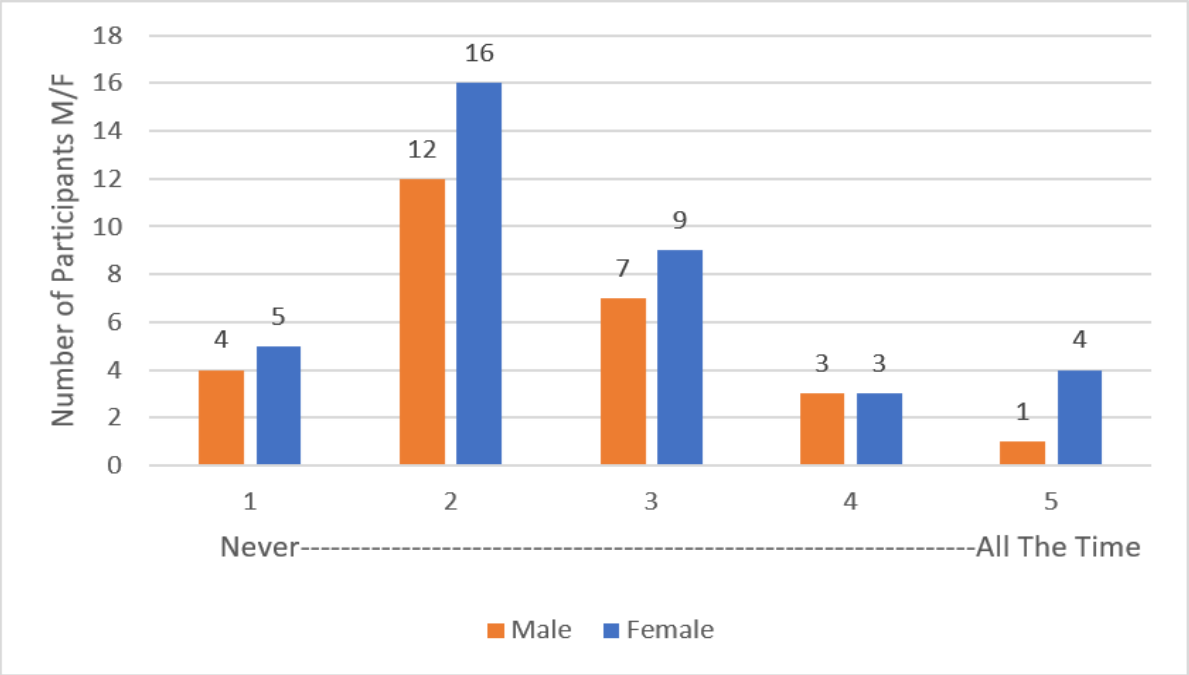


Note. *N* = 65, 28 boys, 37 girls.

QUAN-5. The music is too hard for me. Student self-survey responses from this inquiry indicated 53 (82%) students (Likert 1–3) believed learning the assigned repertoire of music was manageable; in contrast, 11 (17%) students reported the assigned repertoire (Likert 4–5) was too hard nearly all the time, or all the time. Nine of the students indicated learning the music was never too hard, which matches the number of students who reported weekly practice of 100 min or more. These data support the need for the 11 (17%) students to seek out adult support and establish opportunities for music instruction, either through a private instructor or through special arrangements with the school's music program director, as shown in Figure 16.

Figure 16

Quantitative Question 5: The Music is Too Hard for Me



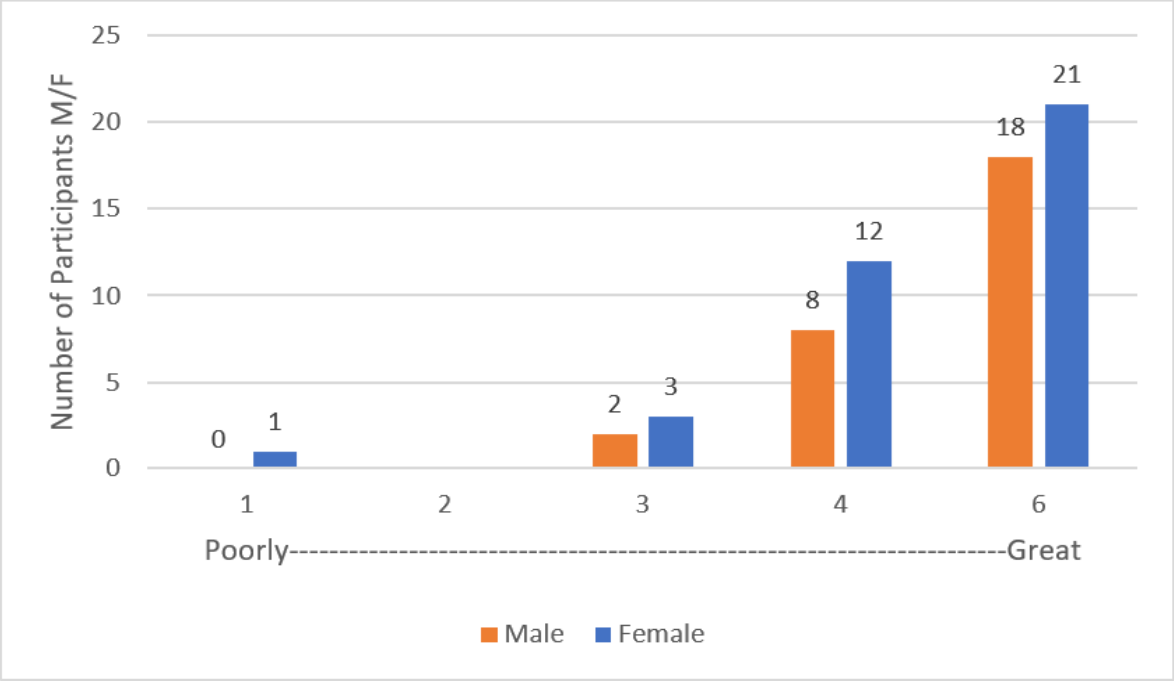
Note. *N* = 65, 28 boys, 37 girls.

QUAN-2. What level of music skill would you like to achieve? Data results in Figure 17 reflect 59 (91%) student participants expressed the desire to reach high or very high achievement

levels of music skill. Only six (9%) of the students expressed no desire to excel. The drivers to achieve this goal are founded on important dependencies such as self-motivation, applying rubrics, and self-regulation to assess progress and monitor student efforts to reach goals.

Figure 17

Quantitative Question 2: What Level of Music Skill Would You Like to Achieve?



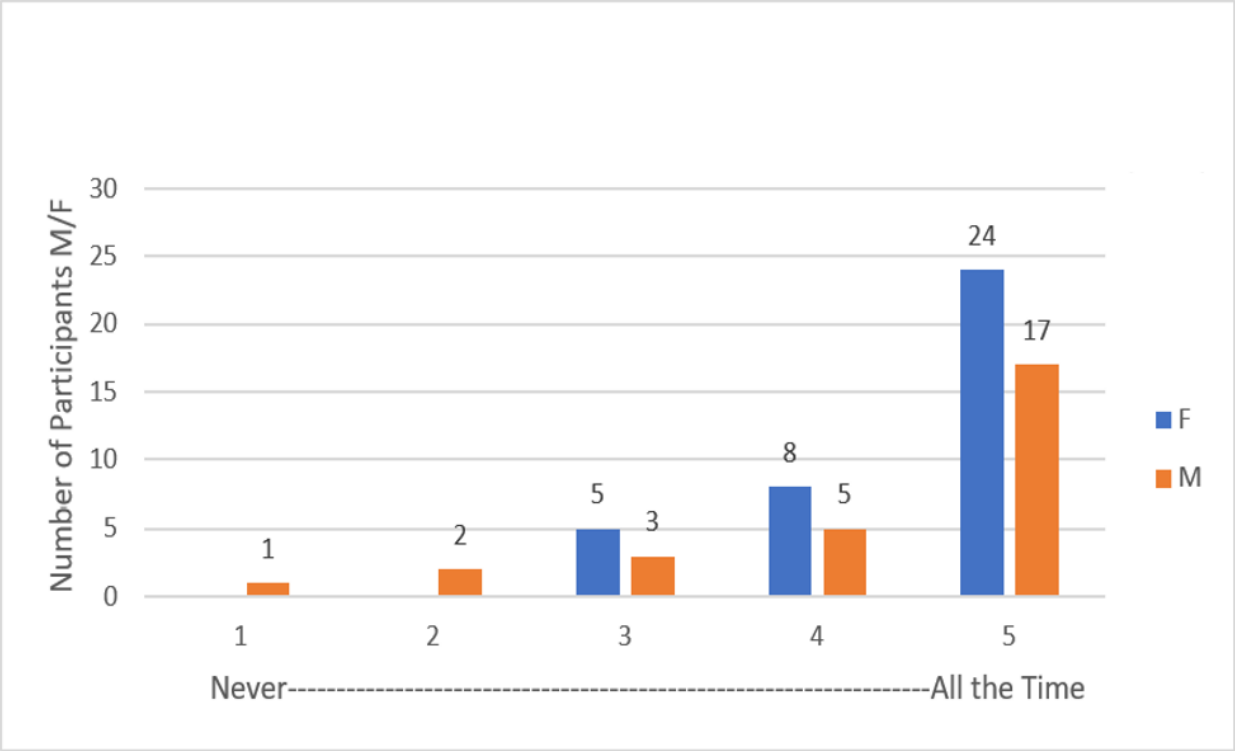
Note. *N* = 65, 28 boys, 37 girls.

QUAN-6. The 5-point Likert-type scale assessment of QUAN-6 asked for a response to the following comment: "The teacher encourages me to practice in class." In response, students were asked to choose between *never* and *all the time*, and the results were truly inspiring. QUAN-6 data from average and above students determined the level of motivation from the teacher as 96%. The classroom music teacher serves as the key to students' success and is typically expected to guide them with educational opportunities, consistent encouragement, monitoring, and assessment feedback. Male and female students scoring 5 on the Likert scale

identified choice ranking of the teacher as 63%. Data indicators in this data set suggest participants were acknowledging they were listening to the teacher during classroom rehearsal. Further investigation of this data set may find a small number of students that require special assistance; for example, if the hearing or vision of students are impaired, students should be seated closer to the front. In Figure 18, (Quantitative Question 6) participants responded to the statement, “The teacher encourages me to practice in class”

Figure 18

Teachers as Primary Drivers of Student Support



Note. *N* = 65, 28 boys, 37 girls.

RQ4 (Mixed)

How are the subjects’ practice habits impacted when applying rubrics? In observing the qualitative benefits received by students, students’ adherence to rubrics has made a tremendous

impact upon the quality of their technical skills. After analyzing data from the students, I recognized the need for students to improve left-hand/right-hand deficiencies in their playing as indicated by the QUAN-3 data set. In parallel, QUAL-3 documentation identified stand partners who actively discussed and applied rubrics along with supports and reminders on proper use of the bow, playing correct pitches and accuracy of rhythm. Student accomplishments at all levels were observed and noted by me during class instruction. QUAL-3. What challenges from the rubrics are you having when practicing?

Rubrics. During my first observations of student participants in the beginning orchestra, I documented several Grade 5 and 6 students developing a variety of incorrect practice habits requiring my immediate attention. For example, many students were using the wrong hand to hold the instrument, while others had dexterity challenges with using the wrong fingers which could not be ignored. During the first 8 weeks of orchestra practice, every student relied solely on me to tune their instrument, provide mechanical instruction for the left and right hand, and apply rosin and tension to their instrument bow. Students realized I would not be available to them when practicing at home. Therefore, they became excited when I gave them instructions on how to apply rubrics as an instrument to assist them with their home practice. (See Appendix G). Technical errors self-reported by students were collected and sorted. Following this process, qualitative data was coded into five major areas of concern.

No Errors. Twelve (18%) of the participants reported that they had experienced no errors, which could feasibly be explained with two scenarios; first, this could reflect data from top-performing students who were technically doing well and exceeding the recommended time to practice; or, some students were not reporting the errors because they were not aware of any errors. For example, during my observation at music rehearsals, I noticed a small number of

student participants playing wrong notes on their instrument and not actually looking at the music. I also noticed cases where students' fingers on the left hand, or the bow in the right hand, were not on the correct string; in other cases, the students' left-hand fingers were not on the instrument altogether. From my observation, it is plausible that student reports of technical errors may be inaccurate and additional qualitative research is required.

Note reading errors. Incorrect practice habits were self-reported by 28 (43%) of the students. Therefore, the data identified an urgency for all orchestra participants to develop the ability to read music as a prerequisite to participating in their first music performances.

Right-hand bow/Left-hand finger errors. When combining activities on the left hand and right hand simultaneously, beginning students require practice tempos to be slowed considerably; this is accomplished by adhering to rubrics that remind students to practice music slowly, enabling students to isolate and eliminate errors using deliberate practice techniques. Data results reflect an equal number of male and female students, for a total of eight (12%) of the participants reporting challenges with this error type.

