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CONNECTEDNESS TO OTHERS THROUGH VIRTUAL SOCIAL MUSIC IMPROVISATION

by

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The student author, whose presentation of the scholarship herein was approved by the program of study committee, is solely responsible for the content of this dissertation. The College of Education will ensure this dissertation is globally accessible and will not permit alterations after a degree is conferred.

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DEDICATION

I dedicate this dissertation to the continuation of research regarding how our relationship with and application of music can benefit humankind. I also dedicate this research to the people in my life who were teaching me social and emotional learning through music before it was even defined: My parents, Joe and Sandy; my sisters, Lindsey, Darcy, and Erin; my high school chorus teacher, Diane McFarlane; the Seneca High School Honors Chorale members (1996-1999), Roxy, and my Furman crew who know me so well. Thank you for encouraging me to channel what gives me joy toward something meaningful for others.

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ABSTRACT

This mixed methods action research intervention study analyzed the influence of social music improvisation (SMI) on students' behaviors and perceptions of their connectedness to others in a virtual middle school classroom setting. Nine 10-minute SMI sessions allowed for the accumulation of data, with two additional pre-sessions being informative and exploratory to describe the SMI intervention and practice its aspects with participants in the intervention group.

This study acquired pretest and posttest data from the Hemingway Measure of Adolescent Connectedness (Karcher, 2005) and observational information through process coding and field notes. Results showed how the presence or absence of SMI influenced 37 virtual middle school music students' perceived connectedness to others. Social music improvisation activities included playing instruments and singing using improvisation cards created by Dr. James Oshinsky (2021, see Appendix F).

Qualitative field note data and process coding provided a more personalized snapshot of the results using the teacher-researcher's observations of actions and the nature of communication during sessions (Plano Clark & Ivankova, 2016; Privitera & Ahlgrim-Delzell, 2019). Actions recorded included *playing an instrument*, *singing*/*speaking*, *smiling*/*laughing*, and *making eye contact*. A statistically significant result (p=.035) in the *connectedness to school* subscale suggests that SMI activities positively influence students' perceived feelings of connectedness to school, an integral part of this research. Qualitative data through observations and process coding showed that levels of participation during SMI paralleled with increased levels of connectedness to school for participants.

CHAPTER 1. INTRODUCTION

Background of the Problem

COVID-19 changed societal norms, including expectations in the education realm and how to best serve students (Hoofman & Secord, 2021). One of the most significant changes to teaching and learning occurred due to an explosion in virtual school student enrollment (Abramson, 2021; Ding et al., 2023; Hoofman & Secord, 2021). Although the total population of virtual school students has decreased since the peak of the COVID-19 pandemic, issues affecting mental, physical, and emotional health still confine some students within a virtual school setting indefinitely (Abramson, 2021; Ding et al., 2023; Hoofman & Secord, 2021; Leech et al., 2022).

According to the National Education Policy Center, virtual education in U.S. schools nearly doubled from a pre-pandemic number of 332,379 to a robust total of 643,930 post-pandemic (Molnar et al., 2023). Though the following year showed a decrease of 65,000 in student enrollment (Molnar et al., 2023), the number of virtual students today remains substantial, with estimates of a 9.1% growth rate each year until 2026 (Peck, 2023). Thus, a noticeable percentage of students continue a virtual education post-pandemic (Hoofman & Secord, 2021).

Virtual educational settings lack face-to-face interactions foundational in building trust and connections among students and teachers that are inherent in brick-and-mortar classrooms (Baltà-Salvador et al., 2021; Leech et al., 2022; Molnar et al., 2023; Perkins et al., 2021). Connections to others increase with more social-emotional learning (SEL) activities embedded into school lessons (Collaborative for Academic, Social, & Emotional Learning [CASEL], 2024a, b). SEL focuses on increasing feelings of connectedness to others, self-awareness, self-management, social awareness, responsible decision-making, and relationship skills (CASEL,

2024b). Over half of the states in America have adopted an SEL curriculum for K-12 schools, making the inclusion of this curriculum not uncommon (CASEL, 2024b).

Connectedness among adolescents and their school is essential for many reasons and should be at the core of a school's mission statement (Centers for Disease Control and Prevention [CDC]), 2022). Students reporting higher levels of connectedness to school exhibit higher grades, test scores, attendance, and graduation rates (CDC, 2022). Perhaps more importantly, students are less likely to experience emotional distress and thoughts of suicide when levels of connectedness to others and school are higher (CDC, 2022). Connectedness to school protects students from experiencing a plethora of negative health issues as adults, including anxiety, depression, suicidal ideation, tendencies towards violence in relationships, illegal drug use, and having multiple sex partners, leading to an increase in STI diagnoses (CDC, 2022).

Reassuringly, meaningful exposure to an SEL curriculum can provide fulfillment in life (Farrington & Shewfelt, 2020; Hellman, 2020). Students participating in SEL activities experience many benefits, including increased feelings of safety and support, trust of others, belonging and inclusiveness within the educational environment, and improved teacher relationships (CASEL, 2024b). The connections middle schoolers make with peers, teachers, and school can improve students' social and academic lives and, more importantly, lower levels of depression and suicide attempts (CDC, 2022). Because connections are vital to students' social, mental, and physical health, virtual learners who attend school in the confines of their Chromebooks should receive the same exposure to an SEL curriculum as their in-person peers.

The virtual learning phenomena remains part of this post-COVID society and there is a need for innovative curricular changes to meet the social and emotional needs of students as well

as subject area objectives (Baltà-Salvador et al., 2021; CASEL, 2024a, b; Hoofman & Secord, 2021; Leech et al., 2022; Oshinsky & Knysh, 2023b; Peck, 2023). Music classrooms provide a fruitful ground for integrating SEL, and research supports the application of social music improvisation within classrooms to build social and school connections (Edgar, 2013; Edgar et al., 2017; Eisner, 2002; Oshinsky & Knysh, 2023b; Varner, 2020, 2021, 2023). *Music improvisation* for this action research study refers to semi-structured spontaneous group music-making with instruments and voices. Improvising music with others helps students build a sense of belonging to a group, create a culture of trust, and articulate the emotions they are currently feeling within a group context (Edgar, 2013), a skill that is also part of the SEL framework (CASEL, 2024b). This mixed methods action research study analyzed how SMI influenced virtual middle school students' behaviors and perceived levels of connectedness.

Purpose of the Study

The CDC (2022) statistics show that approximately 40% of K12 students lack connections to others and their schools that could provide them with social and emotional stability. Suicide rates decrease when healthy school connectedness occurs, and students believe that the people in their school building care about them (CDC, 2022). This study analyzed the influence of SMI activities on middle school student behaviors and perceptions of their connectedness to peers, teachers, school, friends, and self-in-the-present. The primary focus was on peers, teachers, and school (connectedness), as these are the most critical areas regarding learning environments (CDC, 2022). One can infer that the inclusion of SMI within a virtual middle school classroom will increase feelings of belonging and connectedness to peers, teachers, and school (Albornoz, 2011; Clements-Cortes & Yu, 2021; Hawkins & Farrant, 2022; Krueger et al., 2019).

This mixed methods action research study occurred within a southeastern public school district in the United States, where 4.1% of the middle school population attends school through a synchronous online platform (U.S. News & World Report, 2023). Students represented by this number need targeted SEL interventions to increase connectedness due to the virtual nature of their school environment (Monahan et al., 2010; Perkins et al., 2021). Three of the five primary tenets of SEL, self-awareness, social awareness, and relationship skills (CASEL, 2024b), were primary foci in this study as the researcher sought to highlight the influence SMI has on students' perceived levels of connectedness to others.

This study's conceptual framework brings together foundational aspects of Music for People (MfP), The Center for Arts Education & Social-Emotional Learning (ArtsEdSEL), and the Social-Emotional Learning Theory as a lens to view the influence of SMI on virtual middle school students' feelings of connectedness. Social music improvisation has an innate ability to connect those who participate in it, increase one's trust in others and self, and positively enhance a learning environment (Oshinsky & Knysh, 2023b), and music experiences in school support the foundations of SEL through their natural ability to affect students emotionally, physically, and socially (Dewey, 1934; Edgar et al., 2017; Eisner, 2002; Oshinsky & Knysh, 2023b; Powell, 2014).

Results of this study showed that SMI positively influenced students' perceived feelings of connectedness within the *connectedness to school* subscale (p=.035). Additionally, qualitative findings showed a connection between an increase in *playing an instrument*, *smiling/laughing*, and *making eye contact* and posttest scores of connectedness during SMI. The research questions for this mixed methods action research study were:

1. How does social music improvisation influence virtual middle school students'

perceptions of their connectedness to others within a group?

2. In what ways does social music improvisation influence virtual middle school students' behaviors associated with connectedness?

These research questions guided this action research intervention study and gave insight into participants' perspectives on belonging using quantitative and qualitative methodology. Feelings of connectedness and belonging were measured using the Hemingway Measure of Adolescent Connectedness (Karcher, 2005) before and after the intervention. Additionally, the teacher-researcher captured qualitative data through field notes and process coding. This mixed methods action research intervention study included the researcher's virtual students as participants to discover SMI's influence on students' perceived feelings of connectedness to others. Data collection occurred for three weeks during nine 10-minute SMI intervention sessions.

Statement of Problem

Virtual middle school students need more authentic connections built on trust with their peers, teachers, and school (Baltà-Salvador et al., 2021; Centers for Disease Control and Prevention [CDC], 2022; Clements-Cortes & Yu, 2021). Suicide rates and adolescent depression are increasing yearly (CDC, 2022). It is time for leaders within schools and districts to implement classroom connectedness-building strategies to foster thriving social climates and trusting, healthy student relationships (Clements-Cortes & Yu, 2021). It is fortuitous that social music improvisation is a natural candidate.

Connections made in middle school equip students with the tools they need for a more productive existence socially, emotionally, and academically (CDC, 2022; Tomek et al., 2017). Healthy choices and actions, better grades and test scores, and an overall increase in school

attendance result from higher levels of school connectedness (CDC, 2022; Tomek et al., 2017). Social connectedness is a vital component during adolescence, and studies show that isolation from peers can increase depression risks (Widnall et al., 2022). Students who reported poor mental health after isolation due to the pandemic were the same students who felt least connected to peers and school before the COVID-19 lockdown (Widnall et al., 2022).

Tomek et al. (2017) found that robust middle school connections predicted an increased probability of high school enrollment. Social music improvisation was the driving force in this action research intervention study, influencing students' perceptions of connectedness to peers, teachers, and school in a virtual environment. However, including social music improvisation in educational curricula is virtually nonexistent (Perkins et al., 2021).

The reality is that virtual education attracts a noticeable percentage of a school district's student body, and districts must equalize opportunities between in-person and virtual students to connect to others and school (Hoofman & Secord, 2021; Monahan et al., 2010; Peck, 2023). The question exists as to why students remain in virtual learning environments if their connections to teachers, peers, and school decrease. Not surprisingly, learning from home can benefit some students (Abramson, 2021). Virtual learning provides flexibility for students with disabilities who may have weekly medical appointments (Abramson, 2021). Brick-and-mortar classrooms may be distracting and cause students to perform poorly (Abramson, 2021). Individualized learning, more opportunities for parent workshops and involvement, and an expedited discovery of needs for individualized education plans (IEPs) occur more often in virtual education settings (Abramson, 2021). Less social anxiety occurs due to more straightforward communication among students, administrators, and teachers, creating a more trusting and positive learning environment for students (Abramson, 2021). An increase in graphics and videos supports visual

learners, and the chat box feature benefits virtual students who are more comfortable staying muted than speaking in front of the class (Abramson, 2021). Additionally, virtual education may reduce bullying incidents due to a fuller parent and teacher presence (Abramson, 2021).

Amidst the positive aspects of virtual learning, virtual students still combat feelings of isolation, distrust, loneliness, and other negative emotions due to decreased face-to-face interactions with others (Baltà-Salvador et al., 2021). Social music improvisation is a potential best practice to be included in classrooms while promoting an environment that exudes trust, inclusivity, positivity, community, and an overall sense of belonging and connectedness for all students. The first objective of this study was to analyze the influence of virtual social music improvisation on social-emotional wellness of self-awareness, social awareness, and relationship skills (CASEL, 2024). Due to the differences between virtual and in-person learning, a more significant focus on virtual students' needs to connect with others through virtual platforms must occur.

The second objective of this research study was to further investigate music and SEL instruction as a natural pairing in the classroom (Eddy et al., 2020; Edgar, 2013; Edgar & Morrison, 2020; Edgar et al., 2017; The Center for Arts Education and Social-Emotional Learning [ArtsEdSEL], 2021). Allowing the arts to become the conduit of connectedness through SEL elevates its effectiveness and the need to remain part of every child's education (Farrington & Shewfelt, 2020). If the natural marrying of music and SEL produces increased levels of perceived connectedness to others for virtual middle school students (Edgar, 2013; Edgar et al., 2017; Oshinsky & Knysh, 2023b), perhaps the implementation of SMI into the K-12 school curriculum can improve the social and emotional health of all students. Educators within arts

disciplines may become "a valuable resource for schools and districts focused on promoting social-emotional learning" (Farrington & Shewfelt, 2020, p. 34).

Significance of Study

An understanding of the phenomena regarding social music improvisation and students' perceived levels of connectedness to school through the use of a nuanced qualitative approach using observational data increased with the results of this study. Quantitative data showed that small-group social music improvisation sessions increased posttest scores in the *connectedness to school* subscale (p=.035). People need meaningful connections with others based on trust (CDC, 2022), and the results of this mixed methods action research study are a significant determinant regarding the influence of SMI on feelings of connectedness for virtual middle school students. Little research has been done regarding mental health, school connectedness, classroom trust levels, and remote virtual learning since COVID-19 changed how students learn (Perkins et al., 2021). This study provides a step towards increasing trust and building connections for students to their peers, teachers, and schools through social music improvisation, as current literature is minimal, and more research must occur in this field.

Music Improvisation's Impact on Connectedness Through SEL

Increasing connectedness to others can decrease feelings of isolation (CDC, 2022). Untreated disconnectedness can harm students academically, physically, and emotionally (CDC, 2022). Social music improvisation applied through an SEL lens can help students trust and connect with others and their school by improving "academic, professional, social, and emotional development" (Edgar, 2013, p. 35). The untapped potential of combining music and SEL education is significant as these two subjects present a natural connection that makes a suitable match for impactful SEL lessons (Edgar, 2013).

Through social music improvisation, the elements of SEL are present and powerful (Edgar & Morrison, 2020; Edgar et al., 2017; Oshinsky & Knysh, 2023b). SMI encompasses aspects of SEL through activities such as call and response, imitation and paraphrase, body language, unison pitch, solos, shadowing, and babbling, and is considered SEL without words (Oshinsky & Knysh, 2023b). This also means that SMI and SEL transcend language, making music a form of communication everyone can understand (Oesch, 2019). Multi-language learners (MLLs) can exhibit the same connectedness growth margins as their native English-speaking classmates (Case, 2021). MLLs, while requiring rigorous English language lessons as a top priority, should also be seen as individuals in need of social and emotional development (Case, 2021). SMI, as a non-speaking activity, could promote the same goal for everyone: increased connectedness to others (Case, 2021).

Students with greater connectedness towards their school earn better grades (Monahan et al., 2010; Too et al., 2022). Goodenow and Grady (1993) found that students experience higher levels of motivation to do school work when they feel connected to their school. Longitudinal studies showed that positive results for students increased when school connectedness levels were high, and preventative measures taken to increase student connectedness to school could result in an overall positive influence on students (Goodenow & Grady, 1993).

Approximately 22% of high school students seriously considered taking their own lives in 2021 (America's Health Rankings, 2023). This study has the potential to increase connections and reduce suicide rates for America's students as it focuses on the importance of connectedness. On a secondary level, findings from this study may benefit teachers by providing them with the skills and materials necessary to integrate SEL and SMI into their subject matter. Applying SEL combined with SMI will increase student engagement, student knowledge, and overall classroom

community through the growth of connections between and among students, teachers, and school (Edgar, 2013; Edgar et al., 2017; Faulkner, 2017; Fleischmann et al., 2021; Hawkins & Farrant, 2022; Hutton, 2021; Ladano, 2022; MacDonald et al., 2021; Montgomery, 2021; Oshinsky & Knysh, 2023b; Raschdorf et al., 2021; Váradi, 2022; Varner, 2020; 2021; 2023). A realization that SMI influences the acquisition of feelings of connectedness for students could perhaps lead to a district-wide social music improvisation-infused SEL curriculum implementation.

Teachers across disciplines could apply SMI to their daily lessons to increase connectedness among students and their sense of belonging in a group. Increasing the application of SMI within the classroom could deliver the foundational pillars an organization needs to make meaningful changes regarding trust levels and the connectedness of its students. Through a purposeful 21st-century leadership lens, the application of SMI intertwined with the facets of SEL could begin to transform schools into places where students trust and know themselves more academically, socially, and emotionally (Edgar & Morrison, 2020; Edgar et al., 2017; Oshinsky & Knysh, 2023b).

Clarification of Terms

The term **action research** describes a type of research that involves "the implementation of systematic inquiry conducted by educational practitioners designed to answer questions related to educational practices and student learning outcomes in the context of a specific educational environment" (Privitera & Ahlgrim-Delzell, 2019, p. 451). For this study, the teacher is the researcher, and the field is her classroom. Action research can address a current educational issue in a school and find workable solutions in a relatively short time.

Arts integration is a process that involves using the arts (music, visual art, drama) to enhance and improve education by integrating them into other subject areas. In this proposed

study, **social music improvisation** (SMI) refers to the spontaneous application of music to an active small group session while combining emotion and communication with performance (Oshinsky, 2021). SMI requires communicating with others musically and empathetically (Oshinsky & Knysh, 2023b).

