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Purpose Makes Practice: Testing the Efficacy of a Proposed Framework for Teaching Self-Regulation Skills in the Violin Lesson

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PURPOSE MAKES PRACTICE: TESTING THE EFFICACY OF A PROPOSED FRAMEWORK FOR TEACHING SELF-REGULATION SKILLS IN THE VIOLIN LESSON

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ABSTRACT

Development of self-regulatory (SR) skills in musicians is crucial for the self-examination necessary for successful practice. Teaching methods that facilitate SR skills can help musicians become independent in the practice room. The first aim of this study was to design a framework for teaching that includes a five-step thinking-action sequence that will allow participants to evaluate their own playing during practice and equips them to enact necessary changes to their technique to bring their playing closer to a more proficient result. The second aim of this study was to use microanalysis with a cross-case comparative design to test the efficacy of the proposed framework. This was done with two participants (cases), both of similar ages and levels of playing ability, in weekly private lessons over four weeks. To compare results, one case received the intervention and the other served as the control. Trends from the case comparison suggest that this framework has good potential for increasing the use of self-regulatory habits and metacognitive self-reflection skills in students. However, future research is needed.

This work is dedicated to my students, past, present, and future.

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VITA

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INTRODUCTION

Two components are at the foundation of the development of skills in musicians: detailed, individualized instruction and consistent quality practice. Although it is possible for a musician to make progress and develop an understanding of music through instruction alone, practicing concepts and techniques learned in lessons with careful attention to how the body is moving and what sounds are being created is essential to the development of good habits. Without these skills, a student is likely to develop incorrect or poor technical facility of their instrument, ineffective practice habits, and a feeling of discouragement due to lack of progress. These factors can result in a student not having the skills to achieve their goals, quitting their instrument, and even physical injury in extreme cases (West & Rostvall, 2003).

Students in a high-intensity music program and/or with a guardian active in their musical learning process (e.g., the Suzuki Method) have enough intervention from more knowledgeable others to allow substantial progress through productive, guided practice. Those who lack these resources, however, are less likely to make steady, significant progress and reach a high level of playing. This is particularly true the younger the participant is: without consistent, quality help in developing fundamental skills and techniques of their instrument, they will create and reinforce bad habits that will be difficult to break when they get older (Lehman et al., 2007). It is unrealistic to expect that young children, who by nature of their lack of experience and expertise, have the extensive metacognitive skills necessary to analyze and act upon slight bodily movements to practice technique independently, or the regulation skills to achieve

consistent, quality practice. The process of learning an instrument inherently inundates the participant with new information, from coordinating bodily movements, to reading and analyzing music, to the development of aural skills. Making sense of this new information and attempting to apply it to one's own playing would be difficult even for an adult. Therefore, it is crucial that teachers actively instruct participants in implementing self-regulatory and metacognitive habits into individual practice so that they may achieve independence in their learning process (Ericsson 2008; Zimmerman 2000).

Integrating the development of these strategies into music instruction is necessary to facilitate higher probability of success (Bonneville-Roussy & Bouffard, 2015; Ericsson, 2008; Lehmann & Ericsson, 1997). Although the use of metacognitive and self-regulatory habits in consistent practice on the part of the participant is what will bring them progress, it is ultimately the responsibility of the teacher to utilize various instructional strategies specifically designed to develop these skills in the participant (Zimmerman, 2000). In fact, researchers frequently note the ability to scaffold these skills effectively as a characteristic of expert music teachers (Blackwell, 2020; Duke & Chapman, 2006). Currently, there are few existing frameworks for integrating these skills into music instruction (Varela et al., 2016). The lack of these concepts in instrumental pedagogy curricula is a significant obstacle for participants in their training in becoming an independent, mature musician. As said by Booth (2009), "...reflection and self-assessment are not separated from musical action at all; they become fused with the acts of performance and creation. Yet teaching artists too often forget to develop these crucial reflection skills in their participants" (p. 160).

The purpose of this study, therefore, is to examine the efficacy of a proposed teaching framework designed to help improve self-regulatory habits, metacognitive skills, and technique for music participants – specifically violin. This framework, based on Zimmerman's (2000) model of Self-Regulated Learning, consists of a structured pedagogical method designed to scaffold a thinking-action sequence that allows participants to critically evaluate their own playing. The basis for this framework is rooted in learning science research and its applications within music education. Literature regarding these topics will be discussed in detail in the following section.

LITERATURE REVIEW

Brief History of Violin Pedagogy

Violin instruction before and through the Baroque era relied heavily on oral tradition, and the various European schools of violin pedagogy developed as information was passed down through generations of participants (Barber, 1991). This remained as the prevailing school of string education throughout Western countries until the introduction of the Suzuki Method to the United States beginning in the 1950s (Thompson, 2016). The distinct philosophies of the method's founder, Japanese violinist Shinichi Suzuki, and the prodigious abilities of Suzuki Method participants captivated American music educators. Since then, the Suzuki Method has become a highly popular curricula for private instrumental education in the United States (Suzuki Association of the Americas, n.d.).

Suzuki Method philosophies and practices that distinguish it from other music curricula are not strictly related to musical performance, but rather the holistic development of individual participants. Shinichi Suzuki believed that participants may learn to play an instrument as naturally as they learn to speak their mother tongue through early rote instruction and a large amount of repetition (Suzuki Association of the Americas, 2003). He also believed in the wholesome value of music: in Suzuki philosophies, learning to play an instrument should be a means of instilling positive moral and social values within children, and that every child has the potential to develop musical talent through immersion in a nurturing community (Suzuki Association of the Americas, 2003). The most direct influences on a participant within such a community

are the teacher and a parent or parental figure. In fact, Suzuki believed that the participant, parent, and teacher have equal roles within a reciprocal relationship of work and respect, an idea referred to in his writings as the "Suzuki Triangle" (Suzuki Association of the Americas, 2003).

The Suzuki Triangle positions the parent as an equal stakeholder to the teacher in the student's education, as parents are expected to attend private and group lessons with the child, facilitate and monitor practicing at home, and provide nurturing encouragement (Kendall 1996; Suzuki 1969). This idea has become one of the main criticisms of the Suzuki Method, as changes in family dynamics and socio-cultural norms make it difficult for many parents to be as heavily invested in their child's musical education as Suzuki-based programs require (Hendricks, 2011).

Einarson and colleagues (2022) identified common difficulties parents experience when trying to be involved in their child's Suzuki education, including limited time to help the child practice, financial constraints, and a lack of musical knowledge. Given that parental involvement can influence a participant's musical progress (Upitis et al., 2017), an incomplete Suzuki Triangle results in a gap between the instruction the participant receives in lessons or classes and the continuation of progress at home, which can create a barrier to positive participant outcomes.

Domain-wide efforts to increase accessibility and equity within the field of education have sought to eliminate this barrier through improved teaching practices, and as a result, have altered the expectations for teachers. Not only must teachers have thorough content knowledge of the discipline but must also have pedagogical content knowledge that allows them to introduce new concepts in ways that optimize independent

participant learning (Darling-Hammond, 2016). This creates a distinction between the abilities of an expert musician and an expert music educator.

Expert Teaching and the Expert-Novice Relationship

Literature surrounding the distinction between experts and novices in any given field has identified numerous characteristics of experts that remain consistent across domains. These characteristics do not simply consist of the level of skill one has in their craft, but rather relate to the ways in which one thinks, problem-solve, and store information. The National Research Council (2000) has identified definitive principles for experts: they are able to notice more patterns of information; organize their information circumstantially, thereby reflecting thorough understanding of the subject; can retrieve information with little effort; and are not necessarily able to teach their subject despite their level of skill or knowledge.

A distinction can be made, then, between an expert performing musician and an expert music teacher. Both have developed high levels of content knowledge in the study and practice of their domain; however, the expert teacher's high level of pedagogical content knowledge allows them to teach effectively (Shulman, 1986). An expert teacher not only has a thorough understanding of their subject area, but also the ability to communicate clearly, differentiate instruction, and aid the participant in development through guided problem-solving, modeling, scaffolding, and other pedagogical techniques. Many studies in general education have attempted to define characteristics of expert teaching (Berliner, 2001, 2004; Findell, 2009; Tsui, 2009; Wexler, 2008), but the scant amount of research in this area of music education has not yet been able to identify

conclusively a definitive set of characteristics specifically for private studio music teachers (Blackwell, 2021).