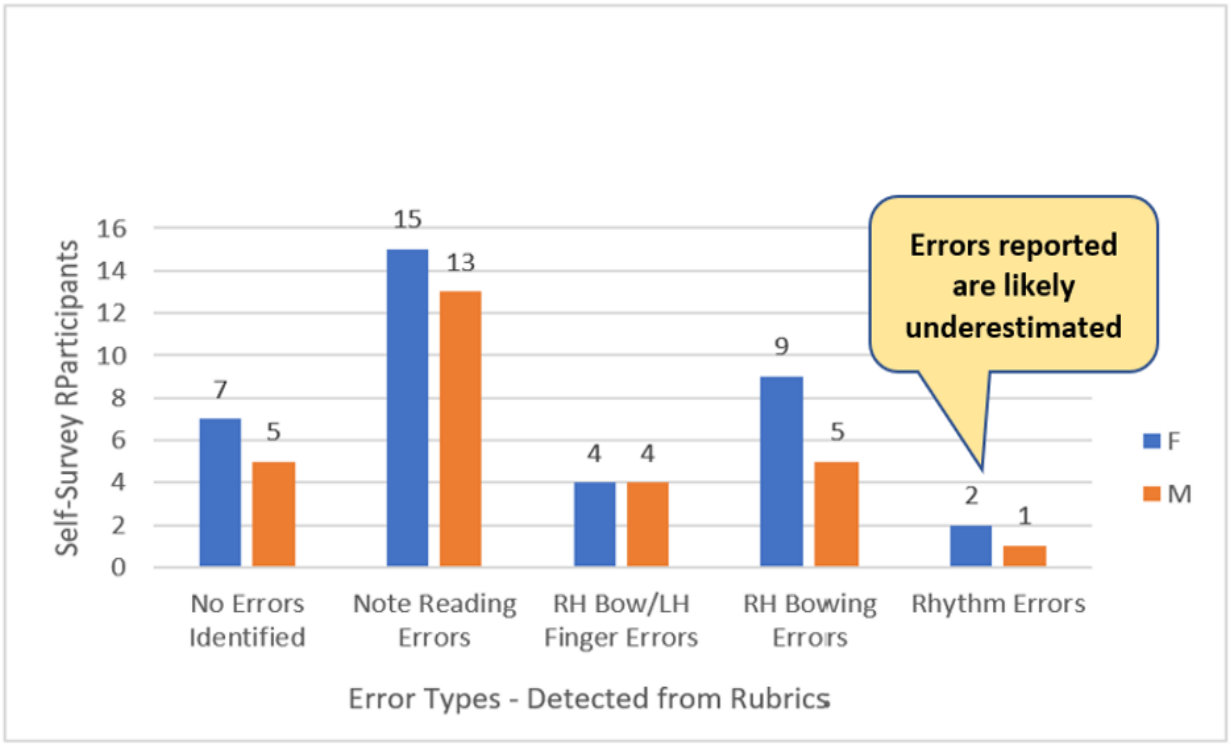
Errors in bowing. Participant errors appeared higher at 14 (22%) than data reported for errors related to both hands. While nine (14%) of female students reported nearly twice as many errors as boys at five (8%), these data may not be valid due to the higher number of errors I observed during class instruction.

Rhythm. The fifth rubric challenge, rhythm, was addressed separately in the following survey question: QUAN-3. How accurate do you believe your rhythm is when you practice? Participating students in this study received training early on to identify the major characteristics of rhythm, such as differences in time values, qualities of notes and rests, and how these technically apply to their music repertoire. Within the time frame and scope of this study,

however, student participants did not have sufficient time to learn how to develop the appropriate acumen and practice habits required to eliminate rhythmic errors. In comparing my observations of the students to the low number of three (5%) of rhythmic errors reported by student participants in the survey data, the actual number of errors attributed to rhythm are most likely higher than students reported, as shown in Figure 19.

Figure 19

Student Self-Survey Results of Rubric Challenges and Technical Errors



Note. Responses to Qualitative Question 3. *N* = 65, 28 boys, 38 girls.

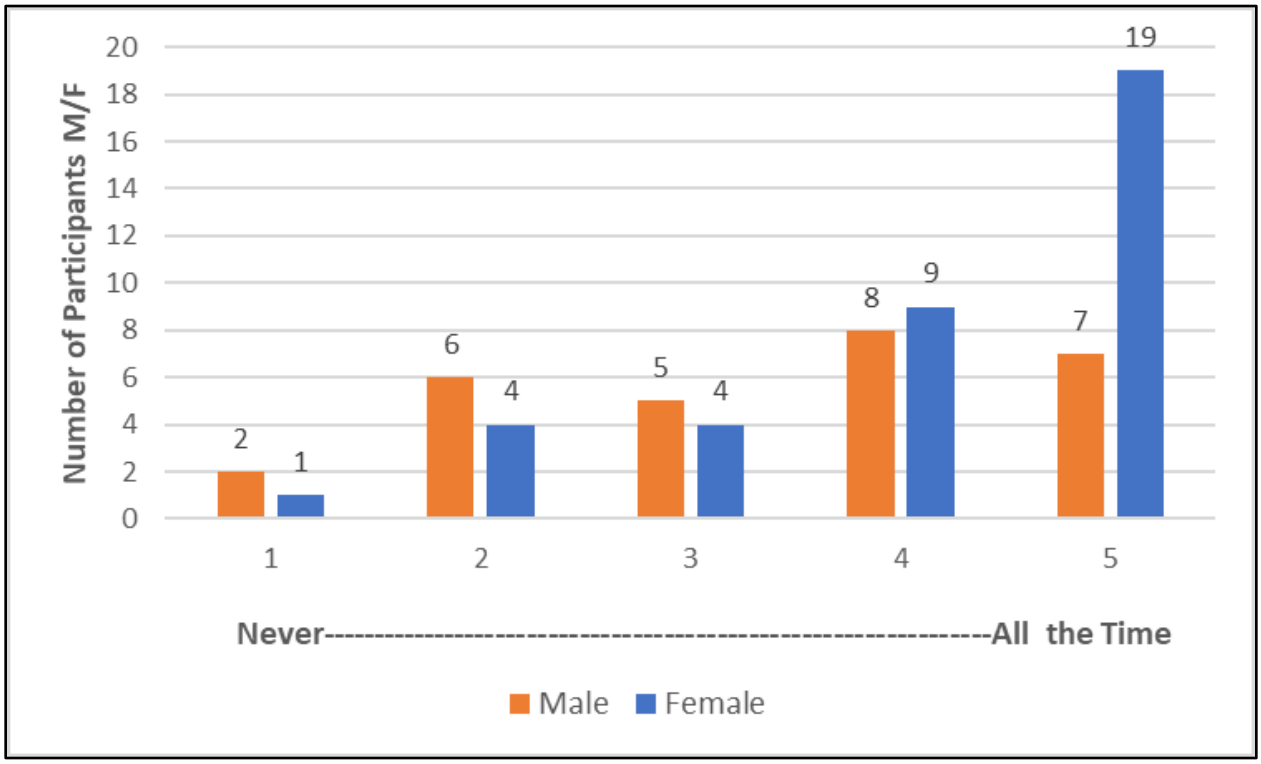
RQ5 (QUAN)

How can the results from the subjects' quantitative and qualitative data impact the practice habits of instrumental music students? QUAN-7: I think about being a professional musician. Examination of the self-survey data found 66% of students (high and above) indicated

an intention to become professional musicians. Nine (51%) girls indicated they think about this all the time. Achieving this goal may be dependent on higher levels of adult support and strict student adherence to MCFM and SDT concepts as primary drivers designed to assist students achieve higher levels of practice quality and discipline (see Figure 20).

Figure 20

Quantitative Question 7: I Think About Being a Professional Musician

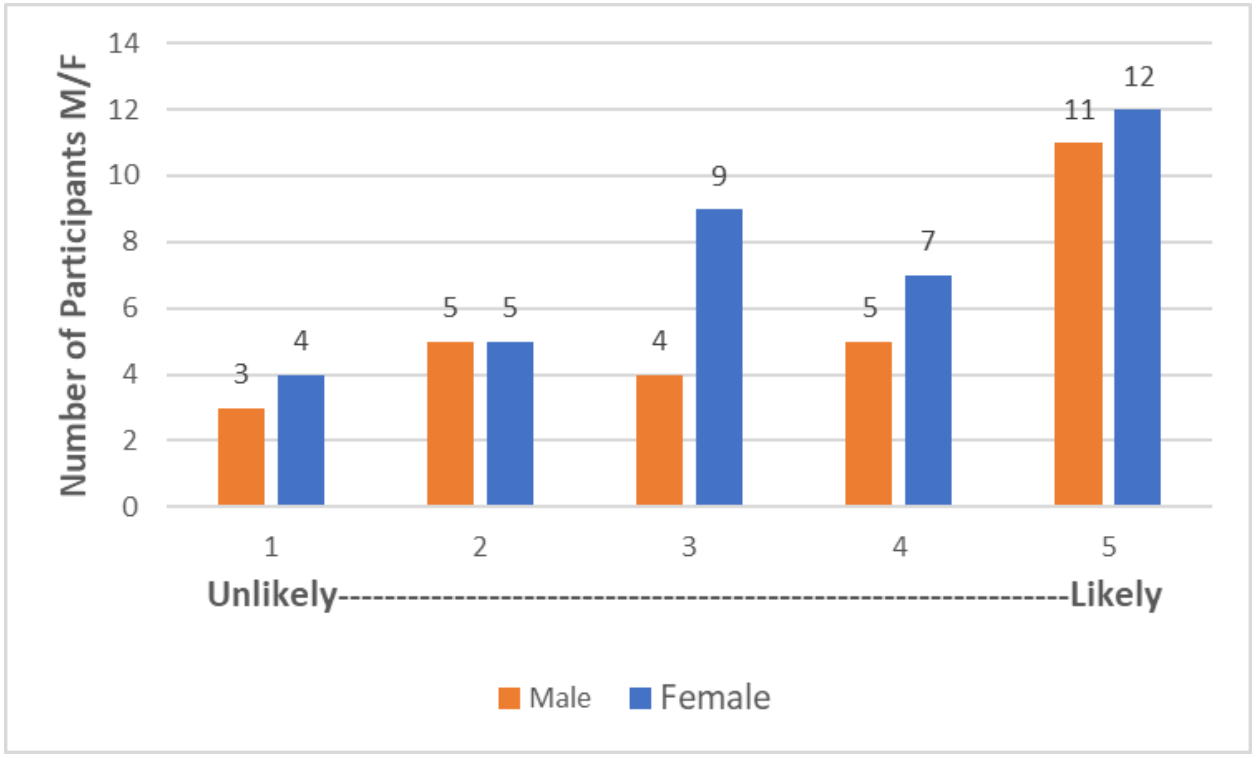


Note. *N* = 65, 27 boys, 37 girls.

QUAN-10. What is the likelihood you will keep playing the same instrument you play now until you graduate? 50% of students (Likert 4 and 5) indicated an intention to dedicate themselves to the study of one instrument. This achievement may be dependent on students' adherence to drivers such as strict student adherence to MCFM and SDT (see Figure 21).

Figure 21

Quantitative Question 10: Will You Play the Same Instrument Until You Graduate?



Note. *N* = 65, 28 boys, 37 girls.

Chapter 3

Discussion

The primary purpose of this study was to gain insight into the practice habits of instrumental music students at the elementary school level through a mixed methods empirical study. This discussion focused on two areas; first, I described how high-quality practice habits are established and what good practice habits look like in Chapter 1. From my brief autobiography and descriptive experiences of effectively establishing practice habits, instrumental music students can successfully navigate common pitfalls and avoid substandard practice habits. I reported how establishing good practice habits was a significant accomplishment that started early during my formative music training and was made possible by adhering to six areas of discipline: self-motivation, self-regulation, self-correction, structured practice, establishing goals and opportunities, and submitting to adult supervision. Collectively, I described the six interrelated concepts as a multidimensional conceptual framework model (MCFM).

Opportunities for further improvement came into focus while examining the published literature related to principles from my MCFM. I discovered the close relationship between self-regulation, a component of MCFM, and other theoretical frameworks such as the SDT of Deci and Ryan (2000b). My initial findings about SDT found it had already been established successfully but in other domains, such as education, sports, religion, and parenting (Center for Self-Determination Theory, n.d.). After unpacking SDT further, I noticed how the three antecedents of the SDT—autonomy, competence, and relatedness—aligned with my MCFM. I also realized a relationship existed between SDT and my MCFM concepts. Theoretically, SDT

antecedents of autonomy, competency, and relatedness offered a well-established guide for improving poor practice habits. Still, they stopped short of defining a rigorous practicum for developing practice habits as related to music education. On the other hand, my MCFM offered an augmentation to the SDT by identifying pragmatic patterns instrumental music students should put into practice when developing appropriate practice habits.

First, all instrumental music students should expect to autonomously activate the areas of self-motivation, self-correction, and self-regulation and seek goals and opportunities. Second, students could demonstrate competence by demonstrating the ability to engage in structured practice under the direction of qualified teachers. Finally, relatedness could align with the student receiving support from adults. Ideologically, this relational concept worked; however, a possible conflict emerged with assessment strategies that required further consideration. Elliott (1995) asserted that "while students must learn how to assess their musical thinking, they also need feedback from teachers" (p. 264). Other researchers, such as Hewitt (2011), held different views from Elliott, believing student self-evaluation is possible:

> There is some evidence that self-evaluation may be a skill that develops as musicians progress through grade levels and, typically, improve their musical achievement. Whereas most fifth-, sixth-, and seventh-grade self-evaluation subarea scores rose from pretest to posttest, eighth-grade scores remained statistically similar. (p. 17)

Hewitt also indicated that teachers did not monitor students during the research, leaving accuracy of the testing results in question. Despite opposing arguments from Hewitt, the culminating analysis of music practitioners reminds us how important it has become for instrumental music students to refocus on their practice habits by applying structured practice concepts such as rubrics and aural skills to improve technical skills (Iott, 2021).

Achieving perfection when executing elements such as rhythm and intonation, applying standard notation, and resolving challenging musical elements is vital in determining the quality of practice habits. From my classroom observations, I confirmed that teacher-led rubrics and aural skill exercises benefit students' practice habits when practicing independently. Ericsson et al. (1993) determined that assessing students' practice habits depends on adherence to rubrics because self-regulation cannot be achieved without evaluative feedback. Since qualified teachers design rubrics, instrumental music students in Grades 5 and 6 may require more than just theoretical knowledge of SDT for structured practice to occur. It is practical to insist that music students apply rubrics for self-regulation; beginning students can likely self-regulate independently with the involvement of teachers and an actual playbook.

After I examined the SDT conceptual framework of Deci and Ryan (1985), I realized the value of its well-grounded theory and potential in supporting instrumental music students with motivation. According to Ryan and Deci (2000b), SDT recognizes that adults are responsible for driving motivation.