Social connectedness refers to the feeling of belonging to a group, knowing others, feeling comfortable with the group, and feeling as if one is accepted. CASEL (2024a) defines **Social-emotional learning** (SEL) as the method by which all adolescents and adults gain the understanding, capabilities, and attitudes to form healthy identities, handle emotions, attain individual and group objectives, experience and express compassion for others, form and sustain supportive relationships, and make considerate and responsible choices. **The Music Doctor Improv Cards and Picture Prompts** (Oshinsky, 2021) include 52 cards sorted into four categories: making music, basic skills, contrast and space, support roles, and styles. In the execution of this study, the researcher chose twelve cards to use (see Appendix F). In this study, **virtual learning** refers to the school experience of online learners who are public middle school students attending six synchronous classes from home and through a Google Meet platform. The virtual student school day is from 8:30 am until 3:15 pm.

CHAPTER 2: LITERATURE REVIEW

Introduction

This literature review applies a funnel approach, beginning with broader concepts of music improvisation, connectedness through social-emotional learning (SEL), and the growing research regarding their tandem existence. This more comprehensive view of the relationship between social music improvisation (SMI) and connectedness through SEL provides a social and emotional lens to gain support in educational leadership frameworks and methodological theories. Areas of this study include SMI, connectedness within the SEL framework, virtual learning platforms, mixed methods action research intervention studies, and theoretical and educational foundations. These topics align with this action research study's musical, social, and emotional focus while providing the framework for the overall project. A thorough literature review brings together the existing research from The Center for Arts Education and Social-Emotional Learning (ArtsEdSEL), the American Journal of Health Education, Arts Education Policy Review, the CDC, the Collaborative for Academic, Social, and Emotional Learning (CASEL), Frontiers of Psychology, Music for People (MfP), the National Association for Music Education (NAfME), and Psychology of Music while also highlighting noticeable gaps in the literature. Each body of knowledge provided evidence of a correlation between SMI and connectedness among individuals. This literature review provides foundational information that supports the basis of the proposed action research study, creating a niche for the work that has begun to break ground regarding the social and emotional benefits of SMI. The chapter is organized into three categories: (a) social music improvisation leadership, (b) educational theories, and (c) foundations of the methodology.

Social Music Improvisation & Leadership

Existing research supports SMI's relationship to SEL, specifically connectedness (Abramson, 2021; Cai & Terry, 2020; Eddy et al., 2020; Lavik, 2021; MacDonald et al., 2021; Phipps & Dilworth, 2021; Raschdorf et al., 2021). This section provides evidence of research within SMI, SEL, and virtual learning while connecting to the framework of 21st-century leadership theory. Through this leadership lens, this SMI action research intervention study promotes collaboration, influence relationships, and mutuality (Rost, 1993). A positive classroom as the foundation for a learning environment creates a fertile ground for new ideas, creativity, collaboration, participation, freedom of expression, and acceptance of the individual (Oshinsky & Knysh, 2023b; Peters, 2012; Rost, 1993; The Center for Arts Education and Social-Emotional Learning [ArtsEdSEL], 2021). Trust is an additional fundamental part of the execution of SMI, as it must be at the foundational level of a group before authentic and organic contributions can be made by participants (Fleischmann et al., 2021). The following paragraphs provide research that shows how social music improvisation and elements of SEL have combined to create impactful experiences for people through the lens of the 21st-century leadership theory.

Social Music Improvisation

Social music improvisation (SMI) has served and is currently serving the needs of people in a range of areas (Albornoz, 2011; Biasutti, 2015; Biasutti, 2017; Clements-Cortes & Yu, 2021; Dufresne, 2019; Faulkner, 2017; Hawkins & Farrant, 2022; Lewis, 2013; Rabinowitch, 2020; Rawlings, 2017; Wall, 2018; Willox et al., 2011). Music, specifically social music improvisation, provides people with communication tools (Faulkner, 2017; Rabinowitch, 2020), decreases depression and anxiety symptoms (Albornoz, 2011; Clements-Cortes & Yu, 2021; Hawkins &

Farrant, 2022), and serves as a multifunctional approach in learning and teaching styles (Biasutti, 2015; Biasutti, 2017; Lewis, 2013; Rawlings, 2017; Wall, 2018; Willox et al., 2011). Social music improvisation requires skills to freely communicate with others, both musically and empathetically (Oshinsky & Knysh, 2023b), and is a skillful task that embodies higher-order thinking skills of music theory (Biasutti, 2015; Biasutti, 2017; Lewis, 2013; Wall, 2018; Willox et al., 2011), though these skills are not required to participate in SMI. Listening intently is necessary to receive information and respond thoughtfully and appropriately. More listening during SMI leads to more understanding, and intentional listening teaches participants to express themselves with words, art, and music as a form of communication (Oshinsky & Knysh, 2023a).

Similar to the improvisation of jazz musicians on stage, SMI is spontaneous but with musical understanding that connects the group and allows for a successful flow. A mindset open to social music improvisation "would benefit students to learn the power of listening to others and sharing their perspectives" (Dufresne, 2019, p. 131). Essential findings support SMI to increase communication and connection, decrease depression and anxiety symptoms, and serve as a learning and teaching style.

Social Music Improvisation to Communicate and Connect

Since the beginning of human history, social music improvisation has been a tool for communication (Faulkner, 2017; Rabinowitch, 2020). The first mothers of the human race communicated with their newborns through singsong-like sounds, tones, and rhythmic speech, and parents today do the same (Rabinowitch, 2020). SMI is an innate human ability and creates ways through music "to enhance social aspects of human interaction" (Rabinowitch, 2020, p. 5).

Group drumming is a popular activity among children and youth and is an example of how music promotes positive, trusting social human relationships using communication through

song and rhythm patterns (Faulkner, 2017; Ho et al., 2010). Like group drumming, SMI builds community among groups, increases trust levels among participants, teaches social-emotional learning skills, and increases one's ability to communicate effectively as a leader and follower (Edgar, 2013; Oshinsky & Knysh, 2023b). SMI also increases students' perceptions of connectedness and their sense of belonging (Campbell & Klotz, 2021; Cross et al., 2012; Rawlings, 2017).

Music possesses the potential to build relationships, strengthen communication, and function as a trust-building tool within group music ensembles (Cross et al., 2012). Music ensembles within schools play a significant role in a student's social and emotional health (Cross et al., 2012; Rawlings, 2017). Students in musical ensembles report higher levels of perceived school connectedness and that the "perception of school connectedness matters more for music ensemble participants than it does for non-ensemble participants" (Rawlings, 2017, p. 61). In music ensembles that provide social music improvisation activities, students and teachers experience music improvisation as a way to communicate when the spoken language does not translate (Ahonen & Houde, 2009). SMI can result in a more emotionally charged sound, increased social interaction and trust, and improved harmony to enhance musical themes and expressions (Oshinsky & Knysh, 2023a).

Ladano (2022) found that communication through collective free improvisation with musical instruments and voices increased and how instruments can be considered representational masks for participants. Using the psychology theory by Carl Jung, this article presented the idea of masking and becoming who you are through the use of instruments as *masks* (Ladano, 2022). Provided with an instrument to create music, participants were observed and responded that the use of an instrument gave them a better sense of security and self-trust

when faced with communicative improvisational activities (Ladano, 2022). These findings included increased perceptions of connection among group members due to using instruments, stating that the "instruments functioned like masks" (Ladano, 2022, p. 8). Specifically, 60% of participants reported feeling safer on stage with their instruments in hand, and 30% somewhat agreed (Ladano, 2022).

MacDonald et al. (2021) specifically focused on sustaining and improving a sense of community and connectedness while improvising virtually with music by studying the Glasgow Improvisers Orchestra (GLO), a 25-member ensemble. COVID-19 caused many problems for musicians who were used to performing together in fundamental, face-to-face interactions, but virtual social music improvisation increased connectedness and emotional support (MacDonald et al., 2021). Through interviews with the participants of the GLO, researchers coded certain words and themes to create quantitative data (MacDonald et al., 2021). Each online improvisation session was also recorded visually so researchers could find where the sound and behaviors represented "the musical, social, and psychological aspects of the interactions" (p. 4). This study's most notable results were improvements in mood, acknowledgment of creating a new identity together through trusting relationships, and improvements in mental and physical health (MacDonald et al., 2021).

Verneert et al. (2021) applied collective improvisation to a community orchestra group to examine elements of emotion, engagement, relationships, meaning, and accomplishment. Researchers used improvisation techniques in a group orchestra consisting of homeless adults as well as individuals with psychiatric problems and alcohol and drug dependencies (Verneert et al., 2021). The term *eudaimonia* referred to Seligman's definition of collective improvisation as being a creative collaboration among a group (Verneert et al., 2021). The results of this study

show an increase in positive emotions, the purpose of the individual, engagement with the tasks, and feelings of accomplishment (Verneert et al., 2021). One aspect of the results involved different points of view regarding social relationships from the participants, where some displayed an increase in positivity within this realm. In contrast, others revealed negativity regarding the social interactions of the study (Verneert et al., 2021).

Music improvisation as an intervention to increase social interactions and connections with others was found to be "one of the most widely used interventions for establishing non-verbal communication between therapist and client" (Diaz Abrahan et al., 2023, p. 2). Research by Diaz Abrahan et al. (2023) showed the effects of music improvisation on younger and older adults regarding social involvement while working in small groups to improvise musically. This mixed methods study compared a music improvisation group to a rhythmic imitation group to compare how levels of community and social interactions changed during music sessions (Diaz Abrahan et al., 2023). Researchers applied an exploratory sequential design to observe social interaction and communication levels (Diaz Abrahan et al., 2023). Participants belonged to the music improvisation or rhythmic imitation group. Researchers observed and numerically recorded instances of eye contact and other notable aspects of the sessions, including how participants produced sound and interacted with other group members (Diaz Abrahan et al., 2023). The results of this study show a growth in connectedness through community (Diaz Abrahan et al., 2023). An exciting by-product of higher interactivity rates was an increase in positive behaviors like "talking and laughter, which were present and increased over time in the groups of younger and older adults who performed the improvisation" (Diaz Abrahan et al., 2023, p. 14). Additionally, this laughter throughout the improvisations helped create emotions

that helped fuel the idea of community and supported a positive environment for participants (Diaz Abrahan et al., 2023).

Connectedness Between and Among Individuals SEL and Music

People spend a significant amount of time communicating through texts, emails, or virtual meetings. Connectedness to others can suffer when face-to-face time decreases but can improve through strategic applications of social activities (CDC, 2022; MacDonald et al., 2021; Monahan et al., 2010; Perkins et al., 2021; Tomek et al., 2017; Verneert et al., 2021; Vidourek et al., 2011; Widnall et al., 2022; Willox et al., 2011; Wu & Lu, 2021). Studies show that social connectedness during adolescence plays a pivotal role in a child's trust level, and the absence of these vital connections can cause mental health to suffer when students do not trust or feel connected to their peers and school (Widnall et al., 2022).

The three tenets of SEL are identity, belonging, and agency (CASEL, 2024). These pillars of SEL include questions like 1) Who am I, 2) Is there trust enough for me to belong and connect, and 3) How can I make changes in a meaningful way (Fleischmann et al., 2021)? Trust is a connectedness prerequisite (Fleischmann et al., 2021). SEL in music and the arts is a natural pairing that can increase students' trust while impactfully affecting them through social and emotional experiences (Fleischmann et al., 2021). There is untapped potential for the delivery of SEL through music (Fleischmann et al., 2021).

Social music improvisation promotes emotional understanding, trust among the group, social connections, and empathetic reactions to conversations through music (Oshinsky & Knysh, 2023a). SEL's aspects shine while paired with social music improvisation, as this activity effectively addresses these aspects in a non-threatening manner while creating a positive learning environment (Oshinsky & Knysh, 2023a). Providing students with social activities that involve

improvising, composing, or arranging music effectively weaves SEL into daily lessons (Fleischmann et al., 2021). During music-making activities, students are invited to solve a challenge and create something new using solutions as they present themselves (Fleischmann et al., 2021). SMI also requires trusting others and communicating musically and empathetically (Oshinsky & Knysh, 2023b), and it is not merely an activity but a meaningful event that embodies trust and an understanding of how social music improvisation connects people (MacDonald et al., 2021; Oshinsky, 2021; Oshinsky & Knysh, 2023b).

Feelings of depression and anxiety decrease for individuals who participate in social music improvisation as these experiences increase connectedness and create a positive learning environment (Albornoz, 2011; Campbell & Klotz, 2021; Clements-Cortes & Yu, 2021; Cross et al., 2012; Hawkins & Farrant, 2022; Krueger et al., 2019; Rawlings, 2017). Eighth-grade students who experienced higher rates of depression increased self-esteem levels after participation in school activities that promoted school and peer connections (Raniti et al., 2022). Results showed that students' positive social-emotional environments could profoundly affect their school connectedness levels (Raniti et al., 2022). Adolescents who report increased levels of connectedness to school also exhibit greater academic motivation and fewer incidents of classroom misbehavior (Goodenow & Grady, 1993; McNeely et al., 2002). This suggests that preventative measures, like social music improvisation interventions, can increase student trust and connectedness to school while reducing student conduct issues (Goodenow & Grady, 1993). The following section presents information about the benefits of connectedness through SMI. Social-emotional learning aspects streamline naturally with SMI and music education overall.

Benefits

Integrating subjects within education is not new, as it can be traced back to John Dewey's child-centered curriculum (Bresler, 1995; Dewey, 1934). However, integrating social music improvisation with SEL is distinct from other music integration formulas that seek to connect music with core academic subjects to increase learning (National Association for Music Education, 2023). A small yet progressive amount of literature is dedicated to applying SEL to the music classroom, but the research is limited (Edgar, 2013; Edgar & Morrison, 2020; Edgar et al., 2017; Váradi, 2022; Varner, 2020; 2021; 2023). SEL is gaining wide acceptance in the world of education as society seeks to help students process the recent COVID-19 pandemic, an increase in school shootings, and a rise in depression rates among teens (CDC, 2022).

Combining social music improvisation and SEL creates a whole-child approach to social and emotional health through self-awareness, emotional regulation, collaboration and communication, creativity and problem-solving, confidence, self-efficacy, and emotional connection and empathy (CASEL, 2024a, b). Social music improvisation and SEL pair well, as they heighten the positive environment and the musical impact of others by increasing trust among the group, teaching skills of intent listening, and learning how to respond appropriately. An increase in self-trust and self-awareness occurs when students express themselves and their feelings while participating in social music improvisation (Edgar, 2013; Oshinsky & Knysh, 2023b). SMI activities help with emotional regulation, collaboration, and communication while providing a positive learning environment to trust others, explore emotions, collaborate, and respond to cues (Oshinsky & Knysh, 2023b).

Thinking creatively and solving problems occur during SMI as students must decide what they will contribute to the group's performance at that moment, and confidence, trust in self, and

self-efficacy increase when a student receives positive feedback from a peer during an improvisation session (McKnight, 2021). Social music improvisation can impact a child's emotional connection to themselves and others, creating a sense of belonging within a positive learning environment built on trust (Oshinksy & Knysh). A healthy environment where SEL and music intersect appropriately will exude trust and "a commodious, rich space where caring, a connection of self to others, occurs" (Bresler, 2006, p. 61).

Researchers stated that increasing school connectedness "can decrease risk-taking behaviors by providing youth with prosocial and empowering opportunities at home, in school, and in the community" (Vidourek et al., 2011, p. 116). Vidourek et al. (2011) analyzed the frequency and methods of middle and elementary school teachers' connectedness strategies in the classroom through an electronic survey. Results showed that the most frequently used strategy for building connectedness was "trying to act like a positive role model for students, calling students by their first names, and enforcing rules of student respect" (Vidourek et al., 2011, p. 118). The survey also showed that elementary school teachers exhibited more applied connectedness strategies such as eye contact, expressive responses, pitch of speaking voice, and increased gesturing and classroom monitoring (Vidourek et al., 2011).

Begun et al. (2022) investigated the effects on youth-adult partnerships through an intervention of actor improvisation. This study utilized purposive sampling, and its participants came from a research lab based on campus and focused on youth (Begun et al., 2022). It commenced in 2020 as the COVID-19 pandemic began infiltrating America (Begun et al., 2022). Participants completed a qualitative questionnaire after a two-hour improvisation intervention workshop using Zoom (Begun et al., 2022). Findings from the qualitative template analysis resulted in "overall positive experiences and support for the further examination and use of

improv in strengthening youth-adult partnerships" (Begun et al., 2022, p. 123). The two main themes found during the qualitative data coding included a dismantling of power differentials among participants in different age groups and an increase in participants' challenging themselves more, even though improvisation was a new experience.

Through the development of teachers' skills in SEL application within the music classroom, teachers can acknowledge personal differences, biases, and barriers subconsciously placed between teachers and students while increasing levels of trust among students (Varner, 2020, 2021). Varner (2021) states that "a general music classroom with an SEL focus can help teachers create just, inclusive, and healthy communities that support all people endeavoring to find success" (p. 49). To be a strong leader in the music classroom and a promoter of SEL, the teacher must lead intentionally, making each moment matter through well-designed experiences (Varner, 2023). The general music classroom is a natural place for students to understand who they are while providing a safe space to practice social and self-awareness skills (Edgar et al., 2017; Varner, 2020, 2021, 2023).

Wu and Lu (2021) highlighted the importance of musical training, engagement, and curiosity in building empathetic learners through applying SEL. They found that musical training increases empathy and positive social behaviors (Wu & Lu, 2021). Eddy et al. (2020) provided multiple perspectives on how SEL could better integrate arts classrooms within our country while focusing on promoting both in-person and virtual learning environments. Research about combining education in the arts with SEL is not abundant, and continued research is needed to uncover how integrating the arts with SEL produces a positive learning environment that leads to transformative experiences for students (Eddy et al., 2020, p. 2).