Overlap in the results found by multiple case studies and pilot studies of renowned studio teachers has brought forth two characteristics of expert teachers that are noteworthy for the purpose of this study: 1) viewing the primary purpose of lessons to instruct how to practice, and 2) guiding participants in achieving artistic autonomy (Blackwell, 2020). Ericsson's (2009) research on expert performance across several domains (i.e., athletes, chess players, musicians) found that effective practice consists of receiving, interpreting, and acting upon consistent feedback. Novices across domains make improvements in their craft when they are "1) given a task with a well-defined goal, 2) motivated to improve, 3) provided with feedback, and 4) provided with ample opportunities for repetition and gradual refinements of their performance" (Ericsson et. al, 2008, p. 991). These criteria heavily reflect Zimmerman's (2000) model of Self-Regulated Learning, which has led many music researchers to turn their attention toward the application of this model to musical instruction.

Self-Regulated Learning

Self-Regulated Learning (SRL) was conceptualized by Zimmerman (2000). SRL involves a three-part process: forethought, performance, and self-reflection (Zimmerman, 2000). Zimmerman (2000) lists two components involved in the forethought phase: self-motivational beliefs and task analysis. These beliefs, or one's self-efficacy in a specific task or domain, influence the types of goals set and the tasks undertaken to reach them (Bandura, 1991). Task analysis includes behaviors such as goal setting and strategic

planning (Weinstein & Mayer, 1986). Once one has set a goal, a musician can then select tasks and strategies to enable achievement. Selecting strategies that are appropriate to the task and environment can improve performance through aiding cognition and directing motor functions (Pressley & Wolloshyn, 1995). Zimmerman (2000) includes two processes in the performance phase: self-control and self-observation. These both involve utilizing strategies for task execution and monitoring one's attention and progress towards desired outcomes (Zimmerman, 2000). By tracking factors that influence performance, such as environment, attention, and the types of processes utilized for a given task, and the effects of those factors on performance, one can recognize patterns of behavior that take place during performance. The evaluation of this information takes place in the third stage of SRL, the self-reflection phase. During this phase, one reflects upon and analyzes their performance (Zimmerman, 2000). The goal of the evaluation is to outline one's knowledge or ability in a domain, draw comparisons to previous performances, and analyze information for strengths and weaknesses in the performance (Zimmerman, 2000). The outcome during the self-reflection phase can inform future strategies for performance. Hence, SRL is described as a cyclical process (Zimmerman, 2000).

A participant's ability to implement SRL in skill acquisition can be described in four levels of development, during which the guidance from a teacher is necessary (Schunk & Zimmerman, 1997). The first of these is the observation level, during which a participant will be able to acquire new skills watching the performance of a model. Following this is the emulation level, where a participant can perform a task by imitating a general style or strategy of a performance model. When a participant uses a skill

without a model, they have entered the self-control level of regulatory skill. At this level, although the participant's performance is independent from direct scaffolding, it is still reliant on mental representations of previous socially-constructed models such as those provided by a teacher. Finally, according to Zimmerman (2000), "A self-regulated level of task skill is achieved when learners can systematically adapt their performance to changing personal and contextual conditions. [At which], the learner can vary the use of task strategies and make adjustments based on outcomes" (p. 30). It is at this ultimate stage that a participant selects performance strategies and alters them based on individual metacognitive knowledge, with little, if any, reliance on previous models.

To foster independent musicianship, a teacher's instructional practices should be focused on guiding participants from the emulation level to the self-regulated level at which experts operate. Upon successful scaffolding of these skills, according to Ericsson (2008), "...aspiring expert performers become able to monitor their performance so they can start taking over the evaluative activity of the teacher and coach" (p. 991). At this point, participants will be able to independently engage in deliberate practice, which is defined by Zimmerman (2008) as "performance that is structured (often by teachers) to enhance performance and self-observation" (p. 30). Studies of expert individuals across several domains, including music, revealed that deliberate practice is necessary to combine with experience to create expertise (Ericsson, 2008). Since deliberate practice as outlined within the SRL model aligns with teachers' perceptions of forethought, planning, and self-evaluation as necessary for productive musical practice (Jørgensen, 2004), interest in research involving the use of SRL in musical instruction has increased

in recent years (McPherson et al., 2012; McPherson & Renwick, 2011), as the necessity of scaffolding these self-regulatory strategies has become evident.

Research in Music Using Self-Regulated Learning Theory

The use of deliberate practice and self-regulatory strategies by musicians was brought into focus in the field of music education research beginning in the 1990s by McPherson and his colleagues (Varela et al., 2016). Since then, various studies have indicated positive links between the use of such strategies and improved performance. Those who have achieved an advanced level of musicianship are likely to demonstrate highly self-regulated practice behaviors (Ericsson, 2008; Lehmann & Ericsson, 1997; Nielsen, 2001), and instructing young participants in the application of such behaviors to their individual practice can increase musical performance achievement (McPherson, 2005; Miksza, 2015). As such, the primary aim of this study sought to develop a framework for instruction that scaffolds these strategies for violin participants to use in individual practice.

Proposed Framework

The framework for instruction consists of a five-step thinking-action sequence, including 1) Plan, 2) Perform, 3) Listen, 4) Evaluate, and 5) Act (PPLEA). The PPLEA Sequence was created with two goals in mind: first, to provide a model for independent rehearsal, and second, to cultivate analytical listening skills, self-evaluation, and autonomous musicianship within participants. To achieve these, the sequence was

designed to align with the three phases of Zimmerman's (2000) model of self-regulated learning.

The forethought phase consists of the Planning step of the PPLEA sequence. In this step, goal setting, an important component of the forethought phase (Zimmerman, 2000) is scaffolded by the teacher to improve a targeted passage of music. Through discussion, the teacher will assess the participant's self-efficacy in attaining the goal and will determine the level of support needed by the participant. The teacher will then aid the participant in selecting the steps necessary for achievement, thereby breaking a broader goal down into smaller targets focusing on improving a singular area of technique. This allows the teacher to guide the participant in using the two components of the forethought phase, self-motivational perceptions, and task analysis (Zimmerman, 2000). According to Zimmerman (2000), participants' self-efficacy for a given skill will guide them to determine a goal, and they will create a strategic plan for reaching a goal using task selection.

Once the participant has selected a specific area for improvement and is aware of the technique necessary to enact the desired change, they progress to the Perform and Listen steps of the PPLEA sequence, in which the participant plays the passage and critically listens to their performance. Depending on the level of support needed by the participant, they may listen either during or after their playing with the assistance of a recording device. The participant will know what to listen for based on the predetermined target technique. The teacher will use discussion and questioning to guide the participant in deciding whether they performed the technique successfully. This reflects the performance phase of the SRL model, as the participant is demonstrating self-control and

self-observation by focusing their attention, utilizing specific task strategies, and tracking specific aspects of their performance (Zimmerman & Paulsen, 1995; Zimmerman, 2000).

The information gained during the Perform and Listen steps is analyzed during the Evaluate step of the PPLEA sequence. The self-reflection phase of the SRL model involves the process of self-evaluation, in which the participant compares information gained from performance to a standard or goal (Zimmerman, 2000). In the Evaluate step, the teacher utilizes guided questioning to help the participant analyze their performance, recalling what was successful and could be improved to reach their goal. The questions are specific to the technique or aspect of musicality being rehearsed and facilitate recall of violin technique, allowing the participant to decide independently what physical adaptations they need to make to increase their success.

Once the participant has determined areas for improvement in their play and has made a plan for adapting their play accordingly, they have reached the fifth and final step of the PPLEA Sequence – to Act. In this step, the participant acts upon the information gained in the previous four steps and creates a new goal for the next repetition of the sequence. The cyclical nature of the PPLEA Sequence reflects that of Zimmerman's (2000) SRL model.

The PPLEA Sequence may be repeated as many times as necessary during the lesson to reach the goal set by the participant. In this study, at least one cycle of the PPLEA Sequence was used in each lesson to model use of the sequence under the guidance of the teacher. Discussion between the teacher and the participant at the end of each lesson allowed the participant to set one or more goals for the week's practice, and

participants were provided a tool to scaffold independent use of the PPLEA Sequence in their practice at home (see Appendix A).