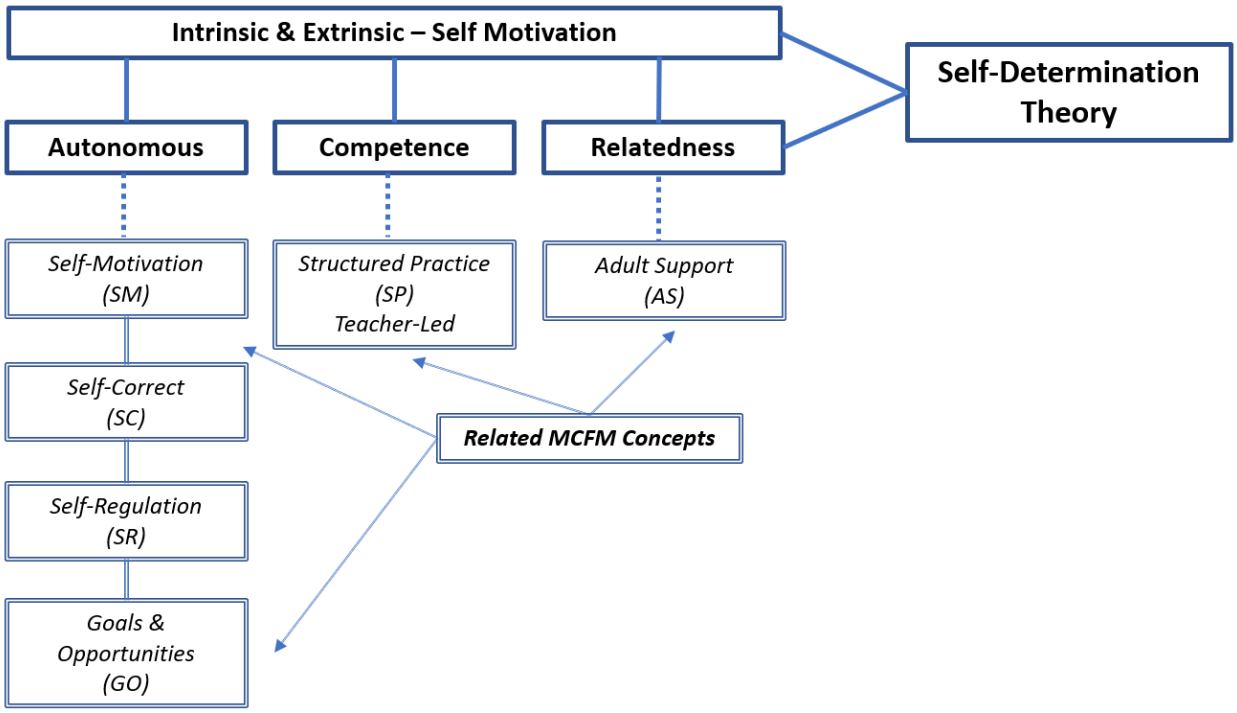
> Motivation concerns energy, direction, persistence and equifinality-all aspects of activation and intention. Motivation has been a central and perennial issue in the field of psychology, for it is at the core of biological, cognitive, and social regulation. Perhaps more important, in the real world, motivation is highly valued because of its consequences: Motivation produces. It is therefore of preeminent concern to those in roles such as manager, teacher, religious leader, coach, health care provider, and parent that involve mobilizing others to act. (p. 69)

Therefore, the SDT conceptual framework provides an excellent foundation in supporting my MCFM conceptual design as a systematic practice for improving the practice habits of

instrumental music students. Augmenting the SDT with MCFM concepts is necessary for driving adult support within relatedness. For example, students can only sustain their practice schedules with adult support. Within the realm of competence, structured practice is teacher-led and guided by rubrics. Teachers can effectively assist instrumental students when aural skills are taught during the early stages of music training. Taking these steps provides the foundational support for instrumental music students to accurately identify elements of rhythm, pitch, and technical skills associated with developing practice habits, as shown in Figure 22.

Figure 22

Self-Determination Theory as Supports for Related MCFM Concepts



Note. Theoretical merging of MCFM concepts guided by SDT of Deci and Ryan (1985).

Discussion of Data Findings

Qualitative data from my observations and quantitative data from the student self-survey instrument were examined, compared, and converged. After examining the self-survey data collected from student participants, I discovered specific areas where students' practice habits needed improvement. The final analysis of quantitative and mixed data became the basis for responding to the five research questions supporting the discussion for concluding this study. The convergence of QUAL+QUAN data generated from student self-survey questions was instrumental in developing meaningful discussion from the following research questions.

RQ1: Are Instrumental Music Students Practicing Effectively, Following Prescribed Rubrics, and Reaching Their Goals?

Quantitative and qualitative data collected for this question sought to generate new narrative discussions about the findings of effective practice, the use of rubrics, and if students are reaching their goals. This study's previous literature identified that effective practice depends on students adhering to structured practice. From self-survey data, 21 (32%) students did not self-correct. Findings suggest students need to practice longer to solve technical problems during their practice time; 27 (42%) students affirmed they were not using structured practice. This data indicates they needed to self-assess their practice and were most likely unaware of where errors occurred.

The importance of using rubrics for determining student assessment and flushing out errors must be considered. From the student self-survey collected during a 1-week time frame, errors attributed to practice habits in four specific areas were quantified and reported by the students in their rubric assessment. Of the total number of student participants (N = 65), 12 reported that they had experienced no errors. Note-reading errors were reported by 28 (43%) of

the students, and eight (12%) participants reported a combination of errors with the left and right hand. Errors in bowing were reported by 14 (22%); of these, nine (14%) female students reported nearly twice as many errors as boys did at five (8%).

Following a prescribed assessment process, students can categorically define areas where practice habits need improvement.

RQ2: What Are the Primary Drivers Preventing Elementary Music Students From Reaching Their Goals to Practice Consistently?

The data suggests one of the primary drivers is a lack of adult support which is critical in establishing a standard for students to practice music in the home effectively. In parallel, the need to practice consistently is typically driven by intrinsic and extrinsic self-motivation. Therefore, self-motivation is a primary driver for students to improve their practice habits.

Other drivers include the failure of students to seek opportunities to play their instrument outside of their regular practice time. 29 (45%) participants did not seek opportunities or establish goals. This data recognizes a problem that can only be resolved when students and parents recognize that practice habits improve after exploring opportunities and establishing goals. In other words, failure to seek opportunities or establish goals may indicate that students need more motivation to practice and prepare because no cause or urgency is associated with maintaining a practice schedule. When practicing deliberately and with purpose, students typically strive to improve their technical skill sets, such as how they sound. Students who achieve desired skill sets are eager to play repertoire for others, such as family members.

RQ3: How Can the Practice Habits of Instrumental Music Students Be Improved with Adult Involvement?

Of the participants (N = 65), 21 (32%) indicated they did not use adult support when practicing at home. From this group, boys (n = 14) were significantly higher than girls (n = 7). Analysis of self-reporting student surveys found gaps in areas that may affect practice habits. From quantitative data from the students' practice log, 25 (38%) of the students indicated their practice time was random, and there was no fixed schedule of when they practiced music. Therefore, the practice habits of 38% of the students will improve when adults apply support structure and assist students with establishing basic practice habits, as shown in Figure 2. For example, students require a consistent increment of time, space, privacy, and sufficient lighting to practice their instruments efficiently.

RQ4: How Are the Subjects' Practice Habits Impacted When Applying the Prescribed Rubrics?

During this study, the participating students were overwhelmed and confused when I first asked them to apply rubrics to self-correct and identify errors in their music practice. However, some students gradually became accustomed to the rubrics during the 30-day instructional period before the survey. From my observations during music rehearsals, approximately 10% of the students tried incorporating the rubrics. Within a week, these students became conditioned to the rubrics, which improved their technical skills and positively impacted them. After gaining a better understanding of an error, students purposely changed their practice habits, accurately using the left hand-right hand and correctly playing notes. Thus, they were able to improve on self-regulation, and structuring their practice time became more effective.

RQ5: How Can the Results Collected From the Subjects' Quantitative, Qualitative, and Mixed Methods Data Impact the Practice Habits of Instrumental Music Students?

By examining the student self-survey data, I found that 66% of students (Likert 3–5) indicated their desire to become professional musicians. Of these, 19 (51%) of girls indicated they thought about this all the time. These data strongly indicate students' willingness to invest in developing a disciplined approach to practice habits over a long period.

From the entire population (N = 65), 25 students (38%) were practicing at random times or perhaps not at all; this is not stable for the student participants represented by this study. Students will become negatively impacted by stress and frustration when practicing sporadically, eventually losing interest in a school instrumental program. The impact of this data calls for a partnership between the district, music teachers, and parents to ensure that students and their parents receive sufficient support with instrumental music programs. Parents of students need to be encouraged to collaborate with the district and its music teachers on how to support their son or daughter in practicing their instruments at home and to achieve maximum success in developing effective practice habits.

What Does Success Look Like?

Success, as reinforced by the data collected in this study, requires support from parents, participating students, music teachers, and staff. Through the lens of personal experience, improvement in the practice habits of instrumental music students can start immediately. Before the district's new elementary orchestras started, participants' parents attended orientation and signed contracts accepting responsibility for the care of borrowed school instruments. In addition, parents pledged their commitment to ensuring student participants attended all orchestra rehearsals and practiced at home daily for at least 30 min. While parents want to

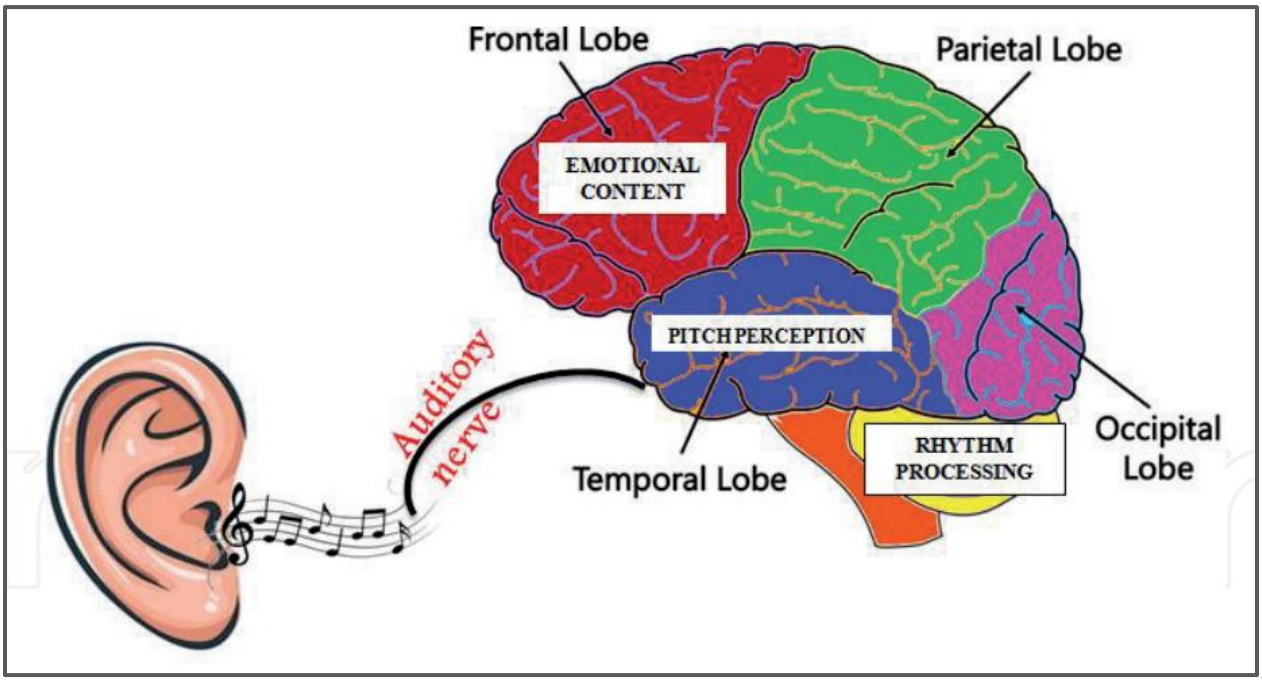
support their children and see them succeed, an analysis of the data identified that increased parental involvement is necessary to provide the support students need at home. Students must receive disciplined, consistent, and high supervisory support to deter discouragement, especially during the first six months of instrumental music training.

Implementing a new elementary school orchestra is typically fraught with adjustments, especially during the first year. This period is also a conditioning phase for both the parent and students, such as establishing practice habits in the home, sustaining a long-term commitment, and developing a routine. However, with the right balance of teacher-led support and adult support in the home, every student has the potential to develop effective music habits and become a successful instrumental music practitioner. Therefore, success is possible for all instrumental music students who are committed to adopting healthy practice habits.

From personal experience and adherence to my MCFM, I have experienced effective procedures and processes for preparing elementary students to become instrumental musicians. This process should start by incorporating singing at the K–2-grade level because this procedure has proven successful for students in developing aural skills. Singing is technically the best method for teaching all music students to recognize essential music theory elements such as melody, harmony, and rhythm, as shown in Figure 23. Focusing students on developing their singing skills is also an excellent alternative as a first step for school music programs because it is the most cost-effective method to prepare instrumental music students. Therefore, students should be taught aural skills before investing in musical instruments.

Figure 23

Recognition of music in the brain.



Note. From "Music and Music Therapy Is a Medicine for Stress, by Devi Ramalingam, et al., 2022, *Mortality Rates in Middle and Low-Income Countries,* p. 5 (https://www.intechopen.com/chapters/79650). Copyright 2022 by Intechopen

From my personal experience and observation of students in the classroom, grades 3–6 are the best time for teachers to train students to develop effective practice habits and prepare them to play instruments. To ensure success for music students, all elementary school administrators should make every effort to plan and accommodate successful music programs. Success is taking a leap of faith by installing a district orchestra and purchasing new stringed instruments for students in Grades 3–6. Success is providing students a reason to sustain school music programs by establishing effective practice habits and enabling students to participate in local and regional instrumental music activities, such as the music festivals sponsored by the California Music Educators Association.

The opportunities I had to play music outside of school, such as church services, special events, symphony orchestras, and family gatherings, brought honor to my family, which has been a blessing. In reflecting on the impact these frameworks had on the early development of my practice habits, the impact was immeasurable. As such, all instrumental music students should be given the same opportunity.