Social Music Improvisation as a Learning and Teaching Style

Discovering new ways of teaching and learning is a quest for many professionals in education. Studies support SMI as a beneficial learning and teaching style in music and other subjects (Biasutti, 2015, 2017; Lewis, 2013; Wall, 2018; Willox et al., 2011). Biasutti (2015) found that literature based on the psychology of music presented a streamlined approach to integrating the process of music improvisation into the classroom. David Darling reminded music educators that SMI is one of the easiest ways to play an active role in music-making (Darling, n.d.). Practitioners of MfP believe that there are no wrong notes during improvisation sessions and that any music a person makes comes from innate abilities like breathing and walking (Peters, 2012). The ability to trust oneself and others is a skill promoted by MfP (Darling, n.d.; Peters, 2012). A synthesis of this research reflecting SMI as a teaching and learning style shows how applying SMI techniques and activities benefits students (Biasutti, 2015; 2017; Darling, n.d.; Lewis, 2013; Wall, 2018; Willox et al., 2011).

Emotionally and musically, communication tends to improve while students apply the tenets of social music improvisation within small groups (Beegle, 2010; Hawkins & Farrant, 2022; Oshinsky & Knysh, 2023b; Wall, 2018). In groups of four, fifth-grade students collaboratively created music in a small-group planned music improvisation process (Beegle, 2010). A proactive approach to social musical improvisation resulted by incorporating small group learning, some sense of structure and theme, and the comfort of planning for a performance (Beegle, 2010). The structure inherent in SMI also provides necessary flexibility, making it a valuable tool for teachers and learners (McKnight & Scruggs, 2008). This study showed that students successfully applied role assignments within small groups (Beegle, 2010).

In another fifth-grade classroom, Wall (2018) conducted a study involving music improvisation in a band class. A decrease in music theory lessons and memorization allowed students to make music creatively during most of the class period (Wall, 2018). The researcher met with six fifth-grade band students once a week for eight weeks to work on social music improvisation within a group (Wall, 2018). The researcher also gathered data from field notes, music, and dialogue during each session (Wall, 2018). The results of this study presented themes including musical fluency, personal preferences of students, the creation of original music, an increase in instrument-playing abilities, conversations through music, and incorporating pieces of known songs within sessions (Wall, 2018). Additionally, it was evident that rhythmic improvisation "proved to be the most salient feature of collaborative emergent created by the group" (Wall, 2018, p. 124). Improvisation gave students freedom and space to take chances and risks in their music-making within this positive learning environment (Wall, 2018). Students made music without teacher supervision or intervention, suggesting that "young improvisers can successfully create a collaborative emergent during group improvisation, which helps create a frame, or set of boundaries, that can further aid students' playing" (Wall, 2018, p. 131).

Hawkins and Farrant (2022) investigated how taking turns in musical and spoken improvisation activities can improve and enhance empathy and self-esteem among 12 to 14-year-old music students. Researchers applied SMI activities to a group with pitched instruments and one with unpitched instruments, having only one group take turns in their music-making activities (Hawkins & Farrant, 2022). In contrast, the control group played and learned synchronously (Hawkins & Farrant, 2022). The findings included improved self-trust, self-esteem, and increased empathy within the turn-taking group (Hawkins & Farrant, 2022). This study used SMI with call-and-response and a focus on communication skills through music to

improve the social-emotional health of middle school students (Hawkins & Farrant, 2022). SMI exercises increased their understanding of others (Hawkins & Farrant, 2022).

Willox et al. (2011) analyzed the effects of social music improvisation in an at-risk youth educational center. The goal of this research was to create SMI pedagogy as a way of teaching and learning so that "alternative education programs can enhance the experiences for their students, and create opportunities to begin to ameliorate some of the personal, social, mental, and emotional issues these youth populations face" (Willox et al., 2011, p. 116). This case study included 10 participants and took place at a Give Yourself Credit educational center, a location that some considered a final attempt to rehabilitate these students who could not continue in regular public school (Willox et al., 2011). Percussion-based workshops occurred, as well as interviews and video documentation of all interactions during the intervention (Willox et al., 2011). This article "approached the pedagogical decisions and workshop space with an understanding of the importance of improvisation as a democratic form of social exchange" (Willox et al., 2011, p. 119).

The results of this case study included improved group cohesion, social connections, and increased trust among participants (Willox et al., 2011). An overall finding within this study included a better awareness that "improvisation as pedagogy, in short, speaks directly to the risks we need to take in music, education, and in life to create opportunities for change" (Willox et al., 2011, p. 128). As active participants in SMI, individuals build new relationships, increase their listening engagement, and "begin, in effect, to hear and play the world anew" (Willox et al., 2011, p. 128).

A synthesis of this body of research shows that social music improvisation as a teaching and learning style benefits students while providing a positive learning environment and

increasing trust, communication, and connectedness for students through the application of SMI within small groups (Albornoz, 2011; Clements-Cortes & Yu, 2021; Hawkins & Farrant, 2022; Krueger et al., 2019). Through increased communication skills, it is assumed that perceived levels of trust and connectedness among students will also increase, thus reiterating SMI's powerful presence in the classroom (Albornoz, 2011; Clements-Cortes & Yu, 2021; Hawkins & Farrant, 2022; Krueger et al., 2019). The following section will present the theoretical frameworks that support this mixed methods action research intervention study.

Educational Theories

Theoretical foundations, existing organizations, and instructional practices vital to this intervention study are Music for People (MfP), Scott Edgar and The Center for Arts Education and Social-Emotional Learning (ArtsEdSEL), and Social-Emotional Learning Theory. These entities shaped the purpose of the proposed study, the mechanics of delivering the intervention, and the pairing of music and SEL in the music classroom. The study immersed itself in these theories as it built its foundation on the researched integrations of social music improvisation with SEL to influence perceived feelings of belonging and connectedness for virtual middle school students.

Music for People

Founded in 1986 by David Darling and Bonnie Insull, Music for People embodies an approach to SMI activities combined with SEL (Music for People [MfP], 2019a). Darling and Insull brought their vision for this organization together by creating positive learning experiences, networking among other leaders in SMI, and organizing group efforts toward the positive influence of SMI (MfP, 2019a). Since the founding of MfP (MfP, 2019c), educators such as Mary Knysh and Julie Weber have continued to contribute to the success of this

organization. Music therapists and psychologists, including Eric Miller, James Oshinsky, and Lynn Miller, increased the focus on SMI as a way for participants to experience personal healing, both emotionally and socially (MfP, 2019a). Green and Campbell (2009) applied Darling's theories and philosophies to current musical works by exploring creativity and inspiration based on interactions with Darling and the foundational applications for SMI within MfP (Green & Campbell, 2009).

David Darling believed that making music should exude a positive, holistic, and humanistic approach that embodies a philosophy of love, empowerment, and acceptance (Darling, n.d.; MfP, 2019d). Social music improvisation should be made accessible to all people regardless of musical ability (Darling & Weber, 2007). People are capable of genius outputs while participating in SMI despite their level of experience (Darling & Weber, 2007). This study embodied the philosophy of SMI held by Darling and MfP and provided the framework for this mixed methods action research intervention.

Oshinsky and Knysh (2023b) continue Darling's mantras by claiming that "when music improvisation is presented in an open and social context, you will find that it impacts students in ways that go beyond their competence to make music" (Oshinsky & Knysh, 2023b, p. iii). People find that "musical expression is a strong carrier for a person's identity, and common rhythms and tonalities are instant ways of experiencing a sense of group belonging" (Oshinsky & Knysh, 2023b, pp. iii-iv). Everyone has an innate creative and musical ability, and SMI naturally connects individuals through increased trust within a positive learning environment (MfP, 2019a).

MfP produced a Bill of Musical Rights for the organization to further reiterate these beliefs. Statements include:

- Human beings need to express themselves daily in a way that invites physical and emotional release.
- Musical self-expression is a joyful and healthy means of communication available to absolutely everyone.
- There are as many different ways to make music as there are people.
- The human voice is the most natural and powerful vehicle for musical self-expression. The differences in our voices add richness and depth to music.
- Sincerely expressed emotion is at the root of meaningful musical expression.
- Your music is more authentically expressed when your body is involved in your musical expression.
- The European tradition of music is only one sound. All other cultures and traditions deserve equal attention.
- Any combination of people and instruments can make music together.
- There are no "unmusical" people, only those with no musical experience.
- Music improvisation is a unique and positive way to build skills for life expression.
- In improvisation, as in life, we must be responsible for the vibrations we send one another. (MfP, 2023b)

These statements form the core of MfP and laid the foundation for social music improvisation intervention that took place in this study.

ArtsEdSEL & Scott Edgar

The study relied on the empirical work of Scott Edgar as he promotes the natural pairing of SEL and music education through the Center for Arts Education & Social-Emotional Learning (ArtsEdSEL). Edgar et al. (2017) believe the music classroom is a natural environment to implement SEL where students can grow socially, emotionally, and musically. The primary goal for all students within ArtsEdSEL is to develop their identity, agency, and belonging (Edgar et al., 2017; The Center of Arts Education and Social-Emotional Learning). ArtsEdSEL aims to promote arts education and SEL through an empirically grounded, culturally responsive foundation that increases curriculum quality for PreK-16 students (ArtsEdSEL, 2021).

The SEL theory is a vital foundation of ArtsEdSEL, which supports this study based on connectedness among peers, students, and school (ArtsEdSEL, 2021). This organization was formed in New Jersey out of a desire to connect SEL and arts subjects intentionally. The result was a driving curriculum that included visual and performing arts standards with SEL competencies from CASEL (ArtsEdSEL, 2021). James Comer, developer of SEL, describes social-emotional learning as the method by which all adolescents and adults gain the understanding, capabilities, and attitudes to form healthy identities, handle emotions, attain individual and group objectives, experience and express compassion for others, form and sustain supportive relationships, and make considerate and responsible choices (CASEL, 2024a).

An SEL curriculum is in effect within many U.S. school districts, including the school district where this study occurred. However, instruction in social music improvisation pedagogy is nearly nonexistent (Oshinsky & Knysh, 2023b; Willox et al., 2011), highlighting the opportunity to integrate social music improvisation in SEL lessons within a positive learning environment. This natural combination can improve student participants' social and emotional

health, increase trust levels for self and others, and potentially influence students' perceived connectedness to others (Oshinsky & Knysh, 2023b).

Social-Emotional Learning Theory

COVID-19 increased feelings of loneliness and isolation for young people (Baltà-Salvador et al., 2021; CASEL, 2024a; Leech et al., 2022; Monahan et al., 2010; Perkins et al., 2021). CASEL (2024a) addresses the pandemic's impacts on students through a social-emotional learning framework. A clear vision and purpose from CASEL states that members of society, now more than ever, must understand the importance of empathy for others, relationship-building, and a clear goal towards strengthening our school communities (CASEL, 2024a, b).

CASEL (2024b) delivers a framework of five SEL competencies (see Appendix H) that include self-awareness, self-management, social awareness, relationship skills, and responsible decision-making (CASEL, 2024a). Instruction within these five areas of SEL cultivates student's abilities to understand themselves, show empathy, strengthen positive relationships, and make appropriate choices (CASEL, 2024a). Trust is a vital part of SEL as it serves as a foundation for positive relationships (CASEL, 2024a). A learning environment without trust ceases all instances of risk-taking and stunts the connectedness growth among a group (Fleischmann et al., 2021). Students who participate in SEL activities at school report increased connectedness to others within their school and improved relationships with teachers (CASEL, 2024b). The three SEL competencies applicable to this study are self-awareness, social awareness, and relationship skills.

SEL and music are a natural pairing that can showcase the most vital points of both subjects while impacting students (Eddy et al., 2020; Fleischmann et al., 2021; Montgomery, 2021; Wu & Lu, 2021). The delivery of SEL through a music lens combines the culture of

education with creativity in the arts (Fleischmann et al., 2021). SEL and music can create a dynamic combination in a quest to improve students' lives by engaging them in social activities, including music improvisation and composing (Fleischmann et al., 2021). Social-emotional learning is taking place in arts classrooms and exhibiting positive results (Eddy et al., 2020; Fleischmann et al., 2021; Wu & Lu, 2021). The strengths of musical training, engagement, and curiosity in building empathetic learners through the application of SEL shine brightest when combining the forces of both SEL and music (Eddy et al., 2020; Fleischmann et al., 2021; Wu & Lu, 2021). Multiple perspectives on how and why the arts and SEL should be part of the American classroom provide the theoretical foundations for this study (Bresler, 2006; Eddy et al., 2020; Greene, 1995, 2000).

Foundations of the Methodology

A mixed methods action research design provided quantitative and qualitative data perspectives in this study. This combination helped to understand better the data gathered and the implications of the results (Björk et al., 2021; Diaz Abrahan et al., 2023; Edmonds & Kennedy, 2017; Neth et al., 2020; Pepe & Farina, 2023). The advantage of a mixed methods design was that the researcher could compare the intervention and control groups' pretest and posttest scores and analyze the results numerically (Privitera & Ahlgrim-Delzell, 2019).

The qualitative phase of this mixed methods action research study provided a more personalized snapshot of the observed behaviors from the teacher-researcher’s field notes regarding attitudes, actions, and frequency of communication during sessions (Plano Clark & Ivankova, 2016; Privitera & Ahlgrim-Delzell, 2019). An observation summary form (Appendix E) adapted from Roulston (2017) allowed the researcher to collect field notes used for thematic analysis. Process coding tracked recurring action-based behaviors observed during the recorded

music improvisation sessions (Lewinski et al., 2019). These behaviors included *playing an instrument*, *singing/speaking*, *smiling/laughing*, and *making eye contact*.

Action Research

The action research design provided an observable, measurable, and powerful approach to scientific research and inquiry for this study (Edmonds & Kennedy, 2017; Privitera & Ahlgrim-Delzell, 2019). This type of research is cyclical and participatory, involving exploration, intervention delivery, data observation, and reflection/revision methods, as this is its premise for acquiring knowledge (Edmonds & Kennedy, 2017). Additionally, action research is a "form of research that enables individuals to reveal functional solutions to problems encountered in the context in which they operate or work" (Edmonds & Kennedy, 2017, p. 2). The teacher-researcher directing this study analyzed the influence of social music improvisation on perceived levels of connectedness among her virtual middle school students.

This action research design was quasi-experimental. Students were not randomly selected but instead placed in groups based on the specific class period in their pre-planned schedule (Plano Clark & Ivankova, 2016; Privitera & Ahlgrim-Delzell, 2019). This study used opportunistic sampling (Privitera & Ahlgrim-Delzell, 2019), as the researcher included a portion of her students in the research.

Social Music Improvisation

Oshinsky (2021) created and published the *Music Doctor Improv Cards and Picture Prompts*, tools to help inspire participants while improvising music. In this study, these tools facilitated an improvisational journey for students by allowing them to structure their social music improvisation activities by choosing cards that denote their specific role for the exercise (Oshinsky, 2021; Appendix F). The structure and freedom offered to students during social

music improvisation make this approach a model of impactful teaching and learning (Beegle, 2010; McKnight & Scruggs, 2008). The improvisation cards present a variety of activities for musicians to interpret while improvising with a small group of students (Oshinsky, 2021). For this study, the researcher selected 12 cards for the SMI sessions appropriate for middle school students (see Appendix F). Small intervention participant groups engaged in social music improvisation as they unmuted and applied their card to the overall improvisation using instruments and voices. Students' self-reports of connectedness to teachers, peers, and school were analyzed using the Hemingway Measure of Adolescent Connectedness (Karcher, 2005). Nine 10-minute music improvisation sessions occurred over three weeks.

The results of this study indicated that social music improvisation activities increased students' self-reported feelings of connectedness to school. This suggests that more research about how connectedness to school can empower students to be productive members of society must occur. Adding SMI activities to an educational curriculum can increase students' perceived levels of connectedness, thus causing academic and social improvement for students (CDC, 2022; Edgar, 2013; Edgar et al., 2017; Oshinsky & Knysh, 2023b). This mixed methods action research design provided the researcher with the methodology that best served the purpose of this study.

Summary

Research for this mixed methods action research study conveys the benefits of combining social music improvisation, social-emotional learning, educational leadership theories, and fundamental methodology. It was with great interest and careful consideration that the seeds of this study were planted. Research shows how social music improvisation can successfully

intertwine with the aspects of SEL to enable students to feel more connected to others, their teachers, and their schools. Through these human connections, students can experience more meaningful life experiences, less depression, and better physical, social, and emotional health. This study seeks to contribute to the literature and increase knowledge for others by providing further empirical evidence of social music improvisation's positive influence on students' perceptions of connectedness, specifically within a virtual middle school classroom. With a better understanding of how social music improvisation and SEL can affect students' well-being, educational leaders can make the necessary curriculum changes to improve students' lives in and out of school buildings. This study's research offers new knowledge and understanding regarding ways SMI can increase students' connections to others while decreasing feelings of isolation.

CHAPTER 3: METHODOLOGY

Introduction: Research Design

This mixed methods action research study incorporated a social music improvisation (SMI) intervention. The study took place in an online virtual environment for middle school students in a southeastern county in the United States. Quantitative data collection included pretest and posttest responses to the Hemingway Measure of Adolescent Connectedness (Karcher, 2005). Results focused on students' self-reports of connectedness to peers, teachers, and school were analyzed using repeated ANOVA tests (Winter, 2018). Additional subscales in the areas of friends and self-in-the-present were included in the full-scale measure, but these categories did not receive intentional analysis. Specifically, the study used a 2(intervention condition) x 2(time) repeated measures ANOVA with follow-up pairwise t-tests (Winter, 2018). Qualitative data collection included field notes completed during observations of the recorded SMI sessions. Process coding occurred to track trends in action-based behaviors within the intervention group (Lewinski et al., 2019). These included *playing an instrument*, *singing/speaking*, *smiling/laughing*, and *making eye contact*. To streamline and practice the implementation of the music improvisation intervention, the teacher-researcher piloted intervention methods in November 2023 with students who were not part of this study.