SRL Microanalysis

The second aim of this study was to test the efficacy of the proposed framework on the participant's self-regulatory practice habits and violin performance. Prior research measuring the use of self-regulated practice behaviors in participants of a wide range of ages and skill levels suggested observation as a viable method for inquiry (Duke et. al, 2009; McPherson & Renwick, 2001; Miksza, 2007; Miksza et. al 2012). Alongside observation, many studies employed various tools for measuring specific behaviors, including questionnaires, practice journals, interviews, focus groups, and pre-/post-tests (Austin & Berg, 2006; McPherson & McCormick, 1999; Miksza, 2006, 2011a, 2012; Miksza et. al, 2018; Nielsen, 2004). In more recent years, microanalysis has shown to be an effective means of assessing levels of self-regulation for music participants (Miksza et. al, 2018; Osborne et. al., 2021). Microanalysis is defined by Cleary and colleagues (2012) as a "structured interview involving a strategic, coordinated plan of administering context-specific questions targeting multiple cyclical phase sub-processes as participants engage in authentic activities" (p. 4). This type of assessment measures a participant's self-regulation in relation to specific tasks, as they consist of the recording of data through the researcher's observations, along with an interview including task-specific questions that can be individualized to the learner and designed with Zimmerman's (2000) three-phase SRL theory in mind (Miksza et. al, 2018).

Numerous studies in the application of SRL microanalysis within music education contexts have revealed that these methodologies are able to show data about the habits and practices of individual musicians (McPherson, 2022). McPherson and colleagues (2019) found microanalysis to be an effective means of studying music practice in their case study of two individuals, and Miksza and colleagues (2018) found in their study of three individuals that microanalysis was useful in determining each participant's levels of proficiency in the use of specific self-regulatory behaviors. Microanalysis can be advantageous in attempts to generate deeper understanding of the self-regulatory behaviors in individual music

METHODS

Participants and Sampling

Purposeful sampling, a technique often used in qualitative or mixed methodology research (Silverman, 2022) played a fundamental role in this study. Using this sampling method aligns with the second aim of the research study, is practical, and allows for a careful examination of the phenomenon using information-rich cases (Palinkas et al., 2015). I selected participants or "cases" (n = 2) were selected from my private violin studio to test the efficacy of this framework. The participants were approximately the same age and demonstrated similar levels of proficiencyon their instrument. Both participants had been receiving one weekly 45-minute private violin lesson from me for approximately one year and played in their high school's orchestra program. Data gathered during lessons regarding participant practice routines suggested that the participants' length and frequency of practice per week were similar, and both participants demonstrated the responsibility and independence necessary to direct their practice as required by the method of the study.

The participants and their parents consented to their participation in this study. Participants were randomly assigned to either the treatment condition (Case T) or the control (Case C). To ensure fairness, the participant in the control condition (Case C) received the treatment after the study.

Table 1

Demographic Information of Participants.

Pseudonym	Grade	Gender	Proficiency Level
Case T	10th Grade	Male	Upper Intermediate (Suzuki Book 6)
Case C	11th Grade	Female	Upper Intermediate (Suzuki Book 6)

Measures

Interview Protocol. A pre-/post-test microanalysis interview protocol collected data regarding the practice habits and metacognitive skills of each participant. The protocol consisted of eleven questions, divided into three sections: SR practice habits (Q1-7), metacognitive SR skills (Q8-9), and practice time (Q10-11). The instructions for targeting SR practice habits included questions that asked the participants to consider how often they engaged in specific behaviors at home: 1) setting specific goals, 2) focusing practice time on challenging skills or pieces of music, 3) marking trouble spots in music during practice, 4) stopping play to think about best ways to solve a problem, 5) intentionally listening to their own playing and checking technique, 6) listening to how the music should sound with the use of a model, and 7) recording their own playing to listen reflectively during practice. To scaffold the responses, participants were given four options: “rarely in a session”, “sometimes in a session”, “once in a session”, and “multiple times within a practice session” and recorded on the interview protocol sheet by the instructor (see Appendix B). Scores were then converted to a four-point scale and summed to create a total score (scaled 4-28).

Similarly, items 8-9 targeting metacognitive SR skills asked the participants to consider their habits at the end of a practice session. The first question asked how often

the participant thought about what they did well during their playing, while the second question asked how often the participant thought about what they could do to improve their playing for next time. Participants were given three options: “rarely after a practice session”, “after some of the practice sessions,” and “after every practice session.” Scores were converted to a three-point scale and summed to create a total score (scale 2-6).

The final two questions were quantitative, asking the participants to report how many days a week they practice, and how many minutes they spend on each practice session. Together the responses to these questions reflected the participants’ estimated average minutes per week spent practicing. The pre-test estimate was to reflect a general average of practice, while the post-test estimate reflected their average practice during the study.

Interview items were modified from those used by Araújo (2016), which included questions regarding participants’ management of time while practicing, goal setting, and knowledge of effective practice strategies, and Miksza (2012), which served as a model for questionnaire formatting within a music education setting.

Musical Piece and Fluency. Both participants were assigned the same solo piece to practice for the duration of the study. The composition was *Mazurka No. 1 in G Major* by Emil Mlynarski (see Appendix C). I chose this piece because it contains techniques, rhythms, and stylistic considerations that were familiar yet appropriately challenging for the skill level of both participants. I assigned both participants the task of learning and practicing the entirety of the composition,

To determine musical fluency, participants sightread the first page (measures 8-68) of the selected piece at their first lesson. Any error in rhythm, pitch, or execution of

techniques and dynamics indicated in the score was marked on the music, and a "total fluency errors" score was calculated by summing up the number of errors made. Participants were scored solely on ability to play the piece accurately according to what was written in the score, and differences in personal artistic interpretations were not considered to maintain a standard measure for musical fluency. This provided a baseline fluency score from which improvement could be measured. At their final lessons, both students played through the entire extract from the piece, and the post-play musical fluency score was calculated using the first page of the music (measures 8-68) and by summing up the total number of errors as was done in the pre-play test. How well the participant did on the entire selection was also considered as an indication of improvement, but only the scores from the first page were included in data collection to maintain a consistent measure. The pre- and post-test scores were then compared to demonstrate each case's improvement in fluency of playing over the course of the study.

Treatment Protocol. Lessons for the treatment case (Case T) were standardized using a lesson outline (see Appendix D). The lessons were divided into three sections: Beginning - Warm-Ups, Working Piece - PPLEA Sequence, and Closing - Goal Setting. During the beginning section, the participant unpacked and tuned his instrument while discussing the quality of the previous week's practicing with me. He then warmed up with a scale of his choice, before which I prompted the participant to select a target to focus on for the scale and after which I prompted the participant to reflect upon whether his playing met the target. This allowed the participant to begin the lesson by setting intentions, listening carefully, and reflecting upon playing, which provides a scaffold to the next section of the lesson. In the "working piece" section of the lesson, I guided the

participant through multiple repetitions of the PPLEA Sequence to improve *Mazurka.* I began by asking the participant to identify specific challenges he encountered within the piece and a small section that contained one of these difficulties. I prompted the participant to play through the section and then asked him to select one aspect of the section to focus on for the lesson, which was then targeted through multiple repetitions of the PPLEA Sequence. The lessons concluded with discussion of goal-setting for the next week's lesson, answering the participant's questions as needed, and providing the participant with copies of the practice tool.

The practice tool (see Appendix A) consisted of an area in which to write an overall goal for the day's practice session, simplified instructions for use of the PPLEA sequence, a log in which participants may record their target for each repetition and level of success in meeting the target, and an area to log whether or not the goal for the day was achieved and write why or why not. This tool was designed to replicate the structure of the PPLEA Sequence and repetitions used in lessons and included prompts for the participant to use in reflection mimicking what we did during lessons. In each lesson, Case T showed me his completed practice tool from the previous week, and we discussed his successes and struggles in setting goals and selecting practice strategies to reach those goals. I then kept a copy of the tool, and the participant kept the original to review to reflect on his progress over time.

Procedures

Prior to selection of participants, I obtained ethical approval from the Western Kentucky University Institutional Review Board to conduct my study working with children as subjects. The participants and their parents signed consent documents to

participate in the study, including detailed information about the study's purposes and procedures. All participants were informed that participation was voluntary, and they may withdraw at any time.