Risks and Roadblocks Preventing Success

The sustainability of a music program is arguably the biggest concern for teachers. For this reason, experienced teachers like myself understand the gravitas of developing a quality music program. Since quality music programs depend on instrumental music students to develop appropriate practice habits, building a program on a poor foundation will prevent long-term success. It is critical to identify and mitigate the source of interferences preventing students from maintaining consistent practice time, as identified previously in this study.

A balanced collaboration between teacher, parent, and student is equally crucial if success is the goal. Teachers must orchestrate a plan to motivate students and initiate self-assessment tools for students to use during independent study. Mentoring is accomplished best when teachers show students what good practice habits are. Therefore, teachers must be self-motivated to develop teacher-student relationships. For example, considering that using practice tools such as metronomes to improve rhythm and tuners to improve practice progress, music teachers should encourage students to use these in daily practice (Liu, 2022). When teachers neglect students, most students will fail; therefore, music students must receive quality mentoring and rubrics for self-assessment. Students must be provided with teacher-led knowledge on how to use aural skills. With good assets, students will practice effectively,

leading to sound quality. On the other hand, students who fail to practice will quickly become disinterested and turn their attention and energy elsewhere.

Benefits of Establishing Excellent Practice Habits

When instrumental music students apply correct practice habits, they are intrinsically and extrinsically rewarded with satisfaction from the physiological benefits alone. Klotman (2000) identified the connection between the psychological benefits of music and asserted that

> strings require the utmost care in pitch and auditory response. At the same time, strings utilize both large and small motor coordination, as well as requiring independence in arm and body control. Music making with any instrument involves translating mathematical problems into rhythms and temporal auditory responses. (p. 45)

Establishing excellent practice habits at the elementary level opens opportunities for students to start working toward obtaining music scholarships and establishing careers in music education. In contrast, consequences of substandard practice habits quickly lead to decreased student motivation and decreased opportunities for students to achieve their goals to become proficient on an instrument. Ineffective music programs producing poor quality are typically sidelined and eventually become ineffective and stagnant. Instrumental music programs at the junior high and high school levels usually have negative consequences when music students are not learning to establish appropriate practice habits at the elementary level (Miksza, 2014).

The benefits of this study are immeasurable because they present a long-term improvement plan for the entire student population in demographic areas such as Central California. As such, this study emphasizes the need to improve the practice habits of elementary students, especially the growing Hispanic population of instrumental music students. However, there is a need to improve the practice habits of students at all educational levels. Many Hispanic

students who need to be English proficient upon enrollment in secondary school are encouraged or required to take English as a Second Language or remedial classes instead of electives. As a result, many of these children are often not allowed to enroll in band, chorus, orchestra, or general music classes. Inequality is created from oversight because involvement in music can enrich students' lives and deepen their understanding of the art form. Furthermore, involvement in school music may motivate academically discouraged children. "Secondary music educators may consider implementing recruiting strategies that reach out to underserved and traditionally marginalized populations" (Abril, 2003, p. 40).

Guiding my own MCFM with the SDT theories of Deci and Ryan (1985) can open the door of opportunity to support music education programs such as the CDE's VAPA programs because the focus of this study is aimed at establishing healthy practice habits for instrumental musicians. From my reading of literature, SDT provides a framework that stimulates a critical and refreshing perspective on some of the educational policies and regularly applied practices in education. Application of the principles of SDT to education focus on how principals and teachers can facilitate the satisfaction of the basic psychological needs of teachers and learners, respectively so that schools are places in which all parties can develop intrinsic or fully internationalized extrinsic motivation. (Ryan & Deci, 2017, pp. 380–381)

The benefits of using MCFM as a primary concept over SDT are worth considering. For example, when students in sports complete the season or program, their motivation is influenced by extrinsic forces such as age and injury; therefore, motivation to perform well is only temporary and typically goes down. In contrast, a musician's motivation to play music is just the opposite, where motivation is typically intrinsic and typically becomes long-term, nor do

extrinsic influences threaten it. Unlike sports, musicians' motivation to continue performing can only increase over time because it has no time limit or extrinsic threats.

School music programs benefit students when they are provided with technical and structured support. Music educators can only expect students to practice at home with rubrics, teacher interaction, and home support (Iott, 2021). A teacher failing to incorporate a love for music among beginning instrumental students can end a student's dream of becoming a musician. In contrast, a pleasurable experience supports the development of intrinsic motivation, encouraging learners to persist in the joy of learning and expressing themselves musically. Focusing on achievement causes learners to be more concerned about what others think of them or their performance than about expression or exploration (Sloboda, 2005, pp. 269-27).

From my observation of students and as a researcher, a revival is needed among instrumental students to improve quality and sustainability of school music programs. This goal can be achieved by revisiting and improving practice habits. Effective frameworks presented in this study must be reintroduced through traditional teaching and learning methods to enable students to develop healthy practice habits.

Limitations

I created questions on the self-survey instrument; thus, its content contains no factor analysis or generalizability. In addition, this study was based on my conceptual framework (MCFM), which is not officially recognized as a grounded theoretical design; therefore, this concept relies on the support from similar theories such as the SDT of Deci and Ryan (1985).

From my observation of the data, limitations may have occurred for the following reason: Parental participation in the survey could have closed gaps and resolved questions about practice time. Additional data about parental support could eliminate or expand assumptions and

conclusions in this study. The short length of this research study did not allow time to reassess the rubric results of students' practice habits or to gather enough data to determine rate of improvement over time.

Survey questions could have been structured to elicit more detailed information about student expectations and the rewards of participating in the instrumental music program. This study was based on data generated from the self-survey responses of beginning instrumental music students in Grades 5 and 6 who had only two months of experience when the self-survey was conducted. Given the short time for participants to train and respond to improvement instruments such as rubrics, students may need more time to develop skills in becoming rhythmically ready. Responses to the questions on the self-survey instrument designed for instrumental music students at the beginner level might vary if administered to intermediate or advanced instrumental music students.

It may have been impossible for some students to achieve success using the MCFM's intended functionality as resources depicted in the multidimensional framework may be unavailable to some students. While this study discusses the perspectives and experiences of the researcher, it conducts QUAL+QUAN data analysis of student responses related to practice habits. However, it does not include interviews or responses from participants' parents. Assumptions that parental support of students' practice habits can improve require further investigation.

Other noticeable limitations are related to my need for more time to efficiently record observations of all 65 participants, particularly their adherence to rubrics. Closer observation of all the student participants might have provided a more robust data set on how rubrics affect practice habits. Instead of documenting these activities, I resorted to observing and listening to

students who displayed higher confidence playing their concert selections; however, this process also excluded many participants who might have otherwise demonstrated evidence of following the rubrics correctly but instead avoided drawing attention to themselves. Misdiagnosing or stereotyping my students is a type of limitation. Self-survey participants with a possible fear of retribution may have yet to report their practice habits accurately, such as practice time and adult support. Although the self-survey was conducted anonymously, students' social–emotional need to guard against sensitive issues and social conditioning may have created limitations.

Upon reaching expected levels of musical maturity and as students' practice habits fully develop, results from a future self-survey using the current instrument may yield entirely different results; therefore, the survey instrument used in this study has no validity or reliability. While this study focused on students (N = 65) in Grades 5 and 6, a delimitation was established when participating orchestra students in Grades 3, and 4 were excluded from the study. This exclusion was intentional because of the lack of time and resources but should be considered for future comparative analysis studies.

Implications From the Findings

Introducing concepts from the MCFM could trigger a meeting and create talking points for administrators, parents, and students to improve students' practice habits. All schools with existing or new instrumental programs could benefit from the recommendations presented in this study. As previously stated, the MCFM is designed to support long-term initiatives, which are critical for student success, especially at the elementary school level, feeder programs at the secondary level, and in preparing instrumental music students for postsecondary opportunities.

Recommendations for Practice Improvements

This study aimed to guide and serve instrumental music students by leveraging effective support systems to improve their practice habits. Analysis of student self-surveys confirmed the need to apply theoretical framework concepts such as MCFM and SDT. Instrumental music students can improve study habits by adhering to effective frameworks, increasing their potential to recognize and self-correct technical errors. The literature review shows that these improvements are crucial for increasing student interest and sustaining enrollment in music programs. Increasing awareness of rubrics and the benefits of seeking adult support is crucial for instrumental music students seeking to establish effective practice habits. Researchers have asserted that self-assessment, via rubrics, increases students' awareness of assessing their work and identifies weaknesses that can be reduced through teacher action (Ross, 2006).

Several factors surfaced from the data collected in this research and illuminated how practice habits may be formed. First, beginning instrumental students may need to be fully aware of their need to establish and apply practice habits consisting of at least 30 min a day to achieve long-term success. Second, without sufficient practice time, students can create errors. For example, while 74% of students (N = 65) between the Likert ranges of 4 and 5 reported self-motivation was their highest incentive toward practice habits, students did not exhibit the ability to apply self-discipline in their daily practice habits as indicated by the practice data where the mode and median were 30 min per week; students were instructed and expected to practice 30 min per day.

From my observations, students responded well when the trust factor was developed between the teacher and students. Establishing trust is vital because it accelerates adherence to the rubrics during practice, and its effectiveness serves as an observed deterrent to committing

repetitive errors over time. QUAL-3: Data from classroom observation results show how modeling by the teacher with classroom demonstrations impacts and motivates students to practice developing correct habits with their bowing, pitch accuracy, and executing rhythmic figures accurately.

Recommendations for Further Research

Expanding on the current SDT as a foundation for the MCFM is recommended to initiate an increased focus on building quality music programs. While SDT is focused on numerous fields, researchers need to recognize it in music education (Miksza & Johnson, 2012). Establishing my MCFM as an augmentation to SDT could serve as a practicum for assisting students in establishing appropriate practice habits and becoming an asset toward improving music education. Although previous SDT research has contributed to our understanding of the effects of teacher autonomy support on a group level, more needs to be known about how student autonomy is coregulated moment to moment within the music lesson itself (McPherson et al., 2012).

Adopting a model such as the MCFM could become a vehicle for teacher and student relationships to grow. A growing movement in developmental and educational psychology sees learning as a complex and deeply socially embedded process in which students and teachers mutually influence each other. (Sameroff, 2009; Turner & Patrick, 2008) Music educators envision the learning process between the student and teacher as inextricably linked (McPherson et al., 2012, p. 106; Rostvall & West, 2003). Accordingly, student autonomy is not seen as an individual attribute but rather as a continuously negotiated process in the student–teacher relationship (Meyer & Turner, 2002). The student–teacher interaction should be the unit of

analysis to deepen understanding of exactly how this negotiation can work from moment to moment.

From the findings of this study, further research is recommended to conduct an administrative self-survey to determine the benefits of improving students' practice habits and sustaining long-term instrumental music programs such as test scores. Further research is also needed to conduct a parent self-survey to identify the level of support for their children in developing effective practice habits.

Although the California Department of Education (CDE) and Visual and Performing Arts Programs (VAPA) provide detailed guidelines for goals and assessment, there is a need to incorporate a framework related to building an effective practicum to establish best practice habits as a means to reach the goals specified in their standards.

Concluding Remarks

Three key findings emerged from this research study. First, elementary students enrolled in instrumental music programs require structured support from qualified teachers and logistical support from adults to improve their practice habits. To achieve maximum effectiveness in developing efficient practice habits, students rely on teacher-led structured support consisting of a rubric and aural skill assignments; practice is planned, assessed, consistent, and observed. The time and location for students' practice depend on adult support in the home. Adherence to consistent schedules and accommodations will impact practice time, increase value to the student, and sustain excellence in the quality of elementary instrumental music programs.

As a direct result of this study, goals and accomplishments for the new school orchestra were achieved when students delivered an impressive concert on December 15, 2022. Considering how students had possession of their new instruments for only two months and two

weeks, this premier concert was a tremendous success, which boosted the students' confidence. While performing the seven songs in the concert repertoire, nine students were featured as soloists. After playing their assigned solos, the orchestra repeated the piece. This strategy stretched out the concert timeframe, recognized nine student soloists rewarded for exceeding their practice time goals, and brought joy to many proud parents.

I reached my goal in assessing my accomplishments for this study. First, I described my journey as a template for other instrumental music students to study; second, I mapped the technical framework that shaped my use of quality practice habits; third, I collected and analyzed qualitative and quantitative data received from 65 student participants that described, measured, and confirmed the necessity of improving the practice habits of students and the specific areas where improvement is required; fourth, it seems logical that all music practitioners and music educators should introduce the theories and practices presented in this study to instrumental music students. Initiating a formal procedure to develop appropriate practice habits could significantly impact sustaining membership and the quality of practice habits for instrumental music students in school music programs.

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Appendix A

George Fox University Letter of Consent/IRB Approval

****NOTE:** Review carefully the full text of the Human Subjects Research Committee Policies and Procedures.

Date submitted: 8/1/2022 Date received: 8/9/2022.

GEORGE FOX UNIVERSITY

Human Subjects Research Committee

PROTECTION OF HUMAN SUBJECTS

INITIAL REVIEW QUESTIONNAIRE

[Note: Dissertation, or other formal research proposal, need not be submitted with this form. However, relevant section(s) may need to be attached in some cases, in addition to filling out this form completely, but only when it is not possible to answer these questions adequately in this format.

Do not submit a proposal in lieu of filling out this form.]

Title of Proposed Research: **Practice Habits of String Music Students in Elementary School VAPA Programs: An Empirical Mixed-Methods Survey**

Principal Researcher(s): Timothy Johnson

Degree Program: EdD

Rank/Academic Standing: Good

Other Responsible Parties (if a student, include faculty sponsor, list other involved parties and their role)

Dr. Dane Joseph - Academic Advisor

(Please include identifying information on page 6 also.)**

(1) Characteristics of Subjects (including age range, status, how obtained, etc.)

The Subjects consist of the students in grades 5 and 6 and their ages range between 9 to 12. With respect to the 2022-2023 school year, all students participating in this research attend one of the three elementary schools located in the Fairfax School District (FUSD); these three elementary schools are identified as follows: (site #1) Virginia Ave, (site #2) Zephyr Lane, and (site #3) Shirley Lane. While the total student population at the three sites is 2,148, the number of grade 5 and 6 music students expected to participate in the survey is approximately 50 male and female students from each site for a total of 150 student respondents. As the classroom instructor of record for all students enrolled in the music classes, the researcher has permission to access student information from the Fairfax School District's AERIES repository.