Purpose of Study

COVID-19 changed society in many ways, including increased virtual learning (Hoofman & Secord, 2021). More social anxiety, health concerns, and a need for fewer distractions caused this increase (Ding et al., 2023). Today, many students have returned to brick-and-mortar schooling, but a noticeable percentage remains virtual (Lehrer-Small, n.d.). Virtual school enrollment increased by 176% compared to pre-pandemic levels (Lehrer-Small,

n.d.). This mixed methods action research intervention study analyzed the influence of social music improvisation activities on virtual students' behaviors and their perceptions of connectedness to others in a virtual middle school classroom setting.

All students, virtual and otherwise, should have the same opportunities to grow in their social and emotional health. Efforts to increase social-emotional learning in American public schools have increased in the past decade (Kaspar & Massey, 2022; Montgomery, 2021; Raschdorf et al., 2021). Combining social music improvisation and SEL allows students to increase positive experiences musically, socially, and emotionally (Edgar & Morrison, 2020; Oshinsky & Knysh, 2023b). This mixed methods action research analyzed how social music improvisation activities influence virtual students' observable behavior and self-reports regarding their perceptions of connectedness in a virtual middle school classroom.

Research Questions

1. How does social music improvisation influence virtual middle school students' perceptions of their connectedness to others within the group?
2. In what ways does social music improvisation influence virtual middle school students' behaviors associated with connectedness?

The teacher-researcher hypothesized that the intervention group participating in social music improvisation would increase their connectedness to others more than the control group. A significant interaction effect in the repeated measures ANOVA occurred in the *connectedness to school* subscale, displaying how the two groups changed over time differently. Follow-up t-tests were conducted to assess 1) whether the two groups were different at baseline or after intervention and 2) whether or not the two groups changed significantly over time through comparison of the pretest and posttest data.

Methodology

The study employed a mixed methods approach emphasizing a partnership between quantitative and qualitative data in interpreting the results. The Hemingway Measure of Adolescent Connectedness provided a pretest and posttest survey (see Appendix A), and qualitative data included structured teacher observations organized into field notes followed by process coding (Lewinski et al., 2019). Observable behaviors tracked by the teacher-researcher were *playing an instrument*, *singing/speaking*, *laughing/smiling*, and *making eye contact* (see Appendix E).

Action research as the specific design of this study allowed the teacher-researcher to implement the intervention she used to address a current issue in her classroom (Bresler, 2021). According to Bresler's (2021) view of action research, teachers "are not only participants but have a key role in shaping the educational setting" (p. 13). Action research is "based on the close interaction between practice, theory, and change" (Bresler, 2021, p. 10) and is focused on "the improvement of educational practices, understandings, and situations" (p. 10). This type of research traditionally finds itself within the qualitative paradigm but can also be affiliated with the quantitative approach, including both descriptive and experimental methods (Bresler, 2021).

Edmonds and Kennedy (2017) provided a deeper understanding of action research as a "form of research that enables individuals to reveal functional solutions to problems encountered in the context in which they operate or work" (p. 2). Action research relates to an observable, measurable, and powerful approach to scientific research and inquiry (Edmonds & Kennedy, 2017). This premise for acquiring knowledge within action research is cyclical and participatory, encircling exploration, delivering intervention, observing data, and reflecting/revising methods (Edmonds & Kennedy, 2017).

Action research maintains a foundation based on the interactions between practice, theory, and change while improving teaching and learning practices (Bresler, 2021). As an action research design took shape within this study, the teacher-researcher envisioned conducting a study to improve a current issue in her class: virtual students' lack of connections to others. Through the application of action research within her school, a teacher can "become open to more ideas" (Messikh, 2020, p. 485), "enhance their critical thinking skills" (p. 485), and "reduce the existing gap between research and practice" (p. 485). Messikh (2020) provided foundational knowledge regarding creating and implementing action research developed by Kurt Lewin in 1946. Messikh (2020) promoted action research and supported Lewin's belief "that doing research and taking action should be a simultaneous process which should not disconnect the investigation from the required work to solve the problem in real-life situations" (Messikh, 2020, p. 483). Action research advances and emboldens teachers' careers, enabling them to make changes expeditiously (Messikh, 2020).

In this mixed methods action research study, the researcher analyzed how students participated in SMI and studied the influence of this intervention on their feelings of connectedness to others. Mixed methods design was a natural and supportive approach to action research (Anguera et al., 2020; Ivankova, 2015). Applying this dual-lens approach to data acquisition integrates qualitative and quantitative frameworks that deepen the meaning of findings and their intersections (Anguera et al., 2020; Ivankova, 2015). Both follow systematic inquiry practices as design and implementation take place with a common aim of providing comprehensive answers (Anguera et al., 2020; Ivankova, 2015).

Action and mixed methods research exude a pragmatic philosophical foundation and reject the quantitative/qualitative incompatibility thesis (Anguera et al., 2020; Ivankova, 2015).

Additionally, both approaches incorporate exploratory, explanatory, and confirmatory phases during research collection while maintaining a constant reflective practice that progresses through the research process only after the previous steps solidify themselves (Anguera et al., 2020; Ivankova, 2015). These two collaborative approaches are cyclical as they seek to find what works in the study (Anguera et al., 2020; Ivankova, 2015). A beneficial feature of mixed methods and action research is their ability to reflect an insider-outsider perspective due to the changing nature of the data collector's role and the teacher-researcher's more participatory role (Anguera et al., 2020; Ivankova, 2015).

Data Sources

This study measured pretest and posttest connectedness levels using the Hemingway Measure of Adolescent Connectedness (Karcher, 2005; see Appendix A). This quantitative survey included 30 statements regarding social connectedness to friends, peers, school, self-in-the-present, and teachers. A Likert scale from 1 (not at all true) to 5 (very true) provided a range of answers (Karcher, 2005). The control group received the pretest and posttest and did not receive the SMI intervention.

An observation form and process coding chart recorded field note data to provide qualitative information (see Appendix E). Adapted from Roulston (2017), this observation form provided a streamlined approach for collecting data, including main themes and interesting findings observed during the social music improvisation session. The process coding chart recorded the type and frequency of participants' actions, including *playing an instrument*, *singing/speaking*, *smiling/laughing*, and *making eye contact*. Process coding was an analytic lens for understanding the action-based observations made during recorded sessions (Lewinski et al.,

2019). This qualitative approach sought to provide others with descriptive actions to measure in future applications of this study.

Setting

The participants for this study attend virtual school in a southeastern school district in the United States. This school district has approximately 76,200 students, 5,070 teachers, and 101 schools and centers (Public Education Partners, 2019). These figures make this district the 44th largest school district in the country (Public Education Partners, 2019). The demographics of this school district reflect a student population that is 51.2% white, 23% Black, 2.5% Asian or Asian/Pacific Islander, 18.3% Hispanic/Latino, 0.4% American Indian or Alaska Native, and 0.2% Native Hawaiian or other Pacific Islander (U.S. News & World Report, 2023; see Figure 3.1). Additionally, 4.5% of the student population represents two or more races (U.S. News & World Report, 2023).

District-Level

Demographics for middle school students across the county where this study took place include approximately 4,300 black students, 3,000 Hispanic students, 9,000 white students, and 1,400 students belonging to other race categories (Greenville County Schools, n.d.). Approximately 17,800 middle school students are in the specified school district (U.S. News & World Report, 2023). The virtual program within this school district serves 197 black students, 90 Hispanic/Latino students, 354 white students, eight Asian students, three American Indian/Alaskan students, three Hawaiian/Pacific Islander students, and 51 students belonging to two or more races combined (Greenville County Schools, n.d.). Total enrollment in the virtual program is approximately 750 K-12 students (U.S. News & World Report, 2023).

In this district, males and females split the gender breakdown at 51% and 49%, respectively (U.S. News & World Report, 2023; see Figure 3.2). Among this district's population, 40.1% of students qualify for free or reduced meals, and approximately 16.4% of the student population identifies as a Multi-Language Learner (U.S. News & World Report, 2023). A Multi-Language Learner represented approximately 3% of the study's participant group. This school district spends roughly $9,650 per pupil yearly on education costs, and approximately 72% is spent on instructional and support materials (Public Education Partners, 2019).

Regarding the virtual school in this district, 55% of the student population is female, and 42% is male (Greenville County Schools, n.d.). Students of undocumented genders represent 3% of the student population (U.S. News & World Report, 2023). Approximately 64% of the student population in the virtual school (K-12) qualifies for free or reduced lunch (U.S. News & World Report, 2023; see Figure 3.3).

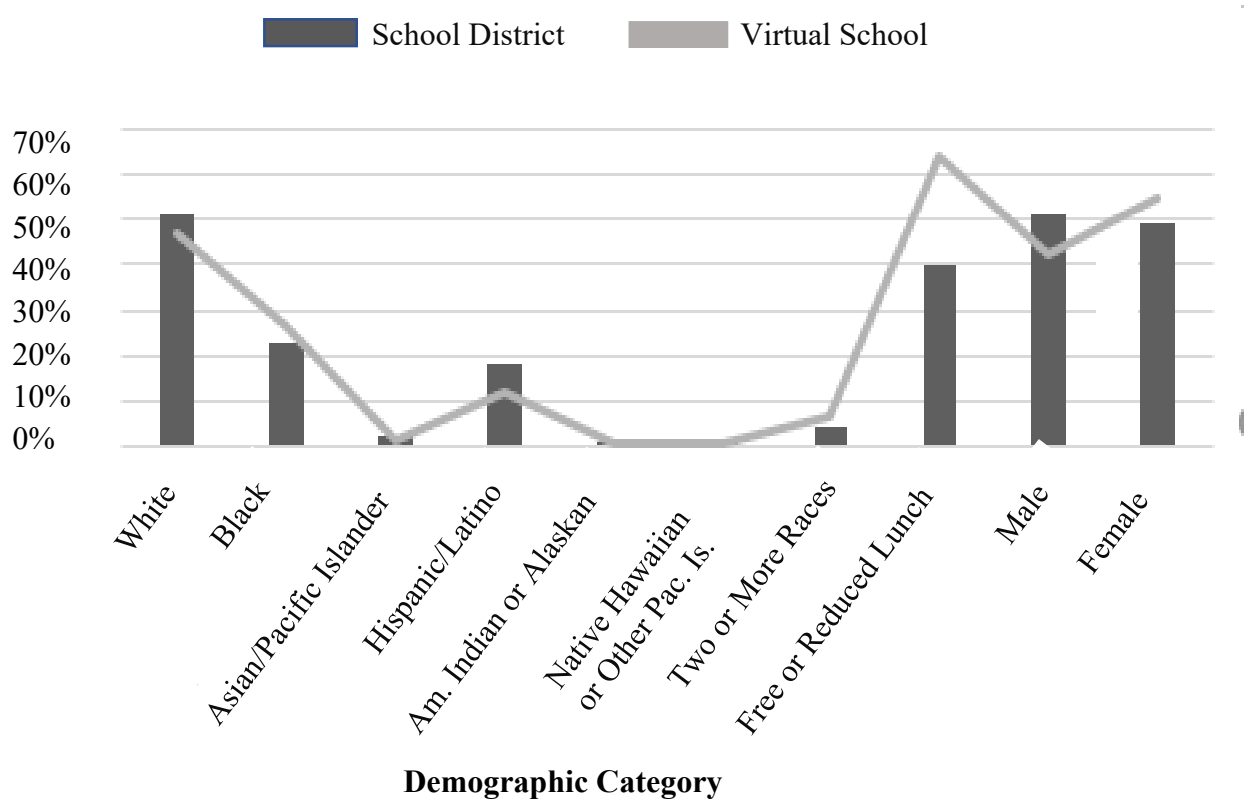
The graduation rate for this school district was 84.8% in 2023, an increase from 2022 and 12.4 points over the last ten years (U.S. News & World Report, 2023). The statewide graduation rate is 81% (Public Education Partners, 2019). Teacher turnover within this school district is approximately 10.3% and ranks as the 23rd lowest out of 82 school districts within the state (Public Education Partners, 2019). Approximately 94% of all teachers in this district have at least three years of teaching experience (U.S. News & World Report, 2023).

Throughout the state where this mixed methods action research study occurred, 8.4% of teachers have less than three years of experience, 30.5% of teachers have three to nine years of experience, 32.3% of teachers have 10 to 20 years of experience, and 28.9% have over 20 years of experience (National Center for Education Statistics [NCES], n.d.). The statewide education levels of teachers show that 28.8% hold their Bachelor's degree, 57.9% hold their Master's

degree, and 10.3% hold their doctoral degrees or educational specialist credentials (NCES, n.d.). The teacher-researcher for this action research intervention study has taught in full- and part-time capacities for 19 years and holds a Master's in Music Education (M.M.Ed.). The population estimate for this school district's county as of July 1, 2022, was 547,950 (U.S. Census Bureau Quickfacts, 2019). The median household income in 2021 was approximately $65,513, and 10.9% of this population lives in poverty (U.S. Census Bureau Quickfacts, 2019).

Figure 3.1

Participant Demographics for Virtual School vs. School District



Secondary Information

The special services provided to students within this school district include online learning with Chromebook training, special education services including I.E.P.s, 504 plans,

speech therapy, and abundant course offerings (Greenville County Schools, n.d.). Professional development frequently occurs in all subject areas, and teachers receive monthly technology training (Greenville County Schools, n.d.). Professional Learning Communities (PLCs) for subject areas and annual safety training are also part of this district's requirements (Greenville County Schools, n.d.). Additionally, first-year teachers working in the district are formally evaluated over three years and remain on probation (Greenville County Schools, n.d.). The initial certificate changes to a professional certificate when the teacher shows evidence of meeting the state's teaching standards through classroom observations, portfolios, student achievement, and examinations (Public Education Partners, 2019).

The types of technology available to students and teachers within this school district include Google Suite, 1-to-1 Chromebook access, Dell ThinkPads for teachers, multiple online apps, and an online grade book. (Greenville County Schools, n.d.). Virtual teachers received training for and are currently piloting the learning management system Canvas. Parent involvement for virtual students is typically high as these students attend live meets from home, most often in the company of at least one adult. Parent receptivity and responsiveness to communication efforts to and from teachers is 90% (Greenville County Schools, n.d.). Barriers to success in the execution of this study included the distribution of potential manipulatives needed for learning and the continuity of student attendance. No academic policies interfered with this study.

Participants

This study was conducted in virtual middle school music classes through the Meet feature in Google Classroom. During Google Meets, students keep cameras on and microphones muted

until it is appropriate to speak. This ensures that audio feedback does not interfere with the sound during the live meeting. Students use the chat feature to share ideas, comment, or ask questions.

Setting

This study involved 37 participants and included the virtual students enrolled in the teacher-researcher's spring '24 music classes (see Table 3.1). Many grade participants in this study joined the district's virtual public school platform at its inception in August 2020. A total of 17 students received the social music improvisation intervention, while 20 students remained in the control group and did not receive the intervention. All students received identical music lessons, albeit with the inclusion or exclusion of music improvisation (see Appendix G).

Table 3.1

Participants in Class Periods 1-6

Class Period	Number of Participants	SMI Intervention (I) or Control (C)
1st	6	C
2nd	9	C
3rd	8	I
4th	4	I
5th	5	C
6th	5	I

The Social Music Improvisation Intervention in Action

First, students engaged in two practice sessions that introduced the social music improvisation prompt cards and how to interpret them. For example, for the prompt card that

asked the participant to *add spontaneous lyrics or spoken words*, students practiced ways to apply this task in their own way. The introductory sessions made participants more comfortable interpreting and presenting their cards during the SMI intervention sessions. Students kept instruments nearby when improvising with the group during the study. These instruments ranged from pencils and body percussion to violins and guitars. The study began after students completed the teaching sessions and appeared comfortable using the twelve cards during SMI (see Appendix F).

Students participating in the music improvisation intervention joined separate Google Meets during class so that the teacher could record the session using the recording feature embedded in Google Meet software. The improvisation groups included a smaller group of four to five students to help foster a safe environment among teachers and classmates (Fleischmann et al., 2021). Social music improvisation within a group setting can be intimidating, so a positive learning space conducive to creativity is vital (Edmund & Keller, 2019).

The teacher-researcher supplied pre-recorded videos for each session using Google Slides and Loom, an educational recording application. Videos included rhythmic backing tracks downloaded from Soundtrap (music technology and composition application) and step-by-step instructions spoken aloud and presented on the screen for students to follow. The specific card each student was to perform was displayed on a slide within the slide deck and explained before the social music improvisation experience started. Students numbered one to five and were asked to follow the directions on the slide that stated whose turn to unmute while improvising. Remaining on mute until cued, the small group improvised and performed their card using the rhythmic backing track that provided cohesive support. There were 27 intervention sessions over

three weeks; each intervention class received nine sessions. The sixth-grade class included two improvisation groups due to eight class members participating in the study.

Sampling of Participants

The opportunistic sampling method allowed the researcher to take "advantage of the knowledge gained from conducting a study" (Privitera & Ahlgrim-Delzell, 2019, p. 283). Like convenience sampling, opportunistic sampling provided the researcher with readily available participants (Privitera & Ahlgrim-Delzell, 2019). This type of sampling in action research provides an immediate cause, effect, and possible solution to teacher-researchers working in the field to find answers that will improve learning and teaching within their classrooms (Privitera & Ahlgrim-Delzell, 2019). The teacher-researcher in this action research study was a participant-observer and applied the SMI intervention to students assigned to her music classes for the Spring '24 semester.