The research was conducted over four weeks, during which I met with each participant individually four times during their regularly scheduled violin lessons. At the first lesson for each participant, the schedule, procedures, and expectations were discussed with the participants to ensure that participants would be able to fulfill the time and practice requirements for the study. Then, each participant completed the pre-test interview, in which baseline data for each participant's pre-existing self-regulatory practice routines and metacognitive habits were recorded. They also sight-read measures 8-68 of the chosen piece to obtain a baseline score for the fluency of their playing.

Following the pre-assessment procedures, Case T received the intervention and was instructed in all four lessons using at least one cycle of the PPLEA Sequence in each lesson. Case C was taught in all four lessons according to my usual lesson format and procedures, including warm-up exercises and studies of solo literature guided by teacher feedback on participant playing. Table 2 outlines the practice expectations for each participant.

Table 2

Practice expectations for each participant.

	Days per week	**Minutes per day (minimum)**	**Goal Setting**	**Use of strategies**
Case T	5	45	Participant is guided to select a weekly goal during each lesson. Participant	Use of PPLEA Sequence is modeled in lesson and participant is given a practice tool to use sequence at home. Participant is expected to use

			independently selects smaller daily goals at home.	the tool each day of practice for five cycles of the PPLEA sequence per practice session.
Case C	5	45	Participant is encouraged but not required to set goals in lesson. Setting of goals, whether weekly or daily, is left to discretion of participant.	Selection and use of practice strategies modeled in lessons is left to the participant's discretion.

In the fourth and final lesson, each case participated in the post-test interview and data were recorded to determine the amount of change in SR practice habits and metacognitive SR skills from the baseline assessment. The participants also played through the selected piece, during which I indicated any mistakes made in "post-play" scores to measure the improvement between each participant's initial play. After the conclusion of the study, Case C was provided with the intervention and received instruction using the PPLEA sequence and the practice tool at her next regularly scheduled violin lesson.

Planned Analyses

All data collected was analyzed following the four-week instructional period using descriptive statistics and line graphs. Since inferential statistics were not appropriate for two cases, within and cross-case comparisons of scores for SR practice habits, metacognitive SR skills, practice time, and musical fluency will be discussed through the microanalytic lens.

RESULTS

Descriptive statistics outlining the findings from both the pre- and post-test scores can be found in Table 3.

Table 3

Pre/Post Results

	Case T		Case C		
	PRE	POST	PRE	POST	Scale
Practice Habits	12	26	21	24	4- 28
Metacognitive Skills	3	6	4	5	2-6
Practice Time	180	412.5	240	180	0-500
Fluency Errors	11	4	26	10	0-30

Pre-test interview/play

SR Practice Habits. Case T scored 12 points and Case C scored 21 points out of 28 possible points. Case T indicated that he occasionally used strategies such as goal setting and focusing attention on difficult areas of repertoire while practicing, but rarely used active listening techniques for problem solving or to inform goals. Case C often used goal setting and active listening strategies both during and following practice sessions but indicated that she did not often use these to focus her attention on problem-solving through areas needing improvement.

Metacognitive SR Skills. Case T scored 3 points and Case C scored 4 points out of 6 possible points. The two items in this section targeted the use of reflective practices. Case T indicated that he rarely reflects following practice sessions, and Case C remarked

that she reflects occasionally after practicing. Both participants responded that they think about what to improve for their next practice after some sessions.

Practice Time. Case T indicated less practice time on average per week than Case C. Case T reported practicing approximately 45 minutes per day four times per week (180 minutes per week). Case C also reported practice for four days per week, but for approximately one hour per session (240 minutes per week).

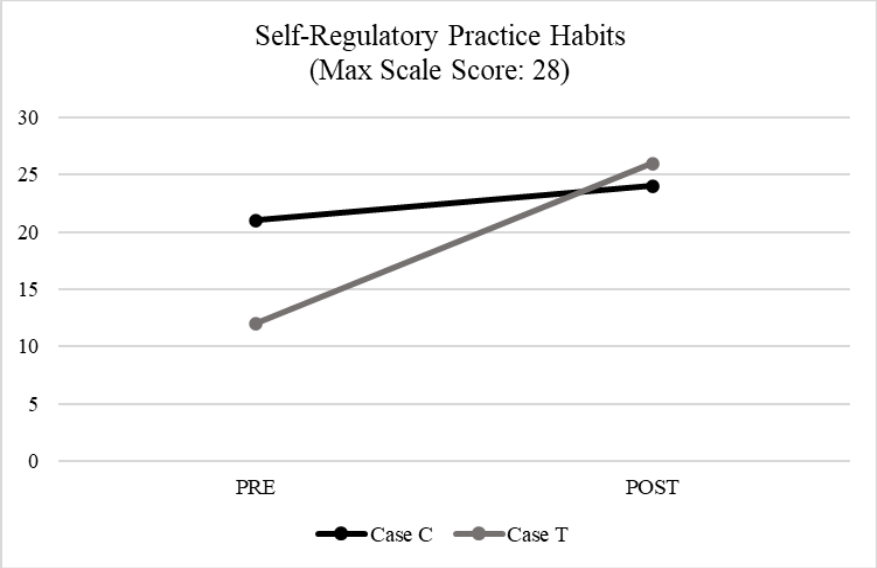
Musical Fluency. In the initial play-through of *Mazurka*, Case T made 11 errors, mostly in inaccuracy of rhythm. Case C made 26 errors, the majority of which were also due to inaccurate rhythms, but also with some incorrect pitches. Both participants, although tentative in their first play-through of the piece, played with a steady tempo and good intonation.

Post-test interview/play

SR Practice Habits. Case T demonstrated improvement in practice habits in the post-test interview, with his score increasing from 12 points to 26 points out of a possible 28. Case C, although having not received the intervention, had a lesser change with an increase from 21 points to 24 points. Case T demonstrated improvement on every assessment item in this section, reporting an increased use of goal-setting, focused attention, problem-solving, and active listening. Case C's answers were consistent from the pre-test interview, only describing a decrease in the use of recording devices to aid in active listening. Figure 1 highlights the trends in practice habits from pretest to post for both cases.

Figure 1

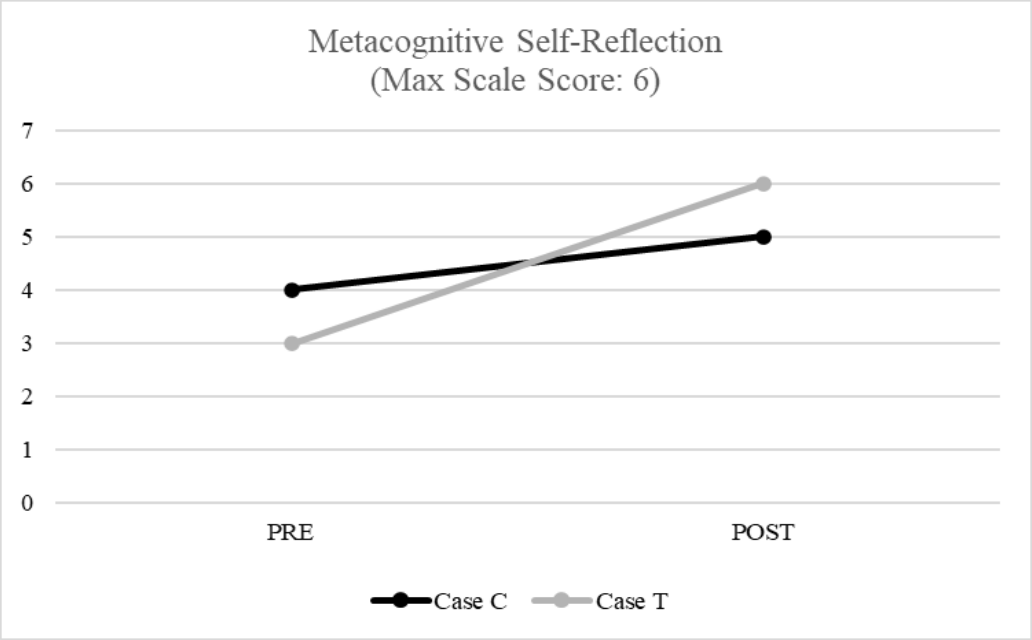
Trends for Self-Regulatory Practice Habits from Pretest to Post



Metacognitive SR Skills. Case T achieved 6 out of 6 possible points. He reported using reflective skills after every practice session and using these skills to inform his next practice. Case C's score increased by one point, achieving 5 out of 6 possible points, reporting an increase of using reflection to determine targets for future practice. Figure 2 highlights the metacognitive SR trends from pretest to post for both cases.