(2) Describe Any Risks to the Subjects (physical, psychological, social, economic, or discomfort/ inconvenience):

The risk to subjects is no greater than what is normally observed during other educational and psychological assessment endeavors.

Historically, student surveys have been conducted electronically at the Fairfax School District using google survey forms in the instrumental music classroom; therefore, self-reporting student

surveys required for this research will be conducted using similar protocol and monitored by the researcher during the last 20 minutes of class time. Current student seating policy requires a minimum separation of 6 feet between students, thus, the completion and collection of student surveys **(Appendix B)** and student identities shall remain anonymous.

(3) Are the risks to subjects minimized (i) by using procedures that are consistent with sound research design and which do not unnecessarily expose subjects to risk, and (ii) whenever appropriate, by using procedures already being performed on the subjects for diagnostic or treatment purposes? Yes/No

Degree of risk: 1 - Minimal

(4) Briefly describe the objectives, methods and procedures used:

The purpose of this Empirical Survey Research is to gain knowledge about the practice habits of students enrolled in instrumental music programs at three elementary school sites which are supported by the Fairfax School District's Visual and Performing Arts (VAPA) program. Procedures used in this research will incorporate the analysis and conclusions generated by the self-reporting student survey instrument **(Appendix B)** along with research findings found in published literature and relevant to the examination. After conducting a comparative analysis between the survey content and

published literature, the researcher will gain new insight about the practice habits of instrumental music students.

Methods of this research consist of creating and administering a self-reporting student survey instrument using a Google survey form **(Appendix B)** for the purpose of determining the method(s) students apply when engaged in private music practice outside of class time. In addition, the new survey instrument will also track student's weekly practice time.

A mixed methods procedure will be used for conducting this research using quantitative and qualitative data generated from the ex-post facto student surveys. Stratified sampling of data from student candidates will be collected from each of the three school sites The collected data will also generate descriptive and diagnostic analysis to guide the researcher in identifying the quality of work expected from the practice habits of instrumental music students. After data is coded and sorted, student patterns of music acumen and proficiencies will result from this research.

(5) Briefly describe any instruments used in the study **(attach a copy of each).** The self-reporting student survey, **(Appendix B)** contains 5 open-ended questions designed to gain an understanding of how students practice and 10 closed-ended questions ranking student perceptions related to the student's routines and practice of music assignments. Closed-

ended survey content in this research closely compares with a psychometrically sound self-leadership instrument tool known as the Revised Self-Leadership Questionnaire (RSLQ) strategy which seeks to determine the ability of a survey respondent to lead themselves. (Houghton, et al, 2002)

The content of the closed-ended survey **(Appendix B)** draws upon a theory of learning from David Elliott in *Music Matters* (1995) and the lived experiences of the researcher who is a professional music educator and familiar with the typical challenges students encounter when attempting to self-regulate while engaged in the practice of music. The intent of the closed-ended design is to collect quantitative data from simple music-related questions about the respondent's practice experiences. The design of the survey is developed in simplicity to improve the consistency of responses and to motivate respondents at grade levels 5 and 6 to comprehend and answer all questions in the survey.

(6) How does the research plan make adequate provision for monitoring the data collected so as to ensure the safety, privacy and confidentiality of subjects?

Survey data collection from each student will be conducted anonymously from each of the three sites and in consistent order starting with site #1, site #2, and site #3, The data will only be accessible to the researcher and the content will be safely and securely

stored in the researcher's Google Drive account. To ensure the safety, privacy, and confidentiality of all subjects, this data will not be accessed by anyone other than the researcher and dissertation advisor. The researcher serves as the Music Director for the School District's K-6 Instrumental Music Program and intends to obtain written consent (or assent) to participate in a student survey from each student participant and their parent(s)/guardian.

(7) Briefly describe the benefits that may be reasonably expected from the proposed study, both to the subject and to the advancement of scientific knowledge - are the risks to subjects reasonable in relation to anticipated benefits?

The benefits of researching the practice habits of music students is expected to gain a new understanding of how we can better support student development and track the efforts of visual and performing arts (VAPA) initiatives and support the school district's goals to build stronger VAPA programs. Advancing scientific knowledge can be expected from analyzing collected data and research literature. Collectively, these activities pose very little threat in comparison to the benefits that will emerge from this research. Following the collection of literature, surveys and data analysis, the researcher will identify areas of improvement, and introduce viable solutions. Sharing the new data and literature discovered during this investigation, with the VAPA research and practitioner community,

adds back to the knowledge and practice base of music educators. In addition, these findings and the supporting data will be provided to students and parents in a descriptive detailed report for the purpose of providing them with new insight on how to practice music effectively.

(8) Where some or all the subjects are likely to be vulnerable to coercion or undue influence (such as children, persons with acute or severe physical or mental illness, or persons who are economically or educationally disadvantaged), what appropriate additional safeguards are included in the study to protect the rights and welfare of these individuals?

To reiterate from previous sections, the following safeguards will be included in the study to protect the rights and welfare of research participants:

1. Obtaining written parental consent, or assent, from parents/guardians of all student research participants
2. Obtaining written consent, or assent, from all students participating in the research
3. Ensuring that research participation is voluntary
4. Prioritizing and maintaining confidentiality and anonymity
5. Providing participants with the right to withdraw from the research at any time.

Furthermore, as the principal researcher and district music instructor for grades for K-6, I will mitigate the power dynamic as teacher/assessor and researcher in the following manner. First, this study will have no impact on the outcome of the evaluative class grade of the students participating in this research. Secondly, I will employ evidence-based practices of Safe Conversations. This

includes using the framework of formulating well-defined and answerable questions, seeking the best evidence to guide discussions and answers to questions, respectfully and responsibly evaluating the evidence, and applying the evidence to the individual participant. Lastly, the principal researcher will reiterate (in writing and verbally) to study participants the importance of the research, the importance of confidentiality and respectful, responsible and kind conversations in addition to the acknowledgement that participants can stop participation at any time during the study.

(9) Does the research place participants "at risk?" ☐Yes/ No If so, describe the procedures employed for obtaining **informed consent** ***(in every case, attach a copy of the informed consent form;*** *if* ***none, explain).*** **See Appendix C** - Research Subject Informed Consent Form

COMMITTEE REVIEW

For

HSRC Member Signature	Recommend Approval	Conditional Approval	Not Recommended
Chair		☐	☐
Member		☐	☐
Member		☐	☐
Member		☐	☐
Member		☐	☐
		☐	☐

GEORGE FOX UNIVERSITY HSRC INITIAL REVIEW QUESTIONNAIRE

Page 8

Title: Practice Habits of Instrumental VAPA Music Students

Principal Researcher(s): Timothy Johnson

Date application completed: 7/31/2022.

(The researcher needs to complete the above information on this page)

COMMITTEE FINDING: For Committee Use Only

(1) The proposed research makes adequate provision for safeguarding the health and dignity of the subjects and is therefore approved.

(2) Due to the assessment of risk being questionable or being subject to change, the research must be periodically reviewed by the **HSRC** on a basis throughout the course of the research or until otherwise notified. This requires resubmission of this form, with updated information, for each periodic review.

(3) The proposed research evidence some unnecessary risk to participants and therefore must be revised to remedy the following specific area(s) on non-compliance:

(4) The proposed research contains serious and potentially damaging risks to subjects and is therefore not approved.

Chair or designated member

Date

Appendix B

Self-Survey Instrument Practice Habits

Sites: Virginia Ave, Zephyr Lane, and Shirley Lane Elementary Schools - Instrumental String Music Program - Researcher Tim Johnson GFU

Name of Your School site (Choose 1) *Mark only one oval.*

☐ Virginia Ave

☐ Shirley Lane Ave

☐ Zephyr Ave

1. How many minutes total did you practice this week?
2. What music content from the Homework assignments did you practice this week?
3. What challenges from the rubrics are you having when practicing?
4. What time do you usually practice?
5. What music (songs) do you like learning?

1. How important is practicing your instrument to you?

Mark only one oval.

	1	2	3	4	5	
Not important	O	O	O	O	O	Very important

2. What level of music skill would you like to achieve?

Mark only one oval.

	1	2	3	4	5	
Poorly	O	O	O	O	O	Great

3. How accurate is your rhythm when you practice?

Mark only one oval.

	1	2	3	4	5	
Poorly	O	O	O	O	O	Great

4. If I were challenged more, I would practice more.

Mark only one oval.

Mark only one oval.

	1	2	3	4	5	
Not at all	O	O	O	O	O	Much More

5. The music is too hard for me.

Mark only one oval.

	1	2	3	4	5	
Never	O	O	O	O	O	All the time

6. The Teacher encourages me to practice in class

Mark only one oval.

	1	2	3	4	5	
Never	O	O	O	O	O	All the Time

7. How often do you think about becoming a professional musician?

Mark only one oval.

	1	2	3	4	5	
Never	O	O	O	O	O	All the time

8. How well do you read standard notation music

Mark only one oval.

	1	2	3	4	5	
Poorly	O	O	O	O	O	Excellent

9. How well do you play by rote (without using music)

Mark only one oval.

	1	2	3	4	5	
Poorly	O	O	O	O	O	Excellent

10. What is the likelihood you will keep playing the same instrument you play now until you graduate?

	1	2	3	4	5	
Unlikely	O	O	O	O	O	Likely

Appendix C

Student and Parent Consent

RESEARCH SUBJECT INFORMED CONSENT FORM

Prospective Research Subject: Read this consent form carefully and ask as many questions as you like before you decide whether you want to participate in this research study. You are free to ask questions at any time before, during, or after your participation in this research.

Project Information

Project Title: Project Number: **Practice Habits of String Music Students in Elementary School VAPA Programs: An Empirical Mixed-Methods Survey**
Site IRB Number: Sponsor: Dane Joseph
Principal Investigator: Timothy Johnson Organization: George Fox University
Location: Bakersfield, CA Phone: (559)301-0033

1. PURPOSE OF THIS RESEARCH STUDY

You are being asked to participate in a research study containing 5 open-ended questions and 10 questions ranking student perceptions related to music activities also related to the routines of student practice. The aim of the survey is designed to gain an understanding of how students practice instrumental music. In addition, the actual music instrument played by the student during classroom assessment, such as a guitar or violin, will be used in the study.

2. PROCEDURES

Students will be provided the opportunity to participate in this research study. If students are in agreement, they will be asked to participate in a 15 question survey, as shown in Appendix A, after settling into the 2022-23 school year and within the October/November timeframe.

The survey will take about 20 minutes and will be conducted in the FJHS school library.

3. POSSIBLE RISKS OR DISCOMFORT

While the risk of discomfort is very minimal, student subjects engaged in the survey are encouraged to request a meeting with the school counselor, Mr. Moran in the event that any of the questions presented during the survey are too sensitive for the student to continue as a participant.

4. OWNERSHIP AND DOCUMENTATION OF SPECIMENS

Survey data collection from each student will be conducted anonymously. and the content will be safely and securely stored with the researcher. To ensure the safety, privacy, and confidentiality of all subjects, this data cannot and will not be accessed by anyone other than the researcher.

5. POSSIBLE BENEFITS

The benefits of this research is to gain knowledge about the practice habits of students enrolled in instrumental music programs supported by the School District's Visual and Performing Arts (VAPA) program. The outcome is to expand and strengthen the practice habits of instrumental music students from the conclusions and findings of the student surveys and assessments, and from research found in published literature.

6. FINANCIAL CONSIDERATIONS

There is no financial compensation or costs for your participation in this research.

7. CONFIDENTIALITY

Your identity in this study will be treated as confidential. The results of the study, including laboratory or any other data, may be published for scientific purposes but will not give your name or include any identifiable references to you."

However, any records or data obtained as a result of your participation in this study may be inspected by the sponsor, by any relevant governmental agency (e.g., U.S. Department of Education), by the George Fox Institutional Review Board, or by the persons conducting this study, provided that such inspectors are legally obligated to protect any identifiable information from public disclosure, except where disclosure is otherwise required by law or a court of competent jurisdiction. These records will be kept private in so far as permitted by law."

In addition, all student surveys will be collected anonymously and no information, with exception of age and gender, will be distributed that could compromise the identity of the student participants

9. TERMINATION OF RESEARCH STUDY

You are free to choose whether or not to participate in this study. There will be no penalty or loss of benefits to which you are otherwise entitled if you choose not to participate. You will be provided with any significant new findings developed during the course of
this study that may relate to or influence your willingness to continue participation. In the event you decide to discontinue your participation in the study.

Please notify Timothy Johnson, (559)301-0033 of your decision to terminate participation and/or follow the progress of the NIC without participating in the PDSA so that your participation can be orderly terminated.

In addition, your participation in the study may be terminated by the investigator without your consent under the following circumstances.

FJHS or George Fox University rescinds permission for the study. Investigator fails to meet the requirements of the Empirical Survey Study.

10. AVAILABLE SOURCES OF INFORMATION

Any further questions you have about this study will be answered by the Principal Investigator:

Name: Timothy Johnson Phone Number: (559)301-0033
Any questions you may have about your rights as a research subject will be answered by: Name: Dane Johnson Email: djoseph@georgefox.edu

In case of a research-related emergency, call:
Day Emergency Number: (559)301-0033 Night Emergency Number: (559)301-0033

11. AUTHORIZATION

Student: I have read and understand this consent form, and I volunteer to participate in this research study. I understand that I will receive a copy of this form. I voluntarily choose to participate, but I understand that my consent does not take away any legal rights in the case of negligence or other legal fault of anyone who is involved in this study. I further understand that nothing in this consent form is intended to replace any applicable Federal, state, or local laws.

Participant Name
Participant Signature

Date:

Parent/Guardian: I have read and understand this consent form, and I grant permission for the above-named student to participate in this research study. I understand that I will receive a copy of this form. I voluntarily allow the student to participate, but I understand that my consent does not take away any legal rights in the case of negligence or other legal fault of anyone who is involved with this study. I further understand that nothing in this consent form is intended to replace any applicable Federal, state, or local laws.