Advantages and Disadvantages of Opportunistic Sampling

The advantages of using opportunistic sampling in this study included the ease of availability of participants for the action research, the physical presence of the researcher throughout the study, and the real-time experiences that directly influenced participants (Privitera & Ahlgrim-Delzell, 2019). Additionally, exploratory studies like this one fit well with the opportunistic sampling technique (Privitera & Ahlgrim-Delzell, 2019). The teacher-researcher was also able to continue teaching the music standards to her students during the study since learning about the elements of music improvisation is a required academic standard in the state where this study took place.

Though useful in some studies, applying opportunistic sampling has some disadvantages. This type of sampling is predominately used in qualitative research (Privitera & Ahlgrim-

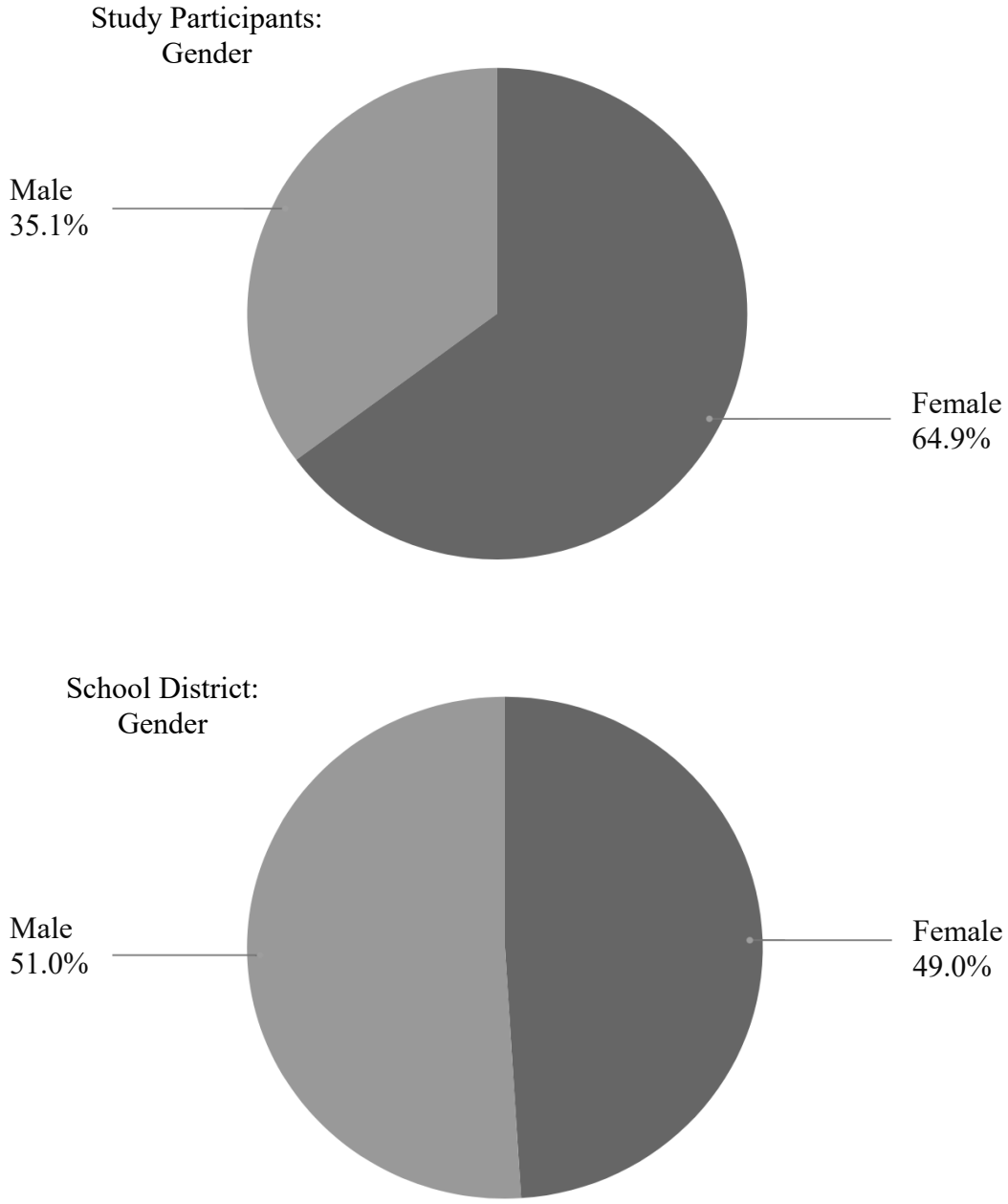
Delzell, 2019), but this current study applied a mixed methods methodology that also emphasized quantitative data. Some critics of this sampling approach interpret opportunistic sampling as using the *low-hanging fruit* that is easiest to obtain for research purposes (Privitera & Ahlgrim-Delzell, 2019). However, opportunistic sampling for this study allowed the teacher-researcher to apply an immediate intervention for students regarding issues of connectedness in her classroom. This type of sampling also provided participants who knew and trusted the teacher, an essential aspect of a positive learning environment (Fleischmann et al., 2021).

Demographics of Participants in the Study

The participants in this study represented a relatively equal demographic and ethnic representation within the virtual middle school compared to the school district (see Figure 3.1). A gender comparison within the participant group slightly differed from the school district's gender comparison (see Figure 3.2). The breakdown of the researcher's six classes in this study shows the grade levels and the number of students in each class period (see Table 3.1).

Figure 3.2

Gender Comparison: Participant Group Versus School District

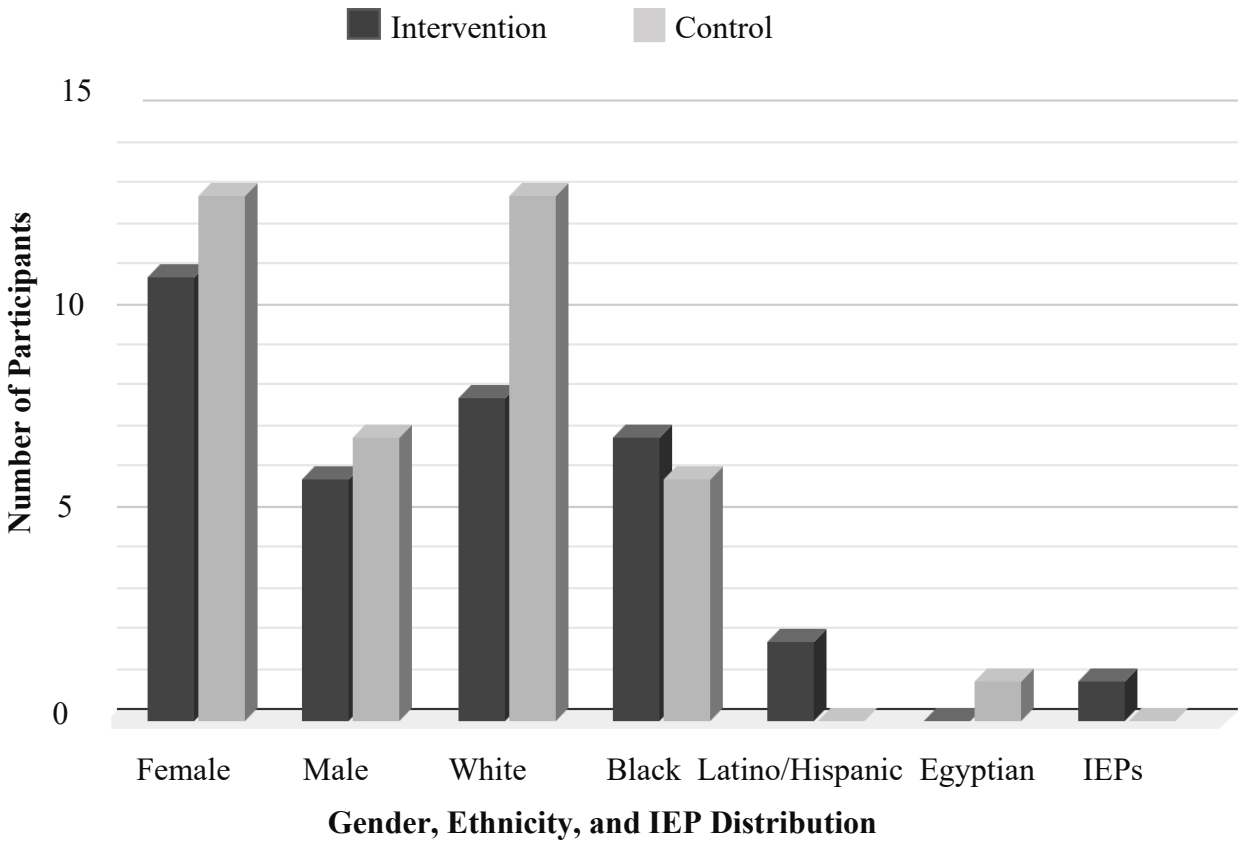


Gender distribution, ethnicity, and special education services within the intervention and control groups are comparable (see Figure 3.3). Specifically, the intervention group represented

11 females and six males. Eight white, seven Black, and two Latino/Hispanic students were in the intervention group, and only one had an Individualized Educational Plan (IEP). The control group had 13 females and seven males. There were 13 white students, six Black students, and one Egyptian student. No students in the control group had an IEP.

Figure 3.3

Gender, Ethnicity, and IEP Distribution Among Participants



The ages of participants in the study ranged from 11 to 14 and were equally represented among the intervention and control groups, with each group containing a 6th, 7th, and 8th-grade class (see Table 3.1). The specific criteria that all participants must represent included being a virtual middle school student enrolled in the teacher-researcher's music classes for the 2023-2024 school year. Due to the use of opportunistic sampling within action research, the participants in this study were students enrolled in the researcher's virtual classroom.

Procedure

This study received approval from the school district and IRB before commencing in January 2024. Informed consent was collected from parents before this research, and this was done through a letter and email attachment to all parents (see Appendix B). The informed consent form was a Google form; parents could sign and submit it online. A letter of assent (see Appendix C) from participants accompanied the informed consent as it detailed the study and gave participants a choice to accept or decline participation.

Data Collection

Following approval, phase one of data collection included all participants completing the Hemingway Measure of Adolescent Connectedness (Karcher, 2005). The researcher generated all questions in a Google form, and students completed the survey using their Chromebooks issued by the school district. The survey collected responses, grade level, gender, and class period. The next step was to organize this survey data by the Likert levels reported for each of the 30 survey questions. This pretest information remained in Google Sheets and was compared to posttest survey results at the end of the intervention. The posttest survey was identical to the pretest survey and was administered through a Google form.

The second data collection and analysis phase occurred after each recorded improvisation session using a structured observation form to collect field notes (see Appendix E). Additionally, a process coding form was completed for each participant after every SMI session to tabulate specific actions during the intervention sessions, including *playing an instrument*, *singing*, *smiling/laughing*, and *making eye contact*. This helped create a thematic analysis for the entire nine-session music improvisation intervention. Recorded intervention sessions took place during class time and lasted approximately 10 minutes. The researcher recorded notes about the main themes, issues observed, and questions concerning the participants and activities noticed. These themes, along with the quantitative data results, provided both a statistical and personal analysis of the results of this study.

Storage Plan

Data management adhered to strict guidelines to protect the anonymity of all participants. Protocols followed included laptop password protection, Google Suite password protection, and protection of any printed information the researcher held during this study. Data collection occurred from January 2024 until February 2024 (see Table 3.2).

Table 3.2

Survey, Data Collection, and Deletion Dates

	January 2024	February 2024	June 2026
Action	Pretest survey data collected from participants; all observation forms, field notes, and process coding from nine sessions	Posttest survey data results collected from participants; a final collection of all observation forms/field notes, and process coding from nine sessions	All data, paper and electronic, destroyed.
Method of Collecting/ Destroying Data	Google Form, the Hemingway Measure of Adolescent Connectedness (Karcher, 2005); Roulston's (2017) Field Note Form for Qualitative Research	Google Form, the Hemingway Measure of Adolescent Connectedness (Karcher, 2005); Roulston's (2017) Field Note Form for Qualitative Research	Permanent deletion from teacher laptop; shredding of all paper data

Only the researcher could access all survey and observational data in a password-protected virtual environment. Paper copies of survey results and observation forms remained in the researcher's sole possession and locked in a file in the researcher's office. Data deletion will occur by June 2026 by permanently deleting data from the teacher's laptop and shredding paper copies (see Table 3.2).

Quantitative Data Analysis Plan

This research project utilized inferential data analysis while analyzing general pretest and posttest results and trends. SPSS software provided a method for entering data and creating

outputs of information. An analysis of the responses to the Hemingway Measure of Adolescent Connectedness (Karcher, 2005) further explored the quantitative research question for this study:

> How does social music improvisation influence virtual middle school students' perceptions of their connectedness to others within the group, their teachers, and their school?

The quantitative test used in addressing the results and findings of the data was the repeated measures ANOVA (analysis of variance) method of statistical information gathering (Winter, 2018). Much of this study fell within the comparison data description as it applied pretest and posttest data for both intervention and control groups (Winter, 2018). Additionally, a repeated measures ANOVA was appropriate for the current study as data collection occurred among two groups (Winter, 2018). The reliability and validity of this quantitative analysis tool are highly regarded within the field of statistics and provide a reliable method for analyzing the research findings (Winter, 2018). An additional quantitative data analysis in some portions of the study included the paired t-test, allowing the researcher to analyze the differences between and within the intervention and control groups.

Qualitative Data Analysis Plan

The qualitative data in this research project included the researcher's field notes of observed intervention sessions and process coding (Lewinski et al., 2019) for specific actions displayed during SMI intervention sessions. Using an adaptation of Roulston's (2017) observation form (see Appendix E), the teacher-researcher utilized identical reflective questions during each observational session. These included observations of central themes and interesting findings witnessed during the music improvisation sessions. The process coding actions recorded included *playing an instrument*, *singing/speaking*, *smiling/laughing*, and *making eye contact*.

This provided a perspective that helped inform the quantitative findings and humanize data gained through the experience of observation (Lewinski et al., 2019). The qualitative research question for this study was:

> In what ways does social music improvisation influence virtual middle school students' behaviors associated with connectedness?

Qualitative and quantitative data sets enabled a more descriptive picture of findings from pretest and posttest scores and actions displayed during social music improvisation.

Limitations and Ethical Considerations

The limitations of this study included the lack of total experimental applications due to the six classes for this study being predetermined by students' scheduling needs, making it quasi-experimental with opportunistic sampling. Additionally, applying the action research method to this study, while helpful for the researcher's specific needs, may have potentially impacted data analysis due to the familiarity of the teacher-researcher and participants. Further, the self-reported surveys in this study may have reflected bias if students were eager to inflate results for the study's benefit. A difference in pretest and posttest scores may have occurred since three of the classes in this study began in January when the study commenced, and the other three classes had been since August. Finally, virtual students learning from home may have already exhibited an increased desire to build connections with others due to less face-to-face time in a classroom.

The study did not confront ethical issues nor impact participants' physical well-being. Data management adhered to strict guidelines to protect the anonymity of all participants. Applied protocols included laptop password protection, Google Suite password protection, and dedicated protection of any printed information held during this study. There were no potential conflicts of interest.

Instrumentation

Demographic data for this study included student grade level, gender, and class period. Participants' gender was not a significant focus at this time in the research but may become a vital data component for future longitudinal studies. The predominant analytical portion of data emerged from the Likert scale findings from the Hemingway Measure of Adolescent Connectedness (Karcher, 2005). Five subscales from the full-scale measure were applied to the study and included 30 Likert-style questions. The applicable sections of the measure included *connectedness to school, connectedness to peers, connectedness to teachers, connectedness to peers,* and *connectedness to self-in-the-present* (see Table 3.3).

Table 3.3

Statements for Subscale

Connectedness to Peers	Connectedness to Teachers	Connectedness to School	Connectedness to Friends	Connectedness to Self-in-the-Present
My classmates often bother me.	I care what my teachers think of me.	I work hard at school.	Spending time with friends is important to me.	I can name five things that others like about me.
I like pretty much all the other kids in my grade.	I do not get along with some of my teachers.	I enjoy being at school.	I have friends I am really close to and trust completely.	There is not much that is unique or special about me.
I like working with my classmates.	I want to be respected by my teachers.	I get bored in school a lot.	Spending time with my friends is a big part of my life.	I can name three things that other kids like about me.
I get along well with the other students in my classes.	I try to get along with my teachers.	I do well in school.	My friends and I talk openly with each other about personal things.	I really like who I am.
I am liked by my classmates.	I always try hard to earn my teacher's trust.	I feel good about myself when I am at school.	I spend as much time as I can with my friends.	I have special hobbies, skills, or talents.
I rarely fight or argue with the other kids at my school.	I usually like my teachers.	Doing well in school is important to me.	My friends and I spend a lot of time talking about things.	I have unique interests or skills that make me interesting.

Note: Extracted from the Hemingway Measure of Adolescent Connectedness (Karcher, 2005)

The researcher collected field notes throughout the research process through observation forms to present qualitative data in the narrative report of findings (see Appendix E). An adaptation of Roulston's (2017) observational form was completed while viewing each recorded intervention session. An observational form used for each session enabled this qualitative data to

emerge more streamlined using process coding, and this method of gathering information complemented the quantitative data at the culmination of data collection. The researcher identified *playing an instrument*, *singing/speaking*, *smiling/laughing*, and *making eye contact* as the most applicable observable actions for the qualitative data collection.

Summary

The research design, methods, and procedures aimed to sculpt a productive study focused on influencing middle school students' social and emotional well-being through connectedness in a virtual education environment. This mixed methods action research intervention study sought to influence the self-reported perceptions of connectedness to peers, teachers, and school for 37 virtual middle school music students. This study's methodological design supported the data collection methods, data analysis, and ethical considerations that upheld the research for this study. The researcher stands by the delivery of results as valid and reliable, rooted in a fertile research foundation that will lead to more discoveries regarding social music improvisation and connectedness to school and others.