Figure 2

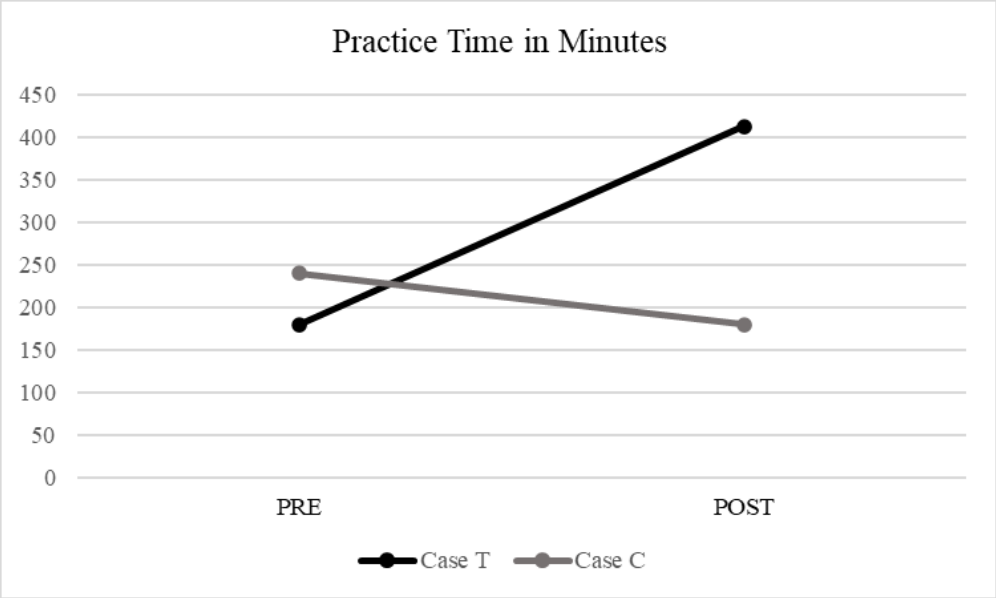
Trends for Metacognitive Self-Reflection from Pretest to Post



Practice Time. Both participants reported a significant change in the amount spent practicing over the course of the study. Case T's average weekly practice time increased from 180 minutes to 412.5 minutes per week, and Case C's decreased from 240 minutes to 180 minutes per week. Case T increased in both the number of days per week and time spent during each session, whereas Case C's days per week remained consistent but decreased in amount of time per day. Figure 3 highlights the practice time trends from pretest to post for both cases.

Figure 3

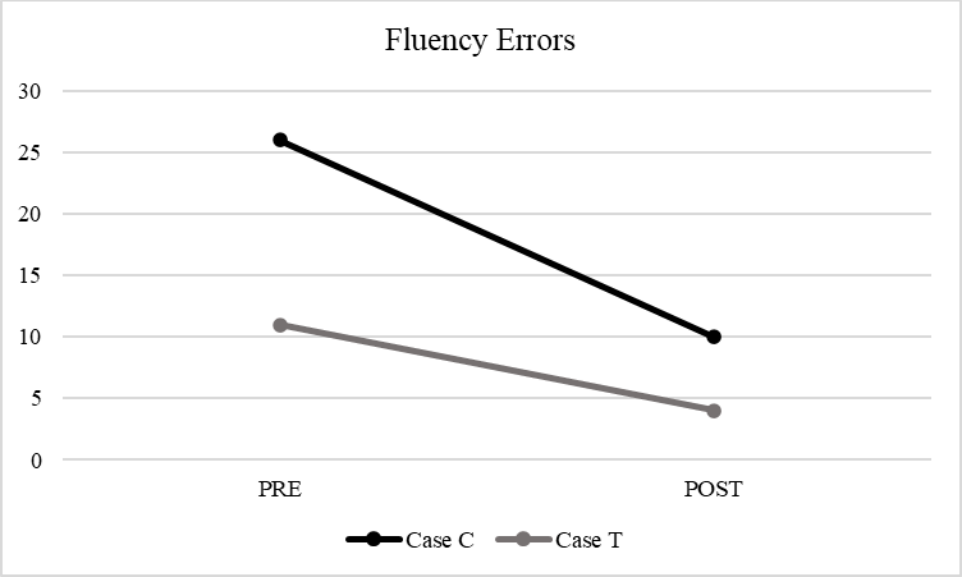
Trends in Weekly Practice Time from Pretest to Post



Musical Fluency. In the post-test playthrough of *Mazurka,* both participants demonstrated improvement in fluency of playing. Case T reduced errors from 11 to 4, and Case C reduced errors from 26 to 10. Two of Case T's errors were due to incorrect rhythm, and two were due to intonation errors. Similarly to the initial play-though, most of Case C's errors were incorrect rhythms. For both pre- and post-test playthroughs, scores were determined from the number of errors made on only the first page. Figure 4 highlights the playing fluency trends from pretest to post for both cases.

Figure 4

Trends in Fluency Errors from Pretest to Post



DISCUSSION

The purpose of this study was to design and test the efficacy of a self-regulation learning framework in private violin instruction (Zimmerman, 2000). The goal was to enhance self-regulatory practice habits such as goal-setting, active listening, and problem-solving as well as improve metacognitive self-reflection skills in the case who received the intervention. Although the limited sample size does not allow for conclusive results regarding the efficacy of the framework, the microanalysis protocols provided insight on the strengths and weaknesses of the treatment case's practice habits as well as trends for the participants' development over the course of the study that can suggest areas in which the framework may prove to be successful with further research. This finding is consistent with other studies involving the use of microanalysis for measuring SRL behaviors in private instrumental lesson contexts (McPherson et. al., 2019; Miksza et. al., 2018; Zhang & Leung, 2023).

The framework was developed to aid students in using the three phases of SRL (Zimmerman, 2000) – forethought, performance, and self-reflection – as applied to instrumental practice. Since each step of the PPLEA Sequence was tied to one of these phases, successful use of the sequence resulted in use of SRL processes with the aid of teacher guidance or the practice tool. Whether or not the student would be able to sustain using these skills correctly without the scaffold of a teacher or tool is inconclusive from data collected and beyond the scope of this study, but the use of the tool allowed the treatment case to successfully enact the PPLEA Sequence without direct teacher support. Of the four developmental levels of regulatory skill outlined in Zimmerman's (2000)

SRL model, the results from this study suggest that the PPLEA Sequence instructional framework helped the treatment case to attain the self-controlled level of SRL skill, as he was able to demonstrate correct use of the sequence in independent practice.

Modeling the use of self-regulatory practice habits and using questioning to guide Case T toward metacognitive self-reflection in lessons scaffolded the successful use of the PPLEA Sequence in his practice sessions. The structure of the sequence prompted the case to set multiple goals within a practice session that are specifically targeted on areas of improvement, use problem-solving to select strategies for play to attempt reaching those goals, and listen to his own playing to determine whether or not those goals were achieved, which are behaviors that align with Zimmerman's (2000) model of SRL and with literature regarding the implementation of SRL into musical practice (Araújo, 2016; Bonneville-Roussy & Bouffard, 2015; Miksza et. al., 2018; Osbourne et. al., 2021). By using this sequence both in instruction and in practice, Case T more than doubled his score for self-regulatory habits from pre- to post-test. Case C also reported a three-point increase in her score, mentioning in her post-test interview that she spent more time on areas for improvement, marked trouble spots in the score, and stopped playing to problem-solve. This is to be expected, as learning a new piece naturally introduces unfamiliar passages that require focused attention and problem-solving to improve. Furthermore, these are behaviors that I regularly model in lessons outside of use of the PPLEA Sequence teaching framework.