Parent/Guardian Name
Parent/ Guardian Signature
Date:

Principal Investigator Name
Principal Investigator Signature
Date:

Name of Person Obtaining Consent
Signature of Person Obtaining Consent
Date:

Committee Review *(for Committee Use Only)*

	HSR Member Signature	Recommend Approval	Conditional Approval	Not Recommended
Chair				
Member				
Member				
Member				

Appendix D

Fairfax School District Request to Conduct Research Approval Letter

Fairfax School District

Empowering Students to Succeed

1500 S. Fairfax Rd. Bakersfield , CA 93307 Phone: (661) 366-7221 Fax: (661) 366-1901

To: Timothy Johnson

From: Superintendent Lora Brown or other authority
Department of Assessment, Research, and Evaluation

CC: Charley Clark, Assistant Superintendent

Date: August, 2022

Re: Request to conduct research in Virginia Ave, Zephyr Ave, and Shirley Lane Elementary Schools located in the Fairfax School District (FSD)

This notification qualifies as our approval for you to conduct research in Virginia Ave, Zephyr Ave, and Shirley Lane Elementary Schools, in the Fairfax Unified School District **under the following provisions**:

- ☑ The student participants and their, parents, from each of the three school sites. Shirley Lane, Virginia Avenue, and Zephyr Lane Elementary Schools, agree to your study.
- ☑ Students, parents, teachers, and principals are notified of their right to opt out of the study, any instrument(s) included in the study, or any item on the instrument(s).
- ☑ Your study follows the structure outlined in your request.
- ☑ Ensure data security (locked files and/or password protection) and to destroy all personally identifiable information from education records when the information is no longer needed for the purposes of this project.
- ☑ Please note conducting research does not override existing district or building rules and policies.
- ☑ Upon completion of the study, you will provide the site principals and FUSD Coordinator of Research Projects for Assessment, Research, and Evaluation with a summary of findings and, if applicable, a complete report of procedures and findings.

Thank you for completing the application process. We look forward to reading your results.

(Signed) Lora Brown Date: 9/19/2022
Coordinator Research Proposals - Department of Assessment, Research, and Evaluation
Fairfax School District

Appendix E

Fairfax School District: Instrument Agreement & Practice Contract

This agreement entered; by and between Fairfax School District and the person named above shall be binding upon the same for as long as the instrument described above is on loan from the Fairfax School District Schools. These elementary school sites are: Shirley Lane, Zephyr Avenue, and Virginia Avenue Upon signing this contract and receiving the afore instrument recorded on this document, parent or guardian and pupil agree to the following:

- To refrain from using the instrument in organizations, other than school, unless permission is received from the orchestra teacher.
- To refrain from loaning or allowing any other person but the student to play or care for the instrument.
- To be personally responsible for any damage or loss to the school-owned instrument while in your care. If the school-owned instrument is lost or stolen through no fault of the Fairfax School District is lost or stolen, you agree to reimburse the district for the current replacement value of the instrument.
- To pay for the repair of the instrument if it is damaged by pupil negligence.
- To return this instrument to the orchestra teacher at the Fairfax School District in the same condition it was received (ordinary wear is accepted).
- To return the instrument when the pupil is no longer enrolled in string classes or playing in the FESO Orchestra in the Fairfax School District.

1. As a requirement for borrowing a school instrument and maintaining membership in the Orchestra, students must be committed to practicing their instrument at least 20 minutes daily. As parent/guardian, I understand and agree to support my son/daughter in practicing their assigned scales, exercises (etudes) and concert repertoire on their instrument and ensure my son/daughter regularly attend and bring their instrument to Orchestra rehearsal.

2. Students must attend all rehearsals; students with excessive absences (more than 4 during the semester will be asked to return their instrument to the school.

3. We, the undersigned hereby acknowledge receipt of the instrument described in this document and have read, understand, and agree to the above provisions. I also acknowledge that said instrument is and shall remain in the property of the Fairfax School District.

Parent or Guardian Signature _____Date _____Student

Signature_____ Date _____Name of School:

(Please Circle One:) ZLE SLE VAE

(Orchestra Instructor) Signature _____Date _____

Appendix F
Student Music Practice Self-Assessment Rubric

Assignments 1. Essential Elements Book 1 for Strings 3. Selected Etude Study Rubrics
2. G, D, and A (One-Octave) Scales 4. Concert repertoire

Pages 1–9	Unsatisfactory	Basic	Proficient	Distinguished	Total
Intonation Fingerings Finger patterns	• Not in tune • Incorrect fingerings • Patterns not demonstrated. 0	• Inconsistent pitch center • Inconsistent fingerings • Inconsistent finger patterns 1	• Minor pitch errors • Minor fingering errors • Finger patterns consistent. 2	• Pitch is accurate. • Accurate fingerings • Finger patterns accurate. 3	
Tone Quality Bow control	• Tone quality is poor. • Bow is not in control. 0	• Inconsistent tone quality • Inconsistent bow control 1	• Minor tone quality errors • Minor bow control issue 2	• Tone quality is accurate. • Bow use is accurate. 3	
Tempo Rhythm	• Tempo is slow and erratic. • Rhythm is undistinguishable. 0	• Tempo is slow and maintained. • Several rhythmic errors. 1	Tempo is met and maintained. • Minor rhythmic errors 2	Tempo is accurate and maintained. • Rhythm is accurate. 3	
Posture Left hand Right hand (bow)	• Poor instrument posture • Poor left-hand posture • Poor bow hold 0		• Proper instrument posture demonstrated. • Proper left-hand posture demonstrated. • Proper bow hold is demonstrated. 1		
	Overall results: Unsatisfactory, 0–4; basic, 5–7; proficient, 8–9; distinguished, 10.			TOTAL POINTS (10 pts)	0
				Proctor Signature:	

Appendix G

VAPA Standard Grade 5

1.0 ARTISTIC PERCEPTION

Processing, Analyzing, and Responding to Sensory Information Through the Language and Skills Unique to Music

Students read, notate, listen to, analyze, and describe music and other aural information, using the terminology of music.

Read and Notate Music

1.1 Read, write, and perform simple melodic notation in treble clef in major and minor keys.
1.2 Read, write, and perform major and minor scales.
1.3 Read, write, and perform rhythmic notation, including quarter-note triplets and tied syncopation.

Listen to, Analyze, and Describe Music

1.4 Analyze the use of music elements in aural examples from various genres and cultures.
1.5 Identify vocal and instrumental ensembles from a variety of genres and cultures.
1.6 Identify and describe musical forms, including theme and variations and twelve-bar blues.

2.0 CREATIVE EXPRESSION

Creating, Performing, and Participating in Music

Students apply vocal and aural instrumental musical skills in performing a varied repertoire of music. They compose and arrange music and improvise melodies, variations, and accompaniment, using digital/ electronic technology when appropriate.

Apply Vocal and Instrumental Skills

2.1 Sing a varied repertoire of music, including rounds, descants, and songs with ostinatos and songs in two-part harmony, by oneself and with others.
2.2 Use classroom instruments to play melodies and accompaniments from a varied repertoire of music from diverse cultures, including rounds, descants, and ostinatos and two part harmony, by oneself and with others
2.3 .

Appendix H

VAPA Standard Grade 6

1.0 ARTISTIC PERCEPTION

Processing, Analyzing, and Responding to Sensory Information Through the Language and Skills Unique to Music

Students read, notate, listen to, analyze, and describe music and other aural information, using the terminology of music.

Read and Notate Music

1.1 Read, write, and perform intervals and triads.
1.2 Read, write, and perform rhythmic and melodic notation, using standard symbols for pitch, meter, rhythm, dynamics, and tempo in duple and triple meters.
1.3 Transcribe simple aural examples into rhythmic notation.
1.4 Sight-read simple melodies in the treble clef or bass clef.

Listen to, Analyze, and Describe Music

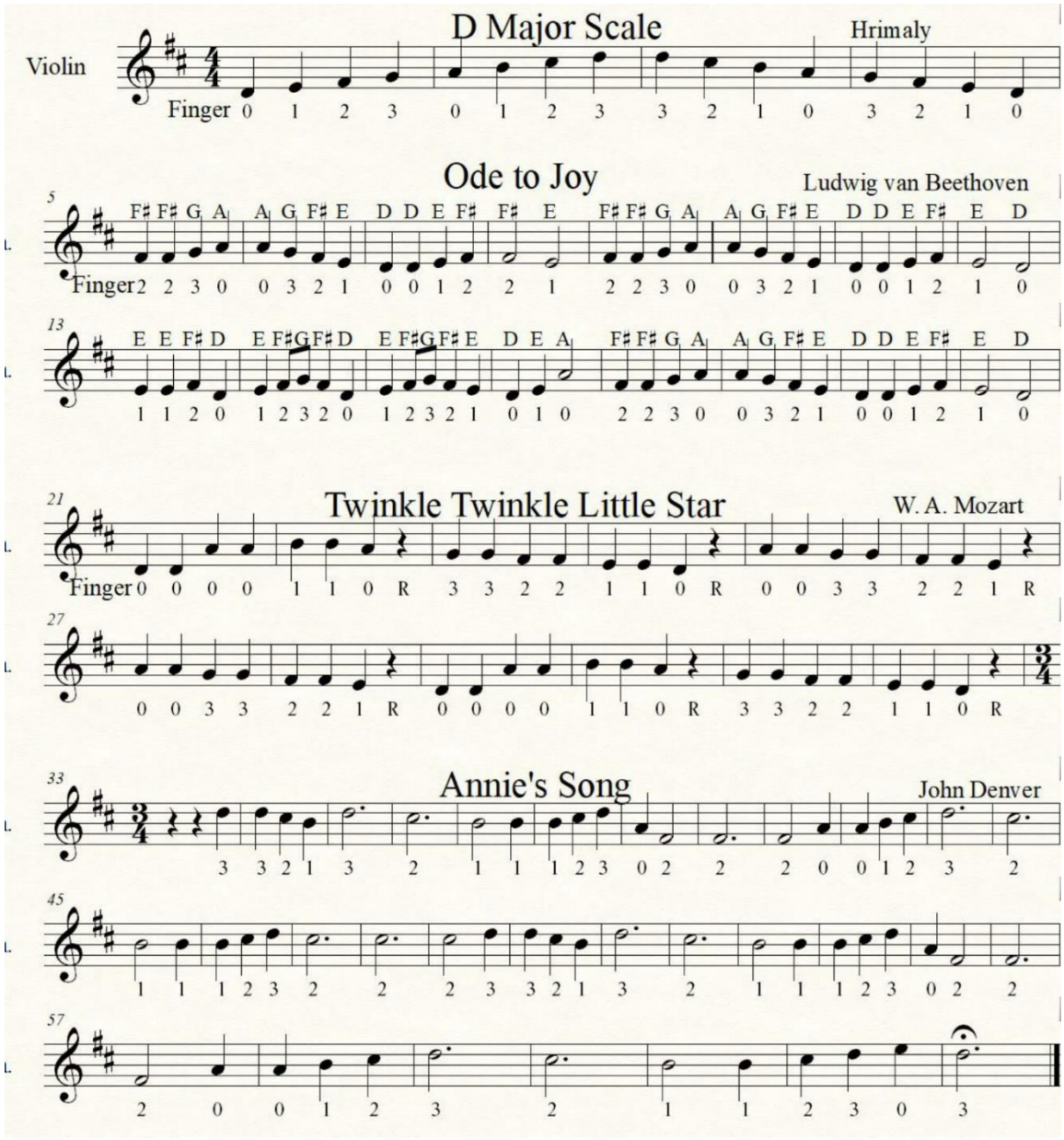
1.5 Analyze and compare the use of musical elements representing various genres and cultures, emphasizing meter and rhythm.
1.6 Describe larger music forms (sonata-allegro form, concerto, theme and variations).

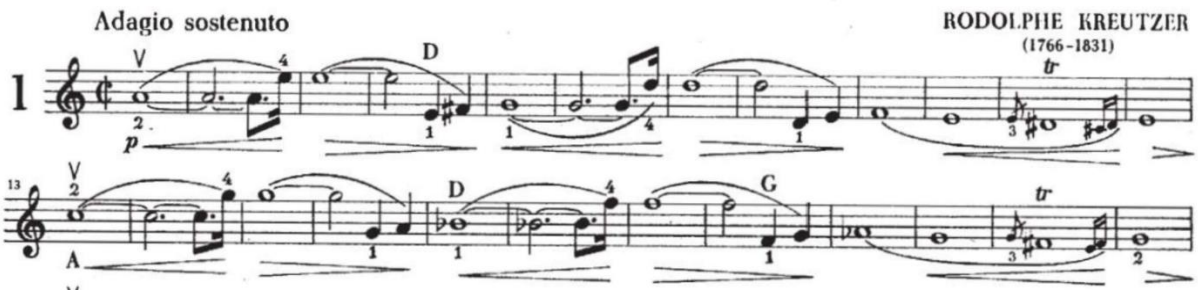
2.0 CREATIVE EXPRESSION

Creating, Performing, and Participating in Music

Appendix I

Essential Elements for Strings, Methods Book 1





Appendix J
Qualitative Raw Data Sample

How many min total did you practice this week?	Motivation to practice	What music content from the homework assignments did you practice this week?	What challenges from the rubrics are you having when practicing?	What music (songs) do you like learning?	What time do you usually practice, and why?
30	I wanted to learn the songs which are fun	Jingle Bells, Twinkle Twinkle, Old McDonald	Trouble putting fingers on notes	Jingle Bells, Old McDonald, Twinkle Twinkle	
20		Mary Had A Little Lamb	I don't know how to play in time	Jingle Bells	6 PM Random
0		Jingle Bells, Twinkle Twinkle, Mary Had A Little Lamb	I don't put my fingers on the strings correctly	Jingle Bells, Joy to the World, Twinkle Twinkle, Mary Had A Little Lamb	Randomly
20		Jingle Bells, Old McDonald	Doesn't sound right	Jingle Bells, Twinkle Twinkle	I practice at dinner time.
115		Jingle Bells, D Scale, Twinkle Twinkle, Mary Had A Little Lamb	I occasionally cannot control my bow	Jingle Bells, D Scale, Twinkle Twinkle, Mary Had A Little Lamb	7 PM-9PM
0	I was sick and couldn't practice	Mary Had A Little Lamb	I play my notes wrong	Jingle Bells, Seminole Chant	Randomly
45	I love practicing	Jingle Bells, Twinkle Twinkle, Mary Had A Little Lamb	I play it wrong, and it doesn't sound the same each time	Jingle Bells, Mary Had A Little Lamb	I practice in the afternoon
0	I haven't practiced but was about to.		I accidently play the wrong notes	Mary Had A Little Lamb	It will be 5:30 PM

Appendix K

Quantitative Raw Data

The following table summarizes quantitative data for 10 quantitative research questions (Q1 - Q10) from the numbered list.