CHAPTER 4: STUDY RESULTS

Introduction

As stated in Chapter 1, this mixed methods action research intervention study examined the influence of social music improvisation (SMI) on virtual students' perceived feelings of connectedness. Chapter 4 is organized based on the methodology discussed in Chapter 3. The quantitative measure included a pretest and posttest survey using five subscales of the Hemingway Measure for Adolescent Connectedness (Karcher, 2005). The control and intervention groups (n=37) represented an approximately equal distribution of 6th, 7th, and 8th-grade participants. The qualitative portion of this study included field notes using observation forms to collect data regarding the actions of participants receiving the SMI intervention. In addition, process coding recorded specific actions during SMI sessions, including *playing an instrument*, *singing/speaking*, *smiling/laughing*, and *making eye contact*. The research questions for this study were:

1. How does social music improvisation influence virtual middle school students' perceptions of their connectedness to others?
2. In what ways does social music improvisation influence virtual middle school student behaviors associated with connectedness?

These questions were crucial to understanding how SMI activities influence the presence and level of students' perceived connections to others.

Overview of Quantitative Findings

Quantitative evidence in this study provided a transparent, precise, and tangible report that showed the influence of SMI on feelings of connectedness for virtual middle school students. As

with pretests and posttests in core subject areas, the findings from pretests and posttests in this study are essential in identifying intervention strategies that influence students. The following sections will present a report on ANOVAs on the full-scale score and the subscales. The Hemingway Measure of Adolescent Connectedness provided five subscales: *connectedness to school*, *connectedness to teachers*, *connectedness to peers*, *connectedness to friends*, and *connectedness to self-in-the-present*. Calculations occurred through the use of the SPSS Statistics Grad Pack 29.0. There was no statistical significance in the full-scale measure. However, the *connectedness to school* subscale showed statistically significant findings regarding the influence of SMI on students' feelings of how connected they feel to school. This means that the posttest scores for the intervention group increased markedly more from the pretest scores than did the posttest scores of the control group for this specific subscale. It also means that the control group's pretest and posttest scores for this subscale reflected almost no change from the beginning to the end of this study.

As anticipated, the results for all subscales were analyzed in general. However, a deeper analysis of the statistically significant subscale, *connectedness to school*, required post hoc analysis using paired t-tests. This unexpected need for further study was not in the dissertation proposal. Paired t-tests showed statistical significance within the intervention group's pretest and posttest scores for the *connectedness to school* subscale. This means that the intervention group's average posttest scores increased noticeably from the pretest score for this subscale.

Missing Data

Each Likert statement included an *unclear* possible answer. Of 2,220 responses from 37 participants, 36 (1.62%) were marked *unclear.* These statements were each replaced with an average of the participant's final score within the pretest or posttest where the participant

selected the *unclear* option. A common denominator equalized participant scores within the pretest and posttest data analysis. The control and intervention groups shared similar numbers of *unclear* selections (see Table 4.1).

Table 4.1

Comparison of Total Unclear *Occurrences in Pretests and Posttests*

Group	***Unclear* Responses**		**Percentage of Total Questions**
	Pretest	Posttest	
Control	13	8	1.03%
Intervention	5	8	0.59%

Analysis of Full Hemingway Subscales

The interaction between time of measurement and intervention condition was not statistically significant for subscales combined, F (1, 35) = .597, p = .445 (see Figure 4.1). However, correlations calculated through paired t-tests showed statistical significance for the intervention group regarding pretest and posttest scores (see Table 4.2). This means that, though both groups felt more connected over time, the change was not statistically significant. Other factors, including a positive learning environment and a solid teacher-student rapport, may have contributed to an increase in connectedness within the complete Hemingway measure analysis.

Figure 4.1

Combined Subscales, p=.445

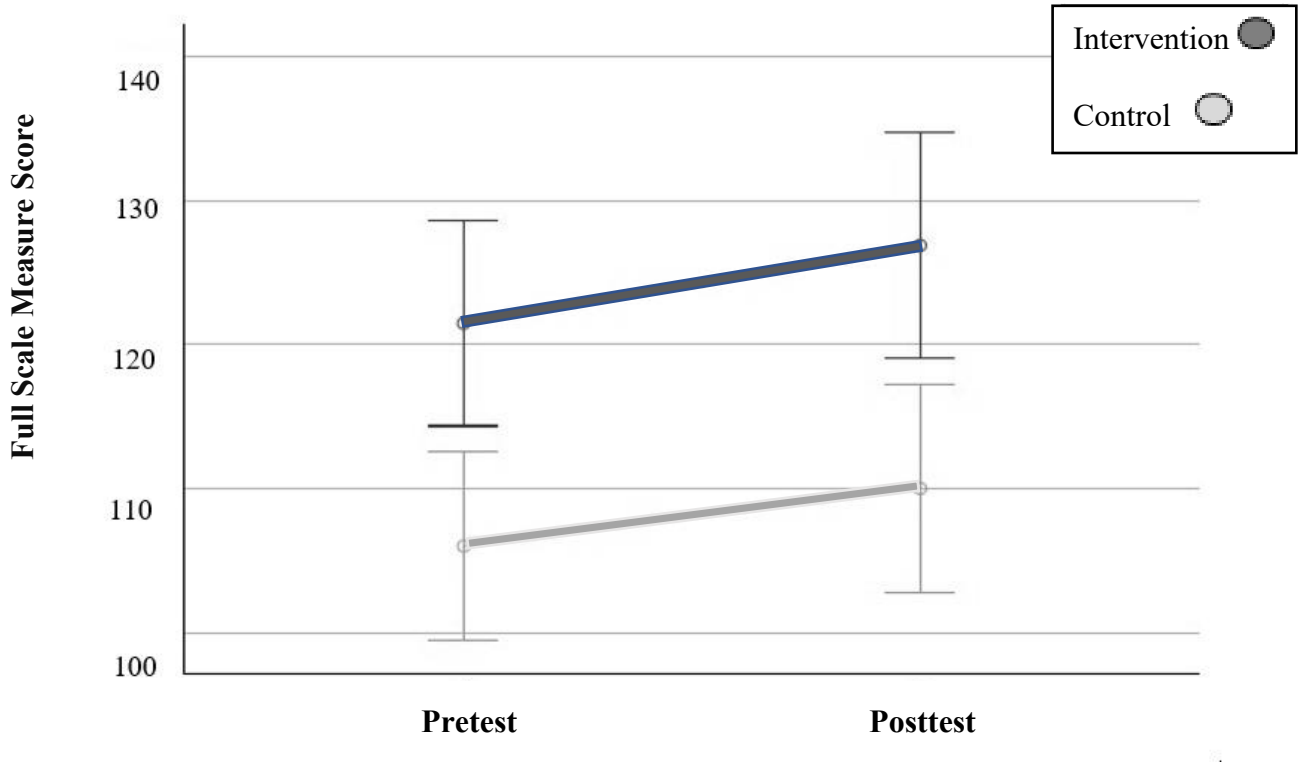


Table 4.2

Paired T-Test Results for Intervention and Control Groups

Group	Paired T-Test, P-Score
Intervention	T-test = .902, p = <.001
Control	T-test = .948, p = <.001

With a maximum score of 130, the average pretest full-scale score for the control group was 106.00, and the average posttest score for the control group was 110.00. The average pretest full-scale score for the intervention group was 121.47, and the average posttest score for the intervention group was 126.88. The control group increased their posttest score by four points,

while the intervention group's average posttest score increased by 5.41 points (see Table 4.3).

There was a significant main effect of time in both groups such that people felt more connected from the first SMI session to the final SMI session (see Figure 4.2). Additionally, there was a significant main effect of group such that participants in both groups felt more connected after the posttest analysis (see Figure 4.2). Thus, levels of connectedness increased for both groups over time, though they did not reflect statistical significance.

Table 4.3

Average Scores for Pretests and Posttests With Point Differentials

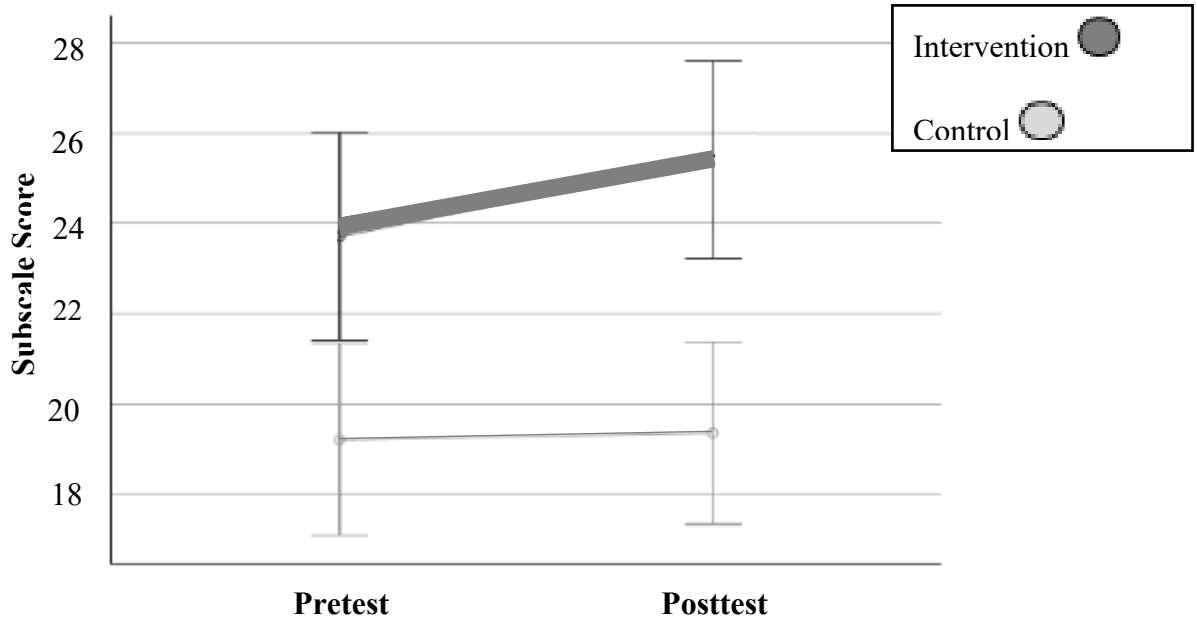
Average Scores	Pretest	Posttest	Point Differential
Control	106.00	110.00	+ 4.00 points
Intervention	121.47	126.88	+ 5.41 points

Analysis of Subscales

A repeated measures ANOVA was applied to each subscale, as it was for the full-scale score analysis with subscales combined. The highest score possible for each subscale was 30. The *connectedness to school* subscale reflected statistical significance ($p = .035$), showing that SMI activities influenced intervention group participants (see Figure 4.2).

Figure 4.2

Estimated Marginal Means of Connectedness to School Subscale, p=.035



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The *connectedness to peers* and *connectedness to teachers* subscales did not show statistical significance. Participants' connectedness levels increased overall within these two scales, suggesting that students experienced a natural increase in feelings of connectedness to peers and teachers. However, the results were not significant when comparing pretest and posttest scores. Though not the main focus of this research, the *connectedness to self-in-the-present* and *connectedness to friends* subscales provided twelve statements in the full-scale measure that closely related to statements regarding connectedness to peers, teachers, and school. There were no statistically significant findings within, between, or interaction effects for these additional subscales.

Results from Subscales

The *connectedness to school* subscale presented statistically significant findings: F (1, 35) = 4.804, $p = .035$ (see Table 4.4). Other subscales reflected p-values that were not significant. This statistically significant result means that students increased their connectedness to school due to the intervention of social music improvisation.

Table 4.4

F(df) and P-Values for Subscales

Connectedness Subscales	***F*(df) and *P*-Value**
School	F(1, 35) = 4.804, $p = .035$
Peers	F(1, 35) = 2.414, $p = .129$
Teachers	F(1, 35) = 0.046, $p = .832$
Friends	F(1, 35) = 0.826, $p = .370$
Self-in-the-Present	F(1, 35) = 2.552, $p = .119$

The average pretest score (out of 30) for all participants within the *connectedness to school* subscale was 21.43, and the average posttest score was 22.14. The intervention group increased their average posttest score to 25.41 from their pretest average score of 24.06. The control group's average posttest score of 19.35 increased from 19.20, yielding a slight increase of 0.15 points (see Table 4.5).

Table 4.5

Pretest and Posttest Averages for Connectedness to School Subscale

Group	Pretest Average	Posttest Average	Point Difference
Both Groups	21.43	22.14	+0.71 points
Intervention	24.06	25.41	+1.35 points
Control	19.20	19.35	+0.15 points

A follow-up paired t-test within the intervention group was statistically significant for the *connectedness to school* subscale ($p = .001$). The paired t-test for the control group within this subscale was not statistically significant ($p = .17$). The subscales that measured *connectedness to peers, connectedness to teachers, connectedness to friends,* and *connectedness to self-in-the-present* were insignificant.

Overview of Qualitative Findings

Qualitative evidence provided meaning to quantitative measures and results. Information regarding how individuals and environmental factors influenced the impact on participants gave a more robust explanation of the intervention's outcomes (Miller, 2010). In this study, qualitative data painted a picture of the progression of participants' behaviors that influenced their feelings of connectedness to others.

This mixed methods action research intervention study used process coding and field notes collected during structured observations as qualitative data. Naturally, the teacher-researcher's existing relationships, knowledge of students, and interactions throughout the intervention shaped the qualitative focus during data collection and analysis. Field notes for each recorded small group SMI session were collected to capture performance themes and behaviors students exhibited during and across sessions. Observational data included specific behaviors and

how often students in the intervention group displayed these behaviors. Foci behaviors included *playing an instrument*, *singing/speaking*, *smiling/laughing*, and *making eye contact*. Behaviors were decided after the teacher-researcher piloted intervention methods in the Fall of ’23 and then chose these four actions based on their prominence during SMI sessions with a different group of students. These actions suited the nature of this virtual intervention study as they encompassed both musical and non-musical behaviors. Results from a process coding analysis of observational data were consistent with quantitative results that showed an increase in intervention participants’ perceived *connectedness to school* subscale. The following sections present qualitative findings using process coding and thematic analysis of observational data. Combined with the quantitative results presented earlier, process coding and thematic analysis offer triangulated evidence of the intervention groups' closeness growth during this action research intervention study.

Process Coding

Due to the observational nature of qualitative data, process coding provided a system to track participants' actions during the nine SMI intervention sessions (see Appendix J). Process coding collects instances of action words ending in *ing*. In this study, actions included *playing an instrument*, *singing/speaking*, *smiling/laughing*, and *making eye contact*. Data for each participant was calculated during the study's three periods: sessions 1-3, 4-6, and 7-9. The average occurrence of each action increased from the first session to the final one (see Table 4.6). The highest possible score for each action during a time period was three.

Table 4.6

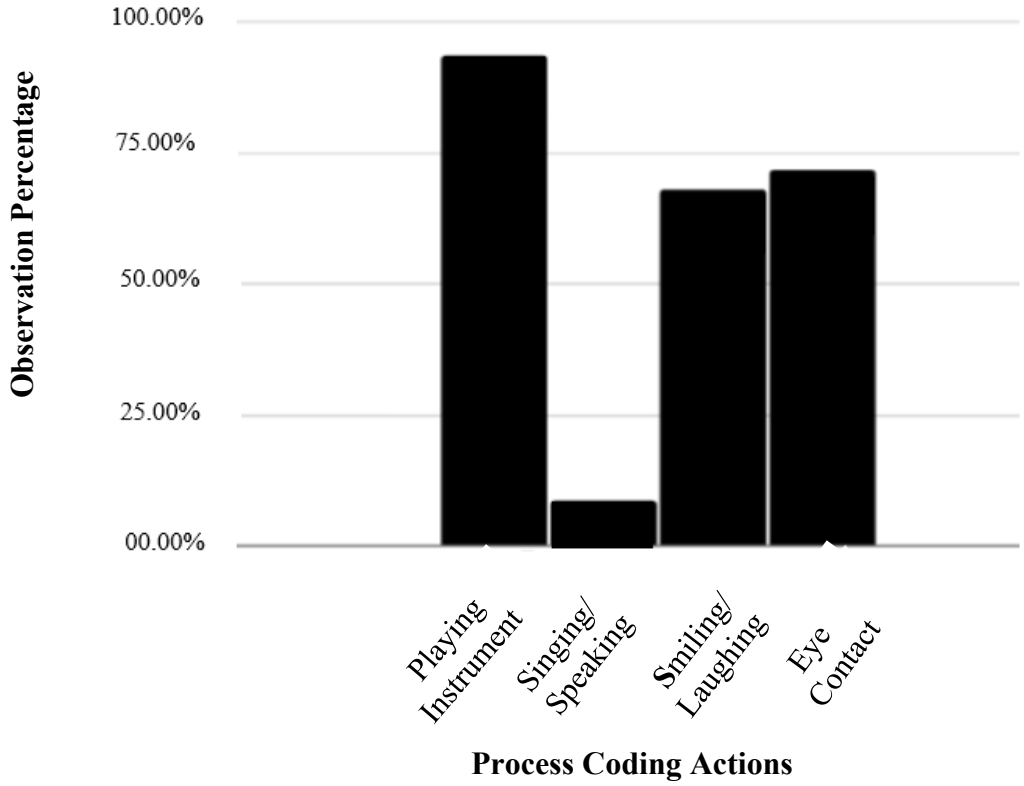
Process Coding: Average Occurrences Per Participant

Process Coding Action	Sessions 1-3	Sessions 4-6	Sessions 7-9	Growth
Playing an Instrument	2.36	2.66	2.66	+ 0.30
Singing/Speaking	0.06	0.38	0.24	+ 0.18
Smiling/Laughing	1.50	1.86	1.97	+ 0.47
Making Eye Contact	1.86	2.03	2.38	+ 0.52

The action that displayed the most significant margin of growth was *making eye contact*. The action that occurred most frequently in all observation periods was *playing an instrument*. This most likely happened because participants chose to improvise with music tools instead of their voices. If participants did not participate in any of these actions, they received a score of zero. No participants received a score of zero. Participants played instruments 94.78%, sang/spoke 9.11%, smiled/laughed 69.89%, and made eye contact 73.89% during the entire intervention (see Figure 4.3).