The PPLEA Sequence also includes multiple opportunities for self-reflective behaviors: recalling strengths and weaknesses in prior performances is necessary to set an initial goal for a cycle of the sequence, and the same must be done to determine whether

or not the goal was met. Use of the framework in lessons included teacher guidance in setting a larger goal for weekly practice through discussion with Case T regarding areas for improvement. The practice tool then prompted Case T to create daily goals that work toward achievement of the weekly goal. It also prompted Case T to reflect on what was successful or unsuccessful in each day's practice. The practice tool required Case T to use metacognitive self-reflection multiple times throughout and following a practice session, thus aiding Case T in increasing these behaviors and achieving a full score in this section of the post-test interview. Case C also scored higher in her use of metacognitive self-reflection. She reported an increase in thinking about what she could improve in her playing for future practice from "after some practice sessions" to "after every practice session." Case C commented in her lessons that she experienced frustration while learning the new piece, as she understood what areas she needed to refine but struggled to set goals and select practice strategies that led to improvement at home without guidance. It is possible that her lack of satisfaction after practice sessions may have led to increased reflection about troubled passages that required further attention.

Upon conclusion of the study, I asked Case T if he enjoyed using the PPLEA Sequence in lessons and at home. He noted that having a method for practice intentionally demonstrated during lessons and a resource for replicating that method independently made practicing feel more efficient and enjoyable, as well as increased his motivation to practice. Although items assessing motivation were not included in this study, it is possible that these factors contributed to the increase in Case T's reported average weekly practice time from pre- to post-test interview. In contrast, the feelings of frustration and dissatisfaction that Case C expressed may have had an effect toward the

decrease in her average weekly practice time, as novices are frequently unsuccessful at high-quality engagement during the forethought phase, and as a result, experience discouragement when comparing their performance to that of others or a given model (Zimmerman, 2002).

Despite Case T demonstrating more use of self-regulatory practice habits and metacognitive self-reflection as well as reporting a higher amount of practice time, Case C achieved greater improvement from pre- to post-playthrough of the selected piece. Case C reduced the number of playing fluency errors by 16, whereas Case T only reduced errors by seven. It is of note that Case T began with fewer errors overall in his pre-play, making the margin for improvement of playing fluency much smaller for Case T than that of Case C. Given that the aim of this study was to develop a framework for teaching SRL-based practice habits and measure their use in the cases, it is beyond the scope of this study to determine the effect of the framework on performance outcomes.

Although the sample size of this study is too small to produce conclusive results for a broad population of musicians, these trends suggest that the application of this framework to private violin instruction led to the increased use of self-regulatory habits and metacognitive self-reflection skills for the individual who received the intervention. This is consistent with other studies that examine the effect of the use of a SRL model in music instruction for the improvement and measurement of students' practice habits (Hewitt, 2001; McPherson & Zimmerman, 2011; Miksza, 2015; Osbourne et. al., 2021).

LIMITATIONS AND FUTURE RESEARCH

The instructional framework described in this study has potential for improving a musician's independent SR practice habits; however, there are limitations to generalizability. First, a case study where a single participant received the intervention naturally cannot represent larger populations of students or allow for statistical inferences to be made (Fields, 2018). Further empirical research should assess the efficacy of the framework with larger sample sizes, within a variety of instructional contexts, and for different student demographics in age and ability level.

It is also difficult to evaluate the framework's long-term effects on a student's ability toward independently using specific SRL processes and behaviors due to the short duration of this study. Testing of the framework should continue with a longer intervention period and additional data sources. Microanalysis has been shown as an effective means of assessing levels of self-regulation for music participants (Miksza et. al, 2018; Osborne et. al., 2021), but additional data sources collected through a variety of means (e.g., journals, focus groups) on a more frequent basis (i.e., during the intervention) could provide a more complete picture of the framework's efficacy and applicability. It is possible that the intervention could be modified or expanded to measure and develop specific self-regulatory behaviors within the individual phases of SRL. Future research should explore this idea.

A larger sample size and longer duration may also allow for examination of the framework in relation to students' self-efficacy and performance outcomes, which are frequently studied within the SRL and music practice literature (Varela et. al., 2016).

Despite limitations, this study suggests promising implications for the use of the PPLEA Sequence instructional framework for integrating SRL into music pedagogy and practice.

REFERENCES

Araújo, M.V. (2016). Measuring self-regulated practice behaviours in highly skilled musicians. *Psychology of Music, 44*(2) 278–292. https://doi.org/10.1177/0305735614567554

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

Bandura, A. (1991). Self-regulation of motivation through anticipatory and self-reactive mechanisms. In R. A. Dienstbier (Ed.), *Nebraska Symposium on Motivation, 1990: Perspectives on motivation* (pp. 69–164). University of Nebraska Press.

Barber, B. (1991). A comparison of traditional and Suzuki teaching. *American String Teacher, 41*(4), 75-80. https://doi.org/10.1177/000313139104100438

Berliner, D.C. (2001). Learning about and learning from expert teachers. *International Journal of Education Research, 35*(4), 463-482. https://doi.org/10.1016/S0883-0355(02)00004-6

Berliner D. (2004). Describing the behavior and documenting the accomplishments of expert teachers. *Bulletin of Science, Technology & Society, 24*(3), 200–212. https://doi-org.wku.idm.oclc.org/10.1177/0270467604265535

Blackwell, J. (2020). Expertise in applied studio teaching: Teachers working with multiple levels of learners. *International Journal of Music Education*, *38*(2), 283–298. https://doi.org/10.1177/0255761419898312

Blackwell, J. (2021). Differentiating between teaching experience and expertise in the music studio: A pilot study. *Research Studies in Music Education, 43*(1), 74-87. https://doi-org.wku.idm.oclc.org/10.1177/1321103X19899172

Bonneville-Roussy, A., & Bouffard, T. (2015). When quantity is not enough: Disentangling the roles of practice time, self-regulation, and deliberate practice in musical achievement. *Psychology of Music*, *43*(5), 686–704. https://doi.org/10.1177/0305735614534910

Booth, Eric. (2009). *The music teaching artist's bible: Becoming a virtuoso educator*. Oxford University Press.

Cleary, T. J., Callan, G. L., & Zimmerman, B. J. (2012). Assessing self-regulation as a cyclical, context-specific phenomenon: Overview and analysis of SRL microanalytic protocols. *Education Research International, 2012*, 1–19. https://doi.org/10.1155/2012/428639

Darling-Hammond, L. (2016). Research on teaching and teacher education and its influences on policy and practice. *Educational Researcher, 45*(2), 83-91. https://doi-org.wku.idm.oclc.org/10.3102/0013189X16639597

Duke R. A., Chapman D. (2011). Changing learners: The nature of expertise in music teaching. In Madura Ward-Steinman P. (Ed.), *Advances in social-psychology and music education research* (pp. 29–38). Ashgate.

Duke, R. A., Simmons, A. L., & Cash, C. D. (2009). It's not how much; It's how: Characteristics of practice behavior and retention of performance skills. *Journal of Research in Music Education*, *56*(4), 310–321. http://www.jstor.org/stable/40204936

Einarson, K. M., Cho, E., & D'Ercole, P. (2022). The parent role in Suzuki music lessons: Experiences and perspectives shared by novice Suzuki parents. *Music Education Research*, *24*(5), 638–650. https://doi.org/10.1080/14613808.2022.2105828

Ericsson, K. A. (2008). Deliberate practice and acquisition of expert performance: A general overview. *Academic Emergency Medicine, 15*(11), 988–994. https://doi.org/10.1111/j.1553-2712.2008.00227.x

Ericsson, K. A. (Karl A. (Ed.). (2009). *Development of professional expertise: Toward measurement of expert performance and design of optimal learning environments*. Cambridge University Press.

Fields, A. (2018). *Discovering statistics using IBM SPSS statistics* (5th ed.). SAGE Publications.

Findell, C. R. (2008). What differentiates expert teachers from others? *Journal of Education*, *188*(2), 11–23. https://doi.org/10.1177/002205740818800203

Hendricks, K.S. (2011). The philosophy of Shinichi Suzuki: "Music education as love education". *Philosophy of Music Education Review 19*(2), 136-154. https://doi.org/10.2979/philmusieducrevi.19.2.136.

Hewitt, M. P. (2001). The effects of modeling, self-evaluation, and self-listening on junior high instrumentalists' music performance and practice attitude. *Journal of Research in Music Education, 49*(4), 307-322. https://doi-org.wku.idm.oclc.org/10.2307/3345614

Kendall, J. 1996. Suzuki's mother tongue method. *Music Educators Journal 83*(1): 43–46.