(Instrument: Likert Scale = 1-5, indicates lowest to highest and poorest to best level of quality identified by participants)

Question	Research Questions
Q1	How important is practicing your instrument to you?
Q2	What level of music skill would you like to achieve?
Q3	How accurate do you believe your rhythm is when you practice?
Q4	If I were challenged more, I would practice more.
Q5	The music is too hard for me.
Q6	The teacher encourages me to practice in class.
Q7	I think about becoming a professional musician.
Q8	How well do you read standard notation?
Q9	How well do you play by rote (for example, playing without notes)
Q10	What is the likelihood you will keep playing the same instrument you play now until you graduate?

The following table identifies student participant responses to 6 quantitative (yes or no) questions identifying areas of student motivation

SM	Are you self-motivated?
SR	Are you able to self-regulate?
SC	Are you able to self-correct?
SP	Is your practice structured?
GO	Do you seek opportunities and goals?
AS	Do you receive adult supervision in your music practice?
M/F	Male or Female Participant Indicator
P#	Student Participant Identifier

P#	SM	SR	SC	SP	GO	AS	M/F	Q1	Q2	Q3	Q4	Q5	Q6	Q7	Q8	Q9	Q10
P1	Y	Y	Y	Y	Y	Y	F	5	4	3	4	2	5	4	3	3	2
P2	Y	Y	N	N	N	N	F	4	5	2	5	5	4	3	3	1	5
P3	Y	Y	Y	Y	Y	Y	F	4	5	4	5	2	5	5	3	4	5
P4	N	Y	Y	N	N	Y	F	3	5	4	4	4	3	4	4	4	2
P5	N	N	N	N	N	Y	F	3	4	2	3	4	4	5	2	1	3
P6	N	N	N	N	Y	N	F	4	3	3	2	2	5	1	2	1	1
P7	Y	Y	Y	Y	Y	Y	M	3	4	3	5	2	5	3	4	5	3
P8	Y	Y	N	Y	Y	N	M	4	5	3	4	2	5	3	4	5	1
P9	Y	N	N	N	N	Y	F	2	3	3	5	5	4	2	3	2	1

P10	Y	Y	Y	N	Y	Y	F	5	5	3	1	3	5	5	3	1	1
P11	Y	Y	N	Y	Y	Y	F	5	5	4	5	3	5	3	3	3	3
P12	N	Y	Y	Y	N	Y	M	4	5	2	5	3	4	1	4	3	5
P13	Y	Y	Y	N	Y	N	M	5	5	4	5	1	5	3	4	2	4
P14	Y	Y	N	Y	Y	Y	M	5	3	4	5	2	5	5	5	5	5
P15	Y	Y	Y	Y	Y	Y	F	5	5	4	5	2	5	3	4	4	2
P16	Y	Y	Y	Y	N	Y	M	3	4	3	2	2	5	1	4	2	1
P17	Y	Y	Y	N	Y	Y	F	3	4	4	4	2	5	4	4	3	4
P18	Y	Y	Y	Y	Y	Y	F	5	4	4	5	3	4	2	3	2	3
P19	Y	N	N	Y	Y	Y	M	1	5	4	1	4	1	2	3	4	2
P20	Y	Y	Y	Y	N	N	M	4	5	4	1	1	5	2	2	4	2
P21	Y	N	Y	Y	Y	Y	M	2	5	3	3	4	5	5	2	1	1
P22	Y	Y	Y	Y	Y	N	M	4	5	4	5	2	4	4	2	4	5
P23	Y	Y	Y	N	Y	N	F	4	4	3	4	3	5	4	3	3	1
P24	Y	Y	Y	Y	Y	Y	F	4	4	3	3	2	5	5	4	3	4
P25	Y	Y	Y	N	Y	Y	F	3	5	3	2	2	3	3	2	4	3
P26	Y	Y	Y	Y	Y	Y	F	4	5	4	3	4	3	4	3	3	1
P27	Y	Y	Y	Y	Y	Y	F	4	4	3	4	3	5	5	2	3	4
P28	Y	N	Y	Y	N	Y	F	5	4	3	4	5	3	5	2	1	5

P29	Y	N	Y	N	N	Y	M	3	5	3	3	4	3	4	2	1	5
P30	Y	N	Y	Y	Y	Y	F	3	4	3	4	3	5	4	2	3	4
P31	N	Y	Y	N	Y	Y	F	3	5	3	5	3	4	5	3	4	3
P32	N	Y	Y	Y	Y	Y	F	5	4	4	5	2	5	5	4	4	2
P33	Y	Y	Y	N	Y	Y	M	4	5	2	5	5	5	5	2	3	4
P34	Y	Y	N	N	N	N	M	3	3	2	2	3	5	2	2	1	2
P35	Y	Y	N	Y	N	Y	F	3	5	4	5	2	4	4	4	3	3
P36	Y	N	N	N	Y	Y	M	4	4	2	4	3	3	5	3	4	5
P37	Y	N	Y	Y	N	N	M	3	4	2	4	3	4	2	3	2	4
P38	Y	Y	Y	Y	Y	Y	F	4	5	4	5	2	5	4	3	5	3
P39	Y	Y	Y	Y	Y	Y	M	5	4	3	2	1	5	4	1	3	5
P40	N	N	N	N	N	Y	F	5	5	4	4	1	5	4	4	5	5
P41	Y	N	N	N	N	N	M	5	4	4	5	2	3	4	4	2	2
P42	Y	N	N	N	N	N	F	5	5	4	5	2	5	5	5	4	3
P43	N	Y	Y	Y	Y	Y	M	4	5	5	Y	Y	4	4	4	4	3
P44	Y	Y	Y	Y	N	Y	F	5	5	5	5	3	5	5	4	1	5
P45	Y	Y	Y	Y	Y	Y	M	5	5	5	5	1	5	5	4	5	5
P46	Y	Y	Y	N	N	N	M	4	4	5	3	2	5	2	2	4	3
P47	N	N	N	Y	N	N	M	4	5	3	4	2	5	3	3	2	4

P48	N	N	Y	N	N	N	F	5	4	3	4	5	4	2	3	1	2
P49	N	N	Y	Y	Y	Y	F	5	5	3	5	1	5	5	3	1	5
P50	Y	Y	Y	Y	Y	Y	F	5	5	4	5	2	5	5	4	5	5
P51	N	N	Y	N	N	Y	M	4	4	3	Y	3	5	4	3	1	5
P52	Y	Y	Y	Y	Y	Y	F	5	5	4	5	2	5	5	4	1	5
P53	N	Y	Y	N	N	N	M	3	5	3	5	2	5	5	2	5	5
P54	N	N	N	N	Y	N	M	4	5	4	5	2	5	5	5	5	3
P55	N	Y	N	N	N	N	M	2	5	5	3	2	2	2	5	3	5
P56	Y	Y	Y	Y	N	N	M	4	5	4	5	2	2	3	4	3	2
P57	N	N	Y	N	N	N	F	4	3	3	5	2	5	5	3	4	4
P58	N	N	N	N	Y	Y	F	5	5	2	5	3	3	2	4	1	5
P59	Y	Y	Y	Y	Y	Y	F	5	3	5	5	1	5	5	5	4	4
P60	Y	Y	Y	Y	Y	Y	F	5	5	5	5	1	5	5	5	5	4
P61	Y	Y	Y	Y	N	Y	F	5	5	4	5	2	4	5	5	5	5
P62	Y	Y	Y	Y	N	Y	F	4	5	4	5	2	5	5	4	4	5
P63	Y	N	N	N	N	N	M	4	5	3	5	3	5	4	3	1	4
P64	Y	Y	N	N	N	Y	M	5	5	5	5	3	4	4	4	3	1
P65	Y	Y	Y	Y	N	N	F	5	4	4	5	1	5	5	4	5	5

Appendix L

QUAL+QUAN Merged Data

Quantitative data collected from student participant responses (Questions 1-10)				To what extent are instrumental music students following prescribed rubrics, practicing effectively, and reaching their goals?	What are the primary drivers preventing elementary music students from reaching goals to practice their music practice goals effectively?	How can the practice habits of instrumental music students be improved with adult involvement?	How are the subjects' practice habits impacted when applying the prescribed rubrics?	How can the results collected from the subjects' quantitative, qualitative data impact the practice habits of instrumental music students?	Qualitative data collected from student responses (Questions 1-5)			
	Quantitative (closed-ended) self-survey questions	Level of student interest	Student survey results	QUAN+QUAL mixed-data analysis convergent parallel recommendations						Qualitative (open-ended) self-survey questions	Level of student interest	Weighted factor scoring based on time reported
	How important is practicing your music instrument to you? *Instrument: Likert Scale* *1 2 3 4 5* Not Important Very Important	5	42%	***QUAL:*** Several student participants voluntarily submitted their completed rubrics to the teacher during orchestra practice pointing out their success at achieving high assessment ratings. ***QUAN:*** Empirical observation of same group of students has confirmed their improvements in technical skills inherent in challenges with right	***QUAN*** : 27% of students (average & below) must apply SM,SR, SP, and Parents are the key drivers.AS Req'd. ***QUAL*** : 49% must increase practice time to 30 minutes per day.	***QUAN & QUAL are not in agreement:*** 74% of Students state practice importance is "very high or high" in ***QUAN.*** This does not match the 44% average (and below) time reported in ***QUAL*** , (AS, SM, SP (Req'd) AS can monitor practice time to confirm student's time reporting.	***QUAN+QUAL:*** *From my experience, developing a relationship of trust between teacher and student accelerates adherence to the rubrics during practice and increases over time.*	***QUAN***: Informing students daily of the importance of practice time is required by the Teacher. ***QUAL:*** In tandem, practice time must be collected and monitored every week by the teacher and visually confirmed in the home by AS to achieve desired results.		**Describe your practice this week; how many minutes total did you practice?**	Very high 100-180	9 (14%)
	MCFM requirements: SM, SR, SP, AS	4	32%								High 45-99	12 (18%)
		3	20%							MCFM Requirements SM, AS, SP, SR	Average 30-44	12 (18%)
	SDT requirements:	2	5%								Infrequent 18-29	12 (18%)

Q1		1	2%	hand/left hand dexterity after using					**Q1**	SDT Requirements	Low 0-17	20 (31%)
Q2	**What level of music skill would you like to achieve?** ========== *Instrument: Likert Scale* *1 2 3 4 5* *Poorly Great*	5	62%	***QUAN:*** With 91% of student participants expressing desire to reach high or very high achievement levels of music skill, SM by the student to increase practice time and apply rubrics and AS are the key drivers.		***QUAL:*** 46% (Average and below) state their practice time is random or infrequent suggesting adult supervision is nonexistent or lacking. ***QUAN:*** 94% would practice more if challenged more, indicating shared responsibilities of	***QUAL:*** During a 6 week period, close monitoring of students' use of rubrics and strict adherence to SP was observed and verified as a major impact in some of the students (*n* = 15) achieving their goal of learning to play and perform 7 songs for their Christmas concert.	***QUAN:*** Data confirmed students (n=15) who demonstrated the ability to learn all 7 of the songs for the Christmas concert, logged between 1 and 3 hr of practice time during this week.	**Q2**	**What music content from the homework assignments did you practice this week?**	5 songs	9 (14%)
	MCFM requirements: SM, SR, GO, AS	4	29%							MCFM requirements:	4 Songs	21 (32%)
		3	9%								3 Songs	15 (23%)
	SDT requirements:	2	0%							SDT requirements:	2 Songs	15 (23%)
		1	0%								1 Song	5 (8%)
3	**How accurate do you believe your rhythm is when you practice?** ========== *Instrument: Likert Scale* *1 2 3 4 5* *Poorly Great*	5	14%	***QUAN+QUAL:*** Use of rubrics requiring proper use of bow, playing correct pitches and accuracy of rhythm were empirically observed by teacher during class instruction and performances			***QUAL:*** 46% Improvement (average & above) in bowing straight and improvement in LH/RH control. ***QUAN:*** rhythmic elements average and above, are improved 87%	***QUAL:*** Data results show the need to assist students with exercises to improve practice habits related to bowing, pitch problems, and executing rhythmic figures accurately.	**Q3**	**What challenges from the rubrics are you having when practicing?**	No challenges	7 (11%)
	MCFM requirements: SM, SC	4	38%							MCFM requirements: SC, SR, AS	Bowing - RH	18 (28%)
		3	35%								Notes - LH	21 (32%)
	SDT requirements:	2	12%							SDT requirements	Rhythm	11 (17%)
		1	0%								Tone	8 (12%)