Figure 4.3

Percentages of Coding Actions for All Intervention Sessions



Field Notes

Loom recordings of all sessions provided observational data used for process coding actions and field notes, which offered insight into specific behaviors exhibited by students that linked to changes in connectedness. Foci behaviors were cataloged and analyzed for growth throughout the nine SMI sessions. All participants displayed at least two actions during the nine SMI sessions. *Playing an instrument* occurred most often, followed by *making eye contact*, *smiling/laughing*, and *singing/speaking*. Actions among participants that did not directly fall under the preselected foci behaviors but were considered integral in increasing connectedness were also recorded and analyzed. Participants' progressive journeys through intervention

sessions supported the quantitative findings of this study, showing a positive correlation between the two data sets (see Table 4.7). A more nuanced qualitative analysis of the 7th and 8th-grade intervention groups (n=9) reveals details regarding the phenomenon of SMI's influence on students' feelings of connectedness.

Table 4.7

Progressive Changes Throughout Intervention Sessions 1-9

Observations	Sessions 1-3	Sessions 4-6	Sessions 7-9
6th Grade	*Eager from the beginning. *Increase in confidence. *Student 6e unmuted in later sessions. *A new backing track for the group was applied.	*Students are given choices regarding cards. *Energy increased, and students were more engaged. *Students began to add vocal improvisations. *They played louder and were more eager to share improvisations.	*Increase in laughter, smiling, and eye contact. *Participants were given more choices as to what card they would use. *Students improvising while muted increased. *Singing increased from earlier sessions. *New instruments and sounds debuted: piano, guitar, violin.
7th Grade	*A group of five showed more energy than in the regular class period. *6c and 6b: Hid faces/turned off camera at first, then showed partial faces. *All participants smiling. *Favorite card: *Bring the drama.*	*Students are allowed to choose a card on the slide. **Play all wrong notes* is becoming popular. *6b and 6e in and out of camera, but still unmuting and playing. *The quietest participant chose to *be the clown* and succeeded.	*6b unmuted more, showed face, smiled, and laughed. *Students unmuted without being asked, but it added to the experience. *Students continued to choose improvisation cards and felt more confident while improvising. *Students continued the final slide improvisation by unmuting and playing even after the backing track finished.
8th Grade	*100% played an instrument from the beginning. *Unmuting on the final slide increased in vigor. *Students are becoming more thoughtful in how they contribute to the session.	*Singing occurred. *Smiling/laughing increased. *All students are playing and beginning to show more of the instruments used.	*Students participating during the entire session. *Students ask for specific improvisation cards. *Smiling and audible laughter were heard. *Maraca subbed for a hairbrush as an instrument. *A quieter student sang his ostinato to the teacher after the session ended. *Webb played as Student 4—added cohesivity for the group.

Playing an Instrument in 7th Grade Group

The first SMI intervention session began with all participants playing percussion instruments (pencils, desks, or clapping). Rhythmic improvisation is often the most observable feature in SMI (Wall, 2018). A 100% participation rate continued throughout all SMI intervention sessions. However, risk-taking increased during sessions three, four, five, and seven as students improvised with the following cards: *bring the drama*, *play all wrong notes*, and *be a clown*. During these sessions, a simple repeated pattern or short bit of rhythm turned into more dramatic performances with increased volume (dynamics). Using easy-to-play instruments gave students a sense of security as they shared their improvisations while unmuting for the small group. Participants always played their instruments even if they chose not to sing, speak, smile, laugh, or make eye contact.

Smiling/Laughing, Making Eye Contact in 7th Grade Group

The *smiling/laughing* and *making eye contact* actions occurred steadily throughout the nine intervention sessions for only three students (n=5). Two students kept their cameras off and their faces hidden for early sessions, but they progressed to smiling/laughing and showing parts of their faces by session nine (see Table 4.8). Overall, these two participants increased camera usage, facial exposure, smiling, and eye contact throughout the study.

Table 4.8

Participant Observations: Smiling/Laughing, Making Eye Contact

Participant Observations				
Session Number	**Student 1**		**Student 2**	
	Smiling/ Laughing	*Making Eye Contact*	*Smiling/ Laughing*	*Making Eye Contact*
1	Camera off	None	Camera off	None
2	Camera on, student hid face	None	Camera on, student hid face	None
3	Smiled on camera	Eye contact	Camera on, student hid face	None
4	Camera on, student hid face	None	Camera on, student hid face	None
5	Camera on, saw part of face	Eye contact	Camera on, student smiled while muted	Eye contact
6	Camera on, student hid mouth	Eye contact	Camera on, student hid mouth	Eye contact
7	Camera off	None	Camera off	None
8	Camera on, showed face, smiled	Eye contact	Camera on, showed eyelids and top of head	Eye contact
9	Camera on, showed face, smiled	Eye contact	Camera on, showed eyes and above	Eye contact

The progression of the SMI intervention sessions showed that Student 1 and Student 2 increased their time on camera and the amount of their face shown. By the final two sessions,

Student 1 showed their whole face and smiled while improvising, while Student 2 showed the top of their head and eyes. The more familiar and comfortable participants felt during these sessions, the more often they displayed a smile and made eye contact. Allowing students time to ease into this new experience of SMI led to increased smiling and eye contact. This qualitative data supported the group's connectedness increase in the quantitative results of the *connectedness to school* subscale.

Connectedness Growth for Multi-Language Learners

The 7th grade intervention group (n=5) included one Multi-Language Learner. This participant displayed similar growth in process coding actions during observations to other intervention participants. Though fully participatory throughout the nine SMI sessions, this student displayed an increase in the smiling/laughing coding action from the first to the final session. This participant also used more types of instruments during the SMI sessions and changed them frequently.

Singing/Speaking in 8th Grade Group

This group (n=4) displayed the most growth in *singing/speaking* during the nine SMI intervention sessions, though most music-making remained rhythmic and instrumental. The inclusion of *singing/speaking* was unanticipated as this was a general music class, not a chorus class. One student in this group (Student 3) refrained from unmuting during regular music class periods but began to speak in session nine of the SMI:

> Student 3: (Repeats the rhythm of a well-known tune during the session using the *work in a familiar melody or a hook from a song* card)
>
> Teacher: (After session concludes) That was amazing! I think I recognized the song you performed by the rhythm you played. I think you were playing (title of song).

Student 3: (Voluntarily offering more information) Yes. It was! (Student proceeds to *sing* the song he was playing the rhythm from.)

Teacher: Yes, that came through so clearly! And now you're singing it!

Using one's voice in SMI requires trust among all group members (Fleischmann et al., 2021). Through increased connectedness felt during the SMI sessions, participants extended themselves by improvising through vocalizations. They trusted the other participants to support the contributions to the group. Growth regarding *singing/speaking* during the nine sessions was minimal compared to the other process coding actions. However, the experience of Student 3 and their willingness to sing at the end of the final session exhibited an example of the most considerable impact from all observational data.

Summary

This mixed-methods action research intervention study examined the influence of social music improvisation on virtual students' perceived feelings and observable actions of connectedness in a learning environment. It used repeated measures ANOVA and paired t-tests for post hoc analysis regarding the *connectedness to school* subscale. Statistically significant findings emerged regarding the influence of social music improvisation on students' perceived feelings about their *connectedness to school* (p=.035). The *connectedness to school* subscale was one of five subscales within the 30 Likert-scale statements within the Hemingway Measure of Adolescent Connectedness chosen for this study (Karcher, 2005). Quantitative and qualitative methods provided results that reflected parallel growth and triangulation between posttest scores, process coding, and thematic analysis of observational data. The final chapter will discuss interpretations, implications, limitations, and recommendations based on the findings of this study.

CHAPTER 5: DISCUSSION

This mixed methods action research study investigated the influence of social music improvisation (SMI) on middle school students' perceived levels of connectedness to others in an educational setting. Virtual middle school students need more authentic connections to their peers, teachers, and school (Baltà-Salvador et al., 2021; CDC, 2022; Clements-Cortes & Yu, 2021). Due to a lack of connectedness among young people, suicide rates and adolescent depression are increasing yearly (CDC, 2022). It is time for educational leaders to implement classroom connectedness-building strategies to foster thriving social climates and healthy student relationships (Clements-Cortes & Yu, 2021). Social-emotional learning through SMI is a strong candidate in this quest. The research questions for this mixed methods action research intervention study were:

1. How does social music improvisation influence virtual middle school students' perceptions of their connectedness to others?
2. In what ways does social music improvisation influence virtual middle school student behaviors associated with connectedness?

To capture a quantitative understanding, the Hemingway Measure of Adolescent Connectedness (Karcher, 2005) provided pretest and posttest data for control and intervention participants regarding SMI's influence on students' feelings of connectedness to peers, teachers, school, self-in-the-present, and friends. Throughout the nine SMI intervention sessions, qualitative observation forms reflecting field notes, as well as process coding charts, tracked the actions of the participants receiving the SMI intervention.

Results

Virtual middle school students reflected a statistically significant result within the *connectedness to school* subscale after exposure to SMI (p=.035). The qualitative data from observation forms and process coding supported the quantitative findings. As the nine virtual sessions progressed, an upward trend of SMI participation occurred. Actions that denoted participation included *playing an instrument*, *singing/speaking*, *smiling/laughing*, and *making eye contact*. Observed elements of the CASEL (2024) framework connected to these actions included self-awareness, social awareness, and relationship skills. These findings were consistent with previous research on SMI as a method to improve connectedness in face-to-face settings (Campbell & Klotz, 2021; Cross et al., 2012; Music for People, 2019a; Oshinsky & Knysh, 2023b; Rawlings, 2017). Adding to this body of literature, the research found support for the use of SMI as a catalyst for connection within virtual classrooms as well.

Interpretations

This study suggests that social music improvisation has a causal relationship toward an increase in students' perceived feelings of connectedness to their school. However, the statistically significant results accumulated through the analysis of scores for both control and intervention groups suggest a correlation between participation in SMI and students feeling more connected to their school. Existing research regarding school connectedness and SMI supports this study's findings.

Feeling connected and cultivating a sense of belonging within a group occurs through SMI (Campbell & Klotz, 2021; Cross et al., 2012; Oshinsky, 2021; Oshinsky & Knysh, 2023b; Rawlings, 2017). This study showed that students felt more connected to their school after the SMI intervention. As active participants in SMI, individuals build new relationships, increase

their listening engagement, and "begin, in effect, to hear and play the world anew" (Willox et al., 2011, p. 128). It seems that virtual students who do not experience connectedness-building strategies in the classroom may lack the necessary connections to school and others that are vital to a child's overall success in school and life (CDC, 2022), but the inclusion of SMI within a virtual middle school classroom can increase feelings of belonging and connectedness to peers, teachers, and school (Albornoz, 2011; Clements-Cortes & Yu, 2021; Hawkins & Farrant, 2022; Krueger et al., 2019). An improvement in mood through the creation of a new identity together can occur with SMI applications (MacDonald et al., 2021). This study suggests that providing SMI activities for virtual students increases their perceived connectedness to others. This interpretation of the data reflects a positive and progressive status.

In this study's qualitative findings, the increase in process coding actions throughout the nine SMI sessions complements the quantitative analysis. Higher motivation to succeed occurs when students feel more connected to their school (Goodenow & Grady, 1993). In this study, participants exhibited behaviors that showed their desire to be successful during SMI through an increase in process coding actions, including *playing an instrument*, *singing/speaking*, *smiling/laughing*, and *making eye contact*.

Multi-language learners (MLLs) can exhibit the same connectedness growth margins as their native English-speaking classmates (Case, 2021). The MLL in this study displayed similar growth patterns in feelings of connectedness and increased occurrences of *smiling/laughing* from session one to session nine. Additionally, this participant used a variety of instruments throughout the SMI intervention sessions.

Positivity in the learning environment creates a fertile ground for new ideas, creativity, collaboration, participation, freedom of expression, and acceptance of the individual (Oshinsky

& Knysh, 2023b; Peters, 2012; Rost, 1993; The Center for Arts Education and Social Emotional Learning [ArtsEdSEL], 2021). The learning environment for this study showcased a high level of positivity and acceptance for all participants and their SMI contributions. Positivity was shown through the teacher-researcher's communication throughout the SMI interventions. This warm and uplifting environment seems to have increased student connectedness by promoting self-expression, teamwork, freedom of choice, and inclusion of all group members. Process coding showed that participants' observable actions, including *playing an instrument*, *singing/speaking*, *smiling/laughing*, and *making eye contact* increased as the intervention progressed. This data suggests a growth in connectedness.

The results of this study also suggest that increasing the application of SMI within the classroom forms a foundational layer of trust on which students and teachers can build connections to others and their schools (Fleischmann et al., 2021). The social-emotional learning curriculum promotes the building of trust so that students can express themselves safely and with confidence (CASEL, 2024a). This study's SMI activities allowed participants to enter a group conversation using music instead of words. This helped create an environment based on trust. Each participant experienced approval and appreciation for their contribution to the overall SMI performance, strengthening feelings of mutual trust among the group. Results from this study suggest that an SMI intervention intertwines organically with the facets of SEL and can serve as a change agent to enable students to know themselves more academically, socially, and emotionally (Edgar & Morrison, 2020; Edgar et al., 2017; Oshinsky & Knysh, 2023b). Students' social-emotional learning environments can profoundly affect their school connectedness levels (Raniti et al., 2022), and the results of this study suggest that the social-emotional learning

environment with trust as a foundation contributed to the increase in participants' feelings of connectedness through SMI.

Students in music ensembles report higher levels of perceived school connectedness (Rawlings, 2017). Integrating SMI into this study's music ensembles increased school connectedness and seems to have the potential to improve school connectedness in non-music classrooms. Students and teachers can participate in SMI as an additional and alternative option for communicating with others (Ahonen & Houde, 2009). Students who are shy or anxious about speaking in front of their peers may benefit from SMI as it provides a method of communication that does not require talking (Ahonen & Houde, 2009). In this study, Student 1 and Student 2 increased their frequency of smiling and making eye contact as their connections with the small group grew, making them more comfortable unmuting and sharing their music. Students in virtual programs who suffer from social anxiety may have the ability to feel more comfortable contributing to their classes through non-verbal communication using SMI. Students with anxiety may find contributing to a social music improvisation session more conducive to their learning needs and less intimidating (Rushton et al., 2023). In this study, Student 1 and Student 2 displayed more connectedness-building actions as sessions progressed, increasing their overall perceived connectedness.

Laughter is another form of communication and emotional transfer that builds community during SMI sessions (Diaz Abrahan et al., 2023). The qualitative results of this study suggest that the observable increase in smiling and laughter during SMI sessions positively connects to the quantitative results from the *connectedness to school* subscale. Smith and McKnight (2009) stated that laughter and fun "can enhance classroom community, making possible an atmosphere in which creative risk-taking is the norm rather than the exception" (p.

14). Risk-taking in this study occurred more often as the nine SMI sessions progressed. Risks observed included increasing camera use, singing and speaking, and the volume of performances. The music improvisation cards (Oshinsky, 2021) gently transported participants out of their comfort zones and increased observable actions. An emphasis on fun while learning within the classroom makes students feel safer and included as the barriers within a social group dissolve (Smith & McKnight, 2009).

Theoretical Implications

Significant findings (p=.035) show that social music improvisation activities strengthen school connectedness. These results support entities already working on this topic, including Music for People (MfP), ArtsEdSEL, and CASEL. As these groups continue to influence learning and society through artistic and emotional experiences, this study's results further ground their efforts.

Music for People

The results of this study promote MfP and exhibit how SMI is a vehicle for increased connectedness for students. These results support the teacher-researcher's personal experience during an MfP workshop in the Summer of '23. She experienced increased connectedness to the MfP entity as it represented a school-like organization. The statistical significance (p=.035) regarding participants' *connectedness to school* subscale results further validates the impact MfP is making.

This organization is based on SMI as a method to connect with others, communicate through music, and express oneself without fear of failure. One of the mantras of this organization is: There are no wrong notes (Music for People, 2019a). Participants can decrease their fears of making mistakes and focus more on communicating through music and connecting

with others. In this study, an analysis of qualitative data showed an increase in participant expression. Some participants included *singing/speaking* in later intervention sessions, increased volume, and requested certain cards they felt more comfortable with. This familiarity felt by participants grew during the SMI sessions and resulted in a more robust presence of meaningful participation.

Oshinsky's (2021) social music improvisation tools, the *Music Doctor Improv Cards and Picture Prompts*, provided a non-binding structure within the SMI intervention sessions. Structure with freedom and choice during SMI elevates learning and teaching experiences to higher levels of understanding (Beegle, 2010; McKnight & Scruggs, 2008). In this study, participants were given clear, structured suggestions to help guide their SMI choices and, at times, opportunities to choose an improvisation card for a session. The results of this study imply that teachers can apply these cards to their classrooms and anticipate that students will increase their connectedness to school through SMI. A statement in the MfP's Musical Bill of Rights, developed by David Darling, says that SMI contributes to life-expression skills fostered in a positive way (Music for People, 2019b). Life skills improve through effective SEL, and this study suggests that SMI is an effective tool that increases the life skill of connecting with others. A partnership between school districts and MfP may create an opportunity for this organization to develop a presence within the classroom, providing connection-building activities and other soft skills for future leaders of our country.