Jørgensen, H. (2004). Strategies for individual practice. In A. Williamon (Ed.), *Musical excellence: Strategies and techniques to enhance performance* (pp. 85–104). New York, NY: Oxford University Press.

Lehmann, A. C., Sloboda, J. A., & Woody, R. H. (2007). *Psychology for musicians: Understanding and acquiring the skills*. Oxford, UK: Oxford University Press.

Lehmann, A. C., & Ericsson, K. A. (1997). Research on expert performance and deliberate practice: Implications for the education of amateur musicians and music students. *Psychomusicology*, *16*(1–2), 40–58. https://doi.org/10.1037/h0094068

McPherson, G. E. (2005). From child to musician: Skill development during the beginning stages of learning an instrument. *Psychology of Music, 33*(1), 5-35. https://doi-org.wku.idm.oclc.org/10.1177/0305735605048012

McPherson, G. E., Davidson, J. W., & Faulkner, R. (2012). *Music in our lives: Rethinking musical ability, development, and identity.* Oxford, UK: Oxford University Press.

McPherson, G. E., Osborne, M. S., Evans, P., & Miksza, P. (2019). Applying self-regulated learning microanalysis to study musicians' practice. *Psychology of Music, 47*(1), 18-32. https://doi.org/10.1177/0305735617731614

McPherson, G. E., & Renwick, J. M. (2001). A longitudinal study of self-regulation in children's musical practice. *Music Education Research*, *3*(2), 169–186. https://doi.org/10.1080/14613800120089232

McPherson, G. E., & Renwick, J. M. (2011). Self-regulation and mastery of musical skills. In B. J. Zimmerman & D. H. Schunk (Eds.), *Handbook of Self-Regulation of Learning and Performance* (pp. 327–347). New York, NY: Routledge.

McPherson, G. E., & McCormick, J. (1999). Motivational and self-regulated learning components of musical practice. *Bulletin of the Council for Research in Music Education*, *141*, 98–102.

McPherson, G. E. (2022). Self-regulated learning music microanalysis. In G. E. McPherson (Ed.), *The Oxford handbook of music performance* (pp. 553-575). Oxford University Press.

McPherson G. E., Zimmerman B. J. (2011). Self-regulation of musical learning: A social cognitive perspective on developing performance skills. In Colwell R., Webster P. (Eds.), *MENC handbook of research on music learning, Volume 2: Applications* (pp. 130–175). New York, NY: Oxford University Press.

Miksza, P., Prichard, S., & Sorbo, D. (2012). An observational study of intermediate band students' self-regulated practice behaviors. *Journal of Research in Music Education*, *60*(3), 254–266. https://doi.org/10.1177/0022429412455201

Miksza, P. (2007). Effective practice: An investigation of observed practice behaviors, self-reported practice habits, and the performance achievement of high school wind players. *Journal of Research in Music Education*, *55*(4), 359–375. http://www.jstor.org/stable/27639201

Miksza, P. (2006). Relationships among impulsiveness, locus of control, sex, and music practice. *Journal of Research in Music Education, 54*(4), 308-323. https://doi-org.wku.idm.oclc.org/10.1177/002242940605400404

Miksza, P. (2011). Relationships among achievement goal motivation, impulsivity, and the music practice of collegiate brass and woodwind players. *Psychology of Music*, *39*(1), 50–67. https://doi.org/10.1177/0305735610361996

Miksza, P. (2012). The development of a measure of self-regulated practice behavior for beginning and intermediate instrumental music students. *Journal of Research in Music Education*, *59*(4), 321–338. https://doi.org/10.1177/0022429411414717

Miksza, P. (2015). The effect of self-regulation instruction on the performance achievement, musical self-efficacy, and practicing of advanced wind players. *Psychology of Music, 43*(2), 219-243. https://doi-org.wku.idm.oclc.org/10.1177/0305735613500832

Miksza, P., Blackwell, J., & Roseth, N. E. (2018). Self-regulated music practice: Microanalysis as a data collection technique and inspiration for pedagogical intervention. *Journal of Research in Music Education*, *66*(3), 295–319. https://doi.org/10.1177/0022429418788557

National Research Council. (2000). How experts differ from novices. In *How people learn: Brain, mind, experience, and school: Expanded edition* (pp. 31-50). The National Academies Press. https://doi.org/10.17226/9853.

Nielsen, S. (2001). Self-regulating learning strategies in instrumental music practice. *Music Education Research*, *3*(2), 155–167. https://doi.org/10.1080/14613800120089223

Nielsen, S. G. (2004). Strategies and self-efficacy beliefs in instrumental and vocal individual practice: A study of students in higher music education. *Psychology of Music, 32*(4), 418-431. https://doi.org/10.1177/0305735604046099

Osborne, M. S., McPherson, G. E., Miksza, P., & Evans, P. (2021). Using a microanalysis intervention to examine shifts in musicians' self-regulated learning. *Psychology of Music*, *49*(4), 972–988. https://doi.org/10.1177/0305735620915265

Palinkas, L.A., Horwitz, S.M., Green, C.A., Wisdom, J.P., Duan, N., & Hoadwood, K. (2015). Purposeful sampling for qualitative data collection and analysis in mixed method implementation research. *Administration and Policy in Mental Health and Mental Health Services Research, 42*, 533-544. https://doi.org/10.1007/s10488-013-0528

Pressley, M., & Woloshyn, V. (1995). *Cognitive strategy instruction that really improves children's academic performance.* Cambridge, MA: Brookline Books.

Schunk, D. H., & Zimmerman, B. J. (1997). Social origins of self-regulatory competence. *Educational Psychologist*, *32*(4), 195–208. https://doi.org/10.1207/s15326985ep3204_1

Silverman, D. (2022) *Doing qualitative research* (6th ed.). SAGE Publications.

Suzuki Association of the Americas. (2003). *Every child can: An introduction to Suzuki education.* Boulder, CO: Suzuki Association of the Americas.

Suzuki, S. (1969). *Nurtured by love.* New York, N.Y.: Exposition Press.

Merlin Thompson. (2016). Authenticity, Shinichi Suzuki, and "beautiful tone with living soul, please." *Philosophy of Music Education Review*, *24*(2), 170–190. https://doi.org/10.2979/philmusieducrevi.24.2.04

Tsui A. B. M. (2009). Distinctive qualities of expert teachers. *Teachers and Teaching: Theory and Practice*, 15(4), 421–439. https://doi-org.wku.idm.oclc.org/10.1080/13540600903057179

Varela, W., Abrami, P. C., & Upitis, R. (2016). Self-regulation and music learning: A systematic review. *Psychology of Music*, *44*(1), 55–74. https://doi.org/10.1177/0305735614554639

Weinstein, C., Mayer, R. (1986). *The teaching of learning strategies.* In M. Wittrock (Ed.), Handbook of research on teaching (pp. 315–327). New York: Macmillan.

West, T., & Rostvall, A.-L. (2003). A study of interaction and learning in instrumental teaching. *International Journal of Music Education*, *40*(1), 16–27. https://doi.org/10.1177/025576140304000103

Wexler M. (2008). *A comparative survey of goals and strategies of college music performance teachers across instrumental groups* [Unpublished doctoral dissertation]. Teachers College, Columbia University.

Zimmerman B. J. (2000). Attaining self-regulation: A social cognitive perspective. In Boekaerts M., Pintrich P. R., Zeidner M. (Eds.), *Handbook of Self-Regulation* (pp. 13–39). New York, NY: Academic Press.

Zimmerman, B. J. (2002). Becoming a self-regulated learner: An overview. *Theory Into Practice*, *41*(2), 64–70. http://www.jstor.org/stable/1477457

Zimmerman, B. J. (2008). Investigating self-regulation and motivation: Historical background, methodological developments, and future prospects. *American Educational Research Journal*, *45*(1), 166–183. https://doi.org/10.3102/0002831207312909

Zimmerman, B. J., & Paulsen, A. S. (1995). Self-monitoring during collegiate studying: An invaluable tool for academic self-regulation. *New directions in college*

teaching and learning: Understanding self-regulated learning, 63, 13-27. San Francisco, CA: Jossey-Bass.

APPENDIX A. PRACTICE TOOL

Daily Practice Journal

Date: _____

Today's SMART Goal:

Specific, Measurable, Achievable, Relevant, Timely

Practice Sequence

Plan: Set one target for this repetition.