4	**If I were challenged more, I would practice more.** **==========** *Instrument: Likert Scale* *1 2 3 4 5* *Poorly Great*	5	57%	***QUAN:*** With 77% of student participants expressing desire to reach high or very high achievement levels, SM to commit to daily practice, maintain and gradually increase practice time, and apply rubrics, are the key drivers	***QUAL:*** 46% (Average and below) state their practice time is random or infrequent suggesting adult supervision is non-existent or lacking. AS are the primary drivers to enforce consistency in practice time and location. ***QUAN:*** 94% of participants would practice more if challenged more	***QUAL*** : Adhering to structured practice during optimal time frames help students to stay balanced, focused, and on track to complete all practice requirements. Therefore, time schedules for practice are critical for accommodating time frames to ensure students practice all materials.	***QUAL:*** The majority of successful student participants (n=32) reflect their practice time occurring between 5:30 pm and 7:30 pm.	**Q4**	**What time do you usually practice?**	Best time (5:30 to 6 pm)	8 (12%)
	MCFM requirements: GO, SM, AS	4	20%							Optimal (6-6:30 pm)	11 (17%)
		3	14%							Acceptable (6:30 pm to	16 (25%)
	SDT requirements:	2	8%							Randomly	25 (38%)
		1	2%							Early/late (not optimal)	5 (8%)
5	***The music is too hard for me.*** **==========** *Instrument: Likert Scale* *1 2 3 4 5* *Never All the time*	5	6%	***QUAN:*** These data support the need for students to seek out the support from AS to establish opportunities for music instruction, either through a private instructor or reaching out to the school's music program director.		***QUAN:*** Students become frustrated within a few weeks and SM is affected. The student tends to feel helpless and decision to continue in the music program is adversely affected until student receives external support	***QUAN:*** Shows the impact on students SM to practice when attempting to play music they consider too difficult to manage. 43% of student participants (average and higher) fall into this category. ***QUAL*** **:** The data suggests 59% of students prefer to learn songs they like.	**Q5**	**What music (songs) do you like learning?**	3 songs	13(20%)
	MCFM requirements: SM, AS, SP, SC	4	11%							2 songs	22 (34%)
		3	26%							1 song	24 (37%)
	SDT requirements:	2	43%							0 songs	6 (9%)
		1	14%								

6	**The teacher encourages me to practice in class.** ========== *Instrument: Likert Scale* *1 2 3 4 5* *Never All the time*	5	62%	***QUAN:*** 96% (average and above) is a strong indicator suggesting the participants are acknowledging they listen to teachers' instructions given during classroom rehearsal. Investigation may find 4% of students require special assistance for example, if the hearing of students are impaired students should be seated closer to the front.	***QUAN:*** At 96%, (average and above) students identified the classroom music teacher as the key to their success by providing them with educational opportunities, consistent encouragement, monitoring and assessment feedback which influences the level of MCFM and SDT students receive.	***QUAL:*** From my experience, developing a relationship of trust between teacher and student is vital because it accelerates adherence to the rubrics during practice and its effectiveness serves as a deterrent in repetitive errors over time.		
	MCFM requirements: SM, AS	4	23%					
		3	11%					
	SDT requirements:	2	3%					
		1	1%					
7	**I think about being a professional musician.** ========== *Instrument: Likert Scale* *1 2 3 4 5* *Never All the time*	5	40%	QUAN+QUAL: With 80% of the students reporting aspirations to become music their livelihood, it is likely they will follow through on teacher recommendations to apply MCFM and SDT to improve their practice habits.	***QUAN:*** 66% of students (high and above) indicate intention to become professional musicians. This achievement may be dependent on AS and strict student adherence to MCFM & SDT as primary drivers	QUAL: In observing beginning students, most of the students made a concerted effort to ready themselves in preparation to perform their first Christmas program; they achieved this goal in just over two months. Considering how this effort should have taken a full year to accomplish, I attribute their success to their use of rubrics, adherence to structured practice, and their development of appropriate practice habits.		
	MCFM Requirements: GO, SR, AS	4	26%					
		3	14%					
	SDT Requirements:	2	15%					
		1	5%					

8	**How well do you read standard notation?** ========== *Instrument: Likert Scale* *1 2 3 4 5* *Poorly Excellent*	5	12%	***QUAL:*** Observation of students identifies possible problem areas where beginning students were observed playing their instrument but not watching the music literature. This is an indication they are not reading.	***QUAN:*** More testing needs to be done to confirm reporting of note reading at 76% (average and above) This conflicts with reporting of students playing by rote.	***QUAN:*** : The primary purpose of the rubrics is to support beginning students with direct practice habits in reading standard notation effectively.	***QUAL:*** Observation of students identifies possible problem areas where beginning students were observed playing their instrument but not watching the music literature. This is an indication they are not reading.	**Acronym Legend** (SM), Self-Motivation; (SR), Self-Regulation; (SC) - Self-Correction; (SP), Structured Practice; (GO), Establish Goals & Seek Opportunities; (AS) Consistent Adult Supervision/Support; (MCFM), Multidimensional Conceptual Framework Model; (SDT) Self Determination Theory Requirements: Autonomy, Competence, Interrelates
	MCFM Requirements: SP, AS	4	35%					
		3	29%					
	SDT Requirements:	2	22%					
		1	2%					
9	**How well do you play by rote? (for example, playing without notes)** ========== *Instrument: Likert Scale* *1 2 3 4 5* *Poorly Excellent*	5	17%	***QUAL:*** Observation of students identifies possible problem areas where beginning students are playing their instrument by rote rather than reading the music literature. These students will require reteaching to correct practice habits.	***QUAN:*** 65% of students (average and above) report they are playing by rote suggesting note recognition needs to improve. Receiving adult support (AS) to help students avoid this practice habit is the primary driver.	***QUAN:*** The primary purpose of the rubrics is to deter beginning students from reverting to rote methods and focus students on reading standard notation effectively.	***QUAL:*** Observation of students identifies possible problem areas where beginning students are playing their instrument by rote rather than reading the music literature. These students will require reteaching to correct practice habits.	
	MCFM requirements: SM, AS, SP, SR	4	25%					
		3	23%					
	SDT requirements:	2	12%					
		1	23%					
Q10	**What is the likelihood you will keep playing the same instrumer you play now until you graduate?** ========== *Instrument: Likert Scale* *1 2 3 4 5* *Unlikely Likely*	5	32%	***QUAL:*** Similar to my lived experiences, 68% of students in this survey indicate high levels of interest and commitment to instrumental music. From my observation, I believe many of these students are likely to achieve their goals.	***QUAN:*** 50% of students (High and above) indicate intention to continue. This achievement is dependent on students' adherence to drivers as MCFM & SDT	QUAL: Instrumental music students at the elementary level are provided the opportunity to establish practice habits correctly when guided by MCFM and SDT theories. Adherence to these will drive students toward excellence, seeking opportunities and achieving goals, and help them build a career through discipline, practice, and adherence to		

Appendix M

Quantitative Data Extracted from Student Self-Survey Participant Responses

(Questions 1-10)

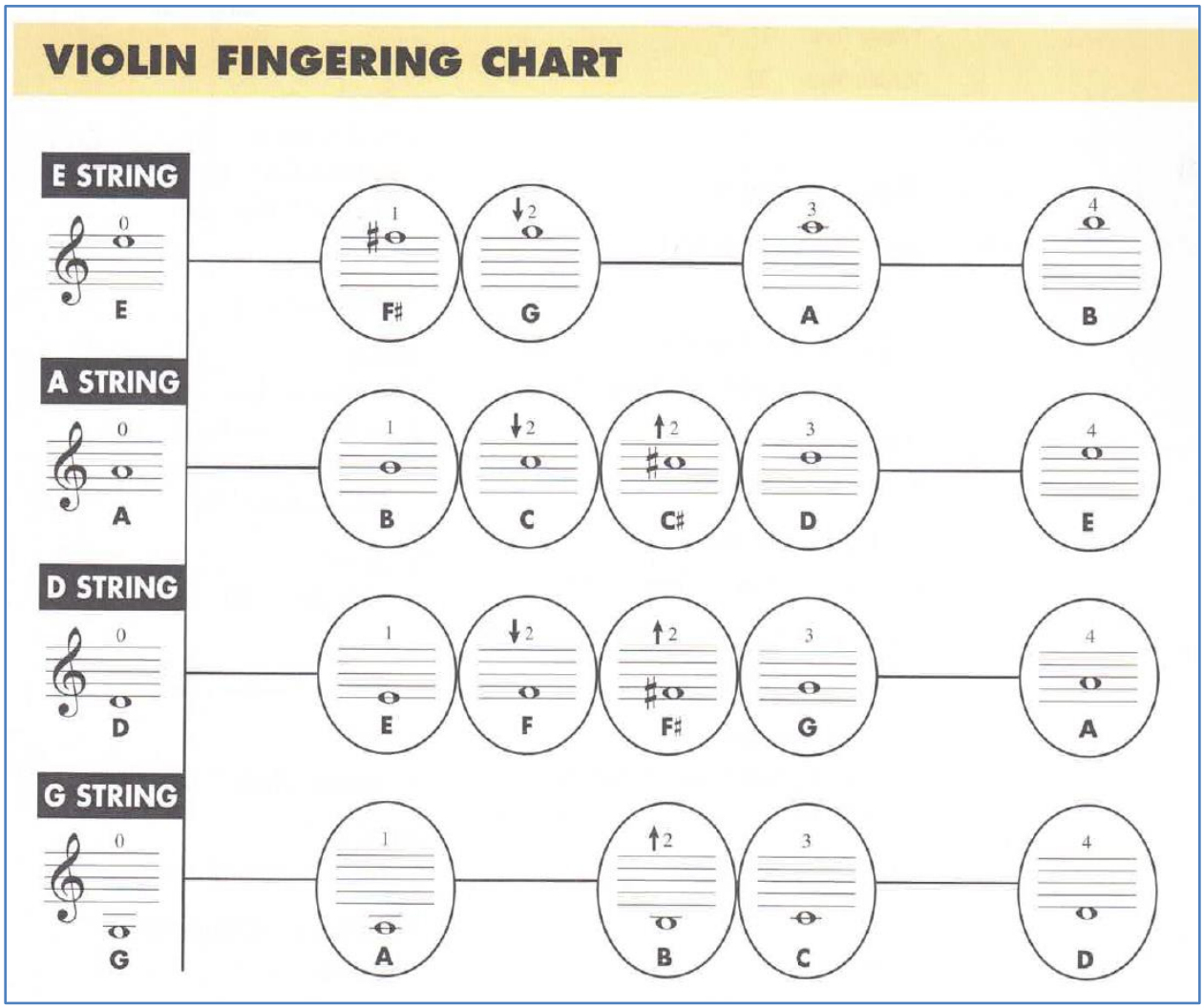
#	Quantitative (Closed Ended) Self-Survey Questions	Level of Student Interest	Student Survey Results
Q1	***1. How Important is practicing your music instrument to you?*** *Instrument: Likert Scale* *1 2 3 4 5* *Not----------Very Important Important*	5	42%
		4	32%
		3	20%
		2	5%
		1	2%
Q2	***2. What Level of Music Skill Would You Like to Achieve?*** ========== *Instrument: Likert Scale* *1 2 3 4 5* *Poorly----------Great*	5	62%
		4	29%
		3	9%
		2	0%
		1	0%
Q3	***3. How accurate do you believe your rhythm is when you practice?*** ========== *Instrument: Likert Scale* *1 2 3 4 5* *Poorly----------Great*	5	14%
		4	38%
		3	35%
		2	12%
		1	0%
Q4	***4. If I were challenged more, I would practice more.*** ========== *Instrument: Likert Scale* *1 2 3 4 5* *Poorly----------Great*	5	57%
		4	20%
		3	14%
		2	8%
		1	2%
Q5	***5. The music is too hard for me.*** ========== *Instrument: Likert Scale* *1 2 3 4 5* *Never----------All the time*	5	6%
		4	11%
		3	26%
		2	43%
		1	14%

#	Quantitative (Closed Ended) Self-Survey Questions	Level of Student Interest	Student Survey Results
Q6	***6. The teacher encourages me to practice in class.*** ========== *Instrument: Likert Scale* *1 2 3 4 5* *Never----------All the time*	5	62%
		4	23%
		3	11%
		2	3%
		1	1%
Q7	***7. I think about being a professional musician.*** ========== *Instrument: Likert Scale* *1 2 3 4 5* *Never----------All the time*	5	40%
		4	26%
		3	14%
		2	15%
		1	5%
Q8	***8. How well do you read standard notation?*** ========== *Instrument: Likert Scale* *1 2 3 4 5* *Poorly----------Excellent*	5	12%
		4	35%
		3	29%
		2	22%
		1	2%
Q9	***9. How well do you play by rote? (for example, playing without notes)*** ========== *Instrument: Likert Scale* *1 2 3 4 5* *Poorly----------Excellent*	5	17%
		4	25%
		3	23%
		2	12%
		1	23%
Q10	***10. What is the likelihood you will keep playing the same instrument you play now until you graduate?*** ========== *Instrument: Likert Scale* *1 2 3 4 5* *Unlikely----------Likely*	5	32%
		4	18%
		3	18%
		2	17%
		1	14%

Appendix N

Qualitative Data: Student Self-Survey Responses (Questions 1-5)			
#	**Qualitative (Open Ended) Self-Survey Questions 1-5**	**Level of Student Interest**	**Weighted factor scoring based on time reported or # of attempts.**
Q1	***Describe your practice this week; how many minutes total did you practice?***	Very High / 100-180	9 (14%)
		High / 45-99	12 (18%)
		Average / 30-44	12 (18%)
		Infrequently / 18-29	12 (18%)
		Low / 0-17	20 (31%)
Q2	***What music content from the homework assignments did you practice this week?***	5 Songs	9 (14%)
		4 Songs	21 (32%)
		3 Songs	15 (23%)
		2 Songs	15 (23%)
		1 Song	5 (8%)
Q3	***What Challenges from the rubrics are you having when practicing***	No Challenges	7 (11%)
		Bowing - RH	18 (28%)
		Notes - LH	21 (32%)
		Rhythm	11 (17%)
		Tone	8 (12%)
Q4	***What time do you usually practice?***	Best Time (5:30 to 6 pm)	8 (12%)
		Optimal (6-6:30 pm)	11 (17%)
		Aceptable (6:30 pm to 8 pm	16 (25%)
		Randomly	25 (38%)
		Early/Late (Not Optimal)	5 (8%)
Q5	***What music (songs) do you like learning?***	3 Songs	13(20%)
		2 Songs	22 (34%)
		1 Song	24 (37%)
		0 Songs	6 (9%)

Appendix O


VIOLIN FINGERING CHART
E STRING
0
E
1
F♯
2
G
3
A
4
B
A STRING
0
A
1
B
2
C
2
C♯
3
D
4
E
D STRING
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D
1
E
2
F
2
F♯
3
G
4
A
G STRING
0
G
1
A
2
B
3
C
4
D