Perform: Play your excerpt with your target in mind. Don't forget to record!

Listen: Listen to your recording. How well did you meet your target?

Think: What did you do well? What would you like to improve?

Act: Set a new target based on your observations.

Repetition Log

1 : _____

2 : _____

3 : _____

4 : _____

5 : _____

Was today's SMART goal achieved? Write down why/why not:

_____

_____

_____

APPENDIX B. INTERVIEW

PRE-/POST-TEST INTERVIEW QUESTIONS

INSTRUCTIONS: I am going to ask you a few questions and I want you to tell me how often you do these things with your practice sessions at home. Select from the following responses:

- ☐ Multiple times within a practice session.
- ☐ Once a session.
- ☐ Sometimes in a session.
- ☐ Rarely in a session.

How often do you:

1. Set a targeted goal for your practice?
    - ☐ Multiple times within a practice session.
    - ☐ Once a session.
    - ☐ Sometimes in a session.
    - ☐ Rarely in a session.

2. Spend practice time on things you cannot do very well?
    - ☐ Multiple times within a practice session.
    - ☐ Once a session.
    - ☐ Sometimes in a session.
    - ☐ Rarely in a session.

3. Mark trouble spots in music when practicing?
    - ☐ Multiple times within a practice session.
    - ☐ Once a session.
    - ☐ Sometimes in a session.
    - ☐ Rarely in a session.

4. Stop playing and try to think about the best way to work out a problem?
    - ☐ Multiple times within a practice session.
    - ☐ Once a session.
    - ☐ Sometimes in a session.
    - ☐ Rarely in a session.

5. Listen to my own playing while I practice to make sure I am not using bad habits?
    - ☐ Multiple times within a practice session.
    - ☐ Once a session.
    - ☐ Sometimes in a session.
    - ☐ Rarely in a session.

6. Listen to my own playing and think about how the music should sound?
    - ☐ Multiple times within a practice session.
    - ☐ Once a session.
    - ☐ Sometimes in a session.
    - ☐ Rarely in a session.

7. Record your own playing so you can listen to it during practice?
    - ☐ Multiple times within a practice session.
    - ☐ Once a session.
    - ☐ Sometimes in a session.
    - ☐ Rarely in a session.

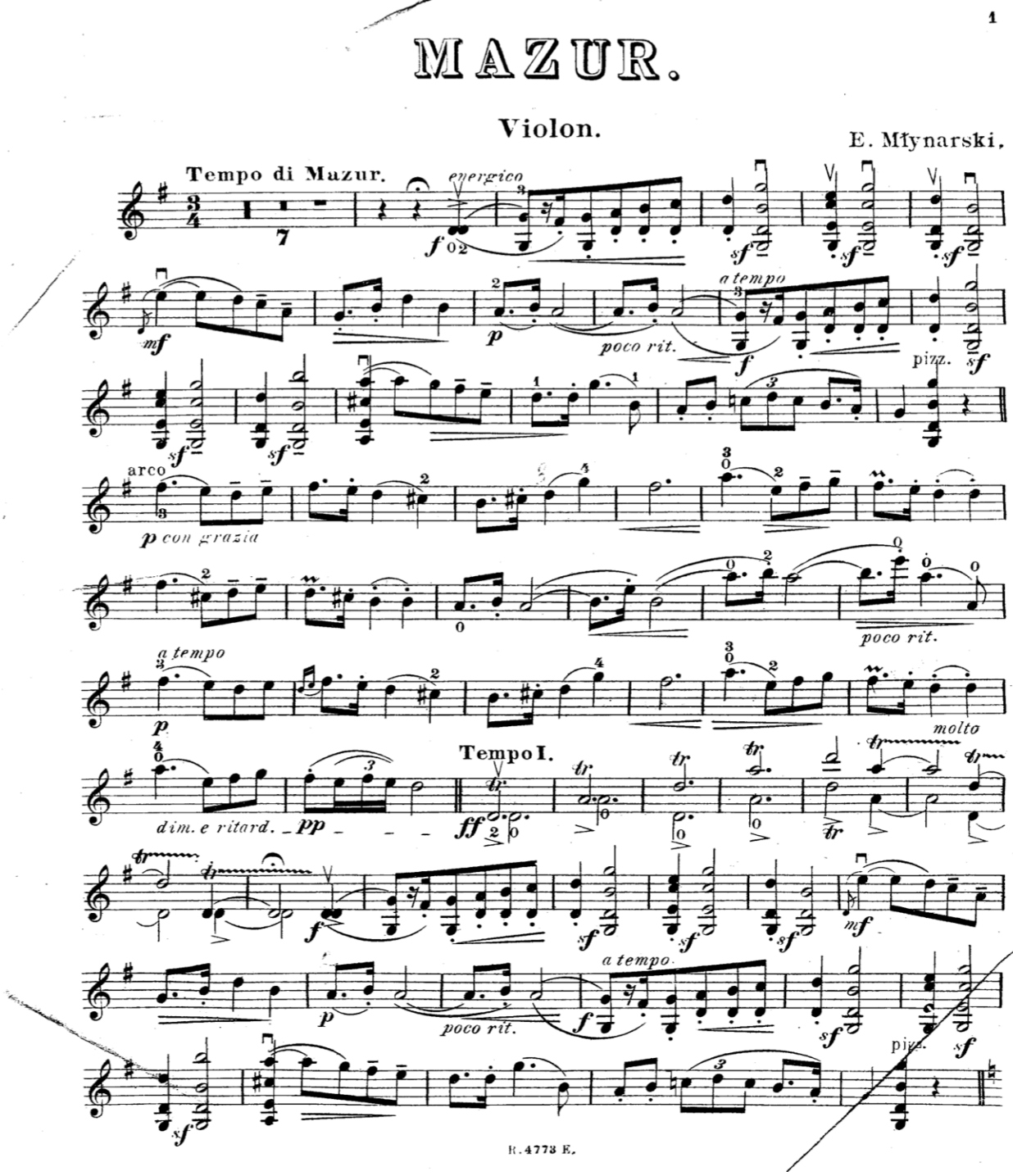
8. At the end of a practice session, how often do you think about what you did well in your playing?
    - ☐ After *every* practice session.
    - ☐ After *some* of the practice sessions.
    - ☐ *Rarely* do I do this after a practice session session.

9. At the end of a practice session, think about what you can improve in your playing for next time?
    - ☐ After *every* practice session.
    - ☐ After *some* of the practice sessions.
    - ☐ *Rarely* do I do this after a practice session session.

10. How many days a week do you practice? _____

11. How many minutes do you spend on each practice session? _____

APPENDIX C. MAZURKA EXCERPT



APPENDIX D. LESSON OUTLINE

SAMPLE LESSON OUTLINE AND SCRIPT

The left column is a sample outline of how lessons will be run for the experimental group. In each lesson, notes and additional information will be recorded on the right column. Each lesson will be 45 minutes long.

BEGINNING - WARM-UPS *Discuss previous week's practice while student unpacks instrument.* "How did practicing go this week? Do you think you met the goal we set together last lesson?" *Assist student in tuning violin.* "What scale would you like to warm up with? What will be your focus for the scale?" "What did you think about the scale you just played? Did you meet your target?" *Provide questioning to help student adjust technique to meet their target.* WORKING PIECE - GUIDED PPLEA SEQUENCE *Provide questioning to help student identify a section to utilize PPLEA Sequence.* "What challenges have you discovered in this piece?" "What are some specific parts in the piece that have those challenges that you would like to focus on?" Repetition One - Baseline. "Let's play through that section one time so we can see where we'll be starting from today." "What is one part of that section that you would like to work together to improve today?" Further repetitions as needed and as time allows. *Guide student through PPLEA Sequence for each repetition. Use questioning to help student evaluate and make decisions about their own playing.* *-continued-*	Student Name:_____ Date:_____ Lesson #:_____

CLOSING - GOAL SETTING *Discuss with student aspects of piece that need further improvement.* "Which one of these [aspects] would you like to focus on for this week?" *Guide student in making that decision into a clearly stated goal. Write down that goal in notes.* *Guide student in making a plan to break that goal down so it can be achieved within five days of practice.* "What final questions can I answer for you?"	Weekly Goal:_____ _____ _____