ArtsEdSEL

ArtsEdSEL combines the power of the arts with social-emotional learning to increase the five tenets of SEL: self-awareness, self-management, social awareness, relationship skills, and responsible decision-making (ArtsEdSEL, 2021; CASEL, 2024). The results of this study further

ground the researched beliefs that the arts, specifically SMI, positively influence students' reception of SEL components. SEL delivery through SMI is a fruitful pairing that can increase student connectedness. The validation of arts integration increases with the findings of this research that show growth in the *connectedness to school* subscale. The combination of SMI and SEL connects to the core of what ArtsEdSEL strives to achieve in the classroom.

The findings from this mixed methods action research study imply that SMI is a successful conduit for SEL, increasing the impact on students' feelings of connectedness. Adding SMI to the ArtsEdSEL curriculum may increase the pathways available to reach students through the arts. The findings of this study show that SMI strengthens students' connectedness to school, a primary goal of ArtsEdSEL.

CASEL

The Collaborative for Academic, Social, and Emotional Learning (CASEL) has helped SEL programs in schools for more than two decades. The findings from this study provide new avenues for SEL lesson delivery through the arts, potentially reaching students in different, more impactful ways. The results of this study suggest that, through SMI interventions, students reluctant to communicate during class can find a less intimidating way to connect with their classmates. In global terms, SMI can potentially remove language barriers (Oesch, 2019), priming this type of SEL delivery to occur worldwide. Participants in this study communicated through music, facial expressions, and eye contact. Multi-language learners (MLLs) exhibited similar connectedness growth as their native English-speaking classmates. Case (2021) found that MLLs, while requiring rigorous English language lessons as a top priority, should be seen as individuals in need of social and emotional development. This study provided a non-speaking activity with the same goal: increased connectedness to others. Developing a CASEL-sponsored

music-based curriculum transferable to all educational environments regardless of the language spoken or delivery mode would be beneficial.

The results of this study show that school connectedness increases with social music improvisation, aligning with the frameworks of MfP, ArtsEdSEL, and CASEL. These organizations do, or have the capability to, directly affect students through SEL and music. This study's research promotes the foundations of these groups and provides a step toward impacting students by implementing SEL tenets through SMI.

Explanation of Unanticipated Findings

From the beginning of the study, the control participants reflected a lower perception of overall connectedness to teachers, peers, school, friends, and self. The ANOVA adjusted for this when determining statistical significance, illuminating why the control participants' pretest and posttest scores were lower than the intervention participants', which would benefit future studies. This unanticipated finding impacted results more due to the sample size for this study.

Limitations

There are limitations and issues to revise before repeating this study. First, the sample size was smaller than expected. A larger participant group is necessary to ground the results further. More data from more participants would reflect more reliable foundational averages and trends. In future applications of this study, an entire grade level could participate in SMI sessions to provide a more representational group for analysis.

The pretest and posttest design fits the current research methodology well, but increasing questions regarding school connectedness would collect more expansive and descriptive data. Also, this study was the first to use the Hemingway Measure of Adolescent Connectedness in a virtual setting. No prior research was available to apply within the study regarding this survey

administered in a virtual classroom. Too many subscales in this study may have weakened the focus of the purpose statement that only identified connectedness to peers, teachers, and schools. Survey questions should focus more directly on specific areas of connectedness included in the study. Additionally, self-reported surveys could pose an issue of validity due to their subjective nature.

Opportunistic sampling may have limited the study's findings as all students were selected from a small virtual student population within a southeastern school district. The study's population also pulled from both yearlong and semester classes. This potentially influenced levels of connectedness as some classes had just begun while others had been in progress since the beginning of the school year.

The SMI lessons were enjoyable overall, potentially causing participants to feel more connected to the school early in the study. Additionally, the teacher-researcher's rapport with her students and the learning environment was positive before this study began. This potentially impacted the margins of growth in the *connectedness to school* subscale due to participants' tendencies toward an anticipated higher pretest score. Lastly, social music improvisation through an online platform required that students mute their microphones to decrease audio feedback. This resulted in fewer total improvisations heard by the group.

Recommendations for Further Research

Additional research is recommended to further ground the findings regarding SMI as a springboard toward increased student connectedness in the classroom. Integrating SMI into other school subjects would be a progressive step toward this understanding. Although based on music-making, this study did not measure participants' musical ability. Therefore, integrating this

intervention into non-music classrooms would not require participants to have prior music knowledge.

The *connectedness to peers* and *connectedness to teachers* subscales did not show statistical significance. Participants' connectedness levels increased overall within these two scales, an anticipated finding. However, more research needs to be conducted regarding why these two subscales did not reflect statistical significance, such as the connectedness to the *school* subscale. Possible reasons why these subscales did not display statistical significance are 1) students already felt connected to their peers as they have been in the virtual program together for as many as four years, and 2) the connectedness levels between participant and teacher started at a higher level before the study began due to the positive relationships established from the beginning of the school year. Future research could focus on connectedness levels for participants meeting for the first time during session one of the SMI intervention study.

The results of this study show how SMI sessions could impact a classroom's procedures to connect students, teachers, and school. More research about how the time of year SMI interventions occur and how that influences students' connectedness would be beneficial. This study occurred at the school's midpoint, which may have influenced the results for both control and intervention groups.

This study applied process coding to track participants' actions during SMI interventions, including playing an instrument, singing/speaking, smiling/laughing, and making eye contact. Future studies that may replicate the procedures of this study should provide more detailed expectations for participants to follow regarding these actions during SMI interventions. For example, virtual participants would be expected to have their instruments on camera and to

continue improvising while muted. This direct, streamlined approach to each SMI session would increase accuracy in tracking the process coding actions.

Additionally, more research regarding how to best infuse SMI sessions into the curriculum could help educators feel more prepared to administer SMI in their schools and better understand how it can impact their students. This study was led by a certified music teacher with experience teaching music standards. Further research regarding the integration of SMI by teachers in other certification areas may increase the application of this intervention to build students' connectedness and give teachers confidence in applying SMI. Further, research regarding the perspectives of non-music teachers applying SMI in their classrooms may illuminate ways to enhance the teaching profession overall and increase teacher retention. This is a critical issue in education, as an average of 7,000 teachers leave their South Carolina public school positions every year (Center for Educator Recruitment, Retention, and Advancement [CERRA], 2024). A 9% increase in teacher vacancies occurred from the 2022-2023 to the 2023-2034 school year in South Carolina (CERRA, 2024).

Research regarding the delivery of SEL through an SMI intervention based on the MfP framework would provide applicable activities for teachers to implement in their classrooms. This may potentially increase student connectedness and teacher job satisfaction. Expanding the boundaries for MfP could positively impact students through a more extensive integration of their practice and content into educational environments.

Conclusion

Society adopted many new practices during the COVID-19 pandemic to keep people safe. Virtual learning, one direct result of the lockdown, continues to thrive, though it requires attention to students' social and emotional health. The results of this study show that SMI can

increase virtual school students' connectedness to their school. This statistically significant contribution to the existing body of knowledge provides new pathways to explore. The natural delivery of SEL through SMI activities impacts students' feelings of connectedness; with this nugget of truth, we plant a seed of connectedness for students by combining SEL and SMI. For this seed to grow, intentional dissemination of the importance of SMI as a connecting tool for students must occur. Educational leaders should seize opportunities to foster students' connections with others and their schools. The potential of this intervention within the classroom is substantial as it can transform students from merely existing at their school desks to productively thriving and connecting with others in their learning environments. The future of student connectedness is in our hands. May we be bold enough to continue the quest for socially and emotionally healthy students by integrating social music improvisation into classrooms nationwide.

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APPENDIX A. APPROVAL FOR RESEARCH (IRB)

Human Subjects Committee (HSC)

Institutional Review Board (IRB)

Dear Jody Webb,

Proposal Title: Connectedness to Others Through Virtual Music Improvisation

Submission date: Thursday, December 7, 2023, 3:30 PM

The Human Subjects Committee (HSC) has received and reviewed the above-titled research proposal. I am happy to inform you that AU's IRB has voted to **APPROVE** your above mentioned proposal. Your approval number is **AU202347IRB**. Please, whenever you contact us about this proposal, use your IRB approval number.

Also, be reminded that if at any point during the research, the risk level to any human subjects involved changes, either physical harm or loss of anonymity, or should you find it necessary to make any adjustments to the study as approved, please contact the HSC/IRB Chair in

advance of implementing such changes. This may require that you submit an IRB Modification form.

We wish you well in your research.

If you need clarification regarding the committee's decision, please contact Dr. Gilbert Eyabi, IRB Chair, at HSC@andersonuniversity.edu.

Sincerely,

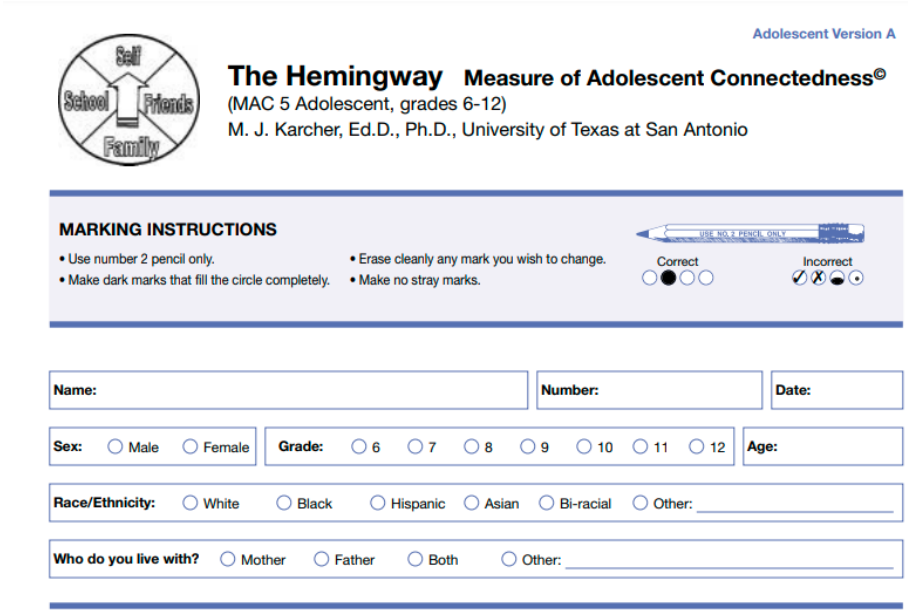
Gilbert Eyabi, PhD

Professor of Mathematics,

Assistant Provost,

IRB Chair, Anderson University.

Appendix B



Adolescent Version A

The Hemingway Measure of Adolescent Connectedness©
(MAC 5 Adolescent, grades 6-12)
M. J. Karcher, Ed.D., Ph.D., University of Texas at San Antonio

MARKING INSTRUCTIONS

- Use number 2 pencil only.
- Make dark marks that fill the circle completely.
- Erase cleanly any mark you wish to change.
- Make no stray marks.

Correct ○●○○ Incorrect ✓✗◒⊙

Name:	Number:	Date:

Sex: ○ Male ○ Female	Grade: ○ 6 ○ 7 ○ 8 ○ 9 ○ 10 ○ 11 ○ 12	Age:

Race/Ethnicity: ○ White ○ Black ○ Hispanic ○ Asian ○ Bi-racial ○ Other: _____

Who do you live with? ○ Mother ○ Father ○ Both ○ Other: _____

Please use this survey to tell us about yourself. Read each statement. MARK the number that best describes how true that statement is for you or how much you agree with it. If a statement is unclear to you, ask for an explanation. If it is still unclear, mark the "?".

"How TRUE about you is each sentence?"	Not at all true	Not really true	Sort of true	True	Very true	? Unclear
(1) I like hanging out around where I live (like in my neighborhood).	1	2	3	4	5	?
(2) Spending time with friends is not so important to me.	1	2	3	4	5	?
(3) I can name 5 things that others like about me.	1	2	3	4	5	?
(4) My family has fun together.	1	2	3	4	5	?
(5) I have a lot of fun with my brother(s) or sister(s). (leave blank if you have none)	1	2	3	4	5	?
(6) I work hard at school.	1	2	3	4	5	?
(7) My classmates often bother me.	1	2	3	4	5	?
(8) I care what my teachers think of me.	1	2	3	4	5	?
(9) I will have a good future.	1	2	3	4	5	?
(10) I enjoy spending time by myself reading.	1	2	3	4	5	?
(11) I spend a lot of time with kids around where I live.	1	2	3	4	5	?
(12) I have friends I'm really close to and trust completely.	1	2	3	4	5	?
(13) There is not much that is unique or special about me.	1	2	3	4	5	?
(14) It is important that my parents trust me.	1	2	3	4	5	?
(15) I feel close to my brother(s) or sister(s). (leave blank if you have none)	1	2	3	4	5	?

	Not at all true	Not really true	Sort of true	True	Very true	? Unclear
(16) I enjoy being at school.	1	2	3	4	5	7
(17) I like pretty much all of the other kids in my grade.	1	2	3	4	5	7
(18) I do not get along with some of my teachers.	1	2	3	4	5	7
(19) Doing well in school will help me in the future.	1	2	3	4	5	7
(20) I like to read.	1	2	3	4	5	7
(21) I get along with the kids in my neighborhood.	1	2	3	4	5	7
(22) Spending time with my friends is a big part of my life.	1	2	3	4	5	7
(23) I can name 3 things that other kids like about me.	1	2	3	4	5	7
(24) I enjoy spending time with my parents.	1	2	3	4	5	7
(25) I enjoy spending time with my brothers/sisters. (leave blank if you have none)	1	2	3	4	5	7
(26) I get bored in school a lot.	1	2	3	4	5	7
(27) I like working with my classmates.	1	2	3	4	5	7
(28) I want to be respected by my teachers.	1	2	3	4	5	7
(29) I do things outside of school to prepare for my future.	1	2	3	4	5	7
(30) I never read books in my free time.	1	2	3	4	5	7
(31) I often spend time playing or doing things in my neighborhood.	1	2	3	4	5	7
(32) My friends and I talk openly with each other about personal things.	1	2	3	4	5	7
(33) I really like who I am.	1	2	3	4	5	7
(34) My parents and I disagree about many things.	1	2	3	4	5	7
(35) I try to spend time with my brothers/sisters when I can. (leave blank if you have none)	1	2	3	4	5	7
(36) I do well in school.	1	2	3	4	5	7
(37) I get along well with the other students in my classes.	1	2	3	4	5	7
(38) I try to get along with my teachers.	1	2	3	4	5	7
(39) I do lots of things to prepare for my future.	1	2	3	4	5	7
(40) I often read when I have free time.	1	2	3	4	5	7
(41) I hang out a lot with kids in my neighborhood.	1	2	3	4	5	7
(42) I spend as much time as I can with my friends.	1	2	3	4	5	7
(43) I have special hobbies, skills, or talents.	1	2	3	4	5	7
(44) My parents and I get along well.	1	2	3	4	5	7
(45) I try to avoid being around my brother/sister(s). (leave blank if you have none)	1	2	3	4	5	7
(46) I feel good about myself when I am at school.	1	2	3	4	5	7
(47) I am liked by my classmates.	1	2	3	4	5	7
(48) I always try hard to earn my teachers' trust.	1	2	3	4	5	7
(49) I think about my future often.	1	2	3	4	5	7
(50) I usually like my teachers.	1	2	3	4	5	7
(51) My neighborhood is boring.	1	2	3	4	5	7
(52) My friends and I spend a lot of time talking about things.	1	2	3	4	5	7
(53) I have unique interests or skills that make me interesting.	1	2	3	4	5	7
(54) I care about my parents very much.	1	2	3	4	5	7
(55) What I do now will not affect my future.	1	2	3	4	5	7
(56) Doing well in school is important to me.	1	2	3	4	5	7
(57) I rarely fight or argue with the other kids at school.	1	2	3	4	5	7

Appendix C

Letter of Consent

Form for Participation in Educational Research

I agree to allow my child to participate in a research study evaluating the influences of music improvisation on students' self-reported levels of connectedness (feelings of belonging) to peers, teachers, and school. Your child's music teacher, Jody Webb, is the primary researcher for this study and will do her work under the direction of Dr. Tanya Espinosa Cordoba at Anderson University. Mrs. Webb's study is for her doctoral work in the Ed.D. program in Educational Leadership & Curriculum/Instruction at Anderson University. The nature and purpose of this study have been explained to me, and I understand that instructional sessions will require a pretest and posttest survey to measure the influence of music improvisation. The name of this measurement tool is the Hemingway Measure of Adolescent Connectedness (Karcher, 2005). This study will last approximately eight weeks, with sessions occurring once weekly.

I also grant permission to Mrs. Webb to record the research sessions on Google Meet for data collection purposes regarding music improvisation and self-reported levels of connectedness.

I understand my child's and my identity will not be revealed to anyone not directly involved in conducting the research or by means of publication, documentation, computer storage, or any other form of report developed from this research.

Additionally, I understand that I may withdraw my consent for participation at any time. If I have any questions with regard to this study, I can call or email Mrs. Webb. If I have questions about my child's rights as a research participant, I can call the Office of Accountability and Quality Assurance Team for the school district.

_____

Child's Name

_____ _____

Signature of Parent or Guardian & Date

_____ _____

Jody Webb, Teacher and Research Student & Date

_____ _____

Dr. Tanya Espinosa Cordoba, Education Faculty and Advisor, Anderson University

Appendix D

Student Assent Form

Connectedness to Others Through Music Improvisation

ASSENT FORM

My name is Jody Webb. I attend graduate school at Anderson University. I am inviting you to participate in a research study about how music improvisation affects how we connect to others. Your parent(s)/guardian(s) know we are talking with you about the study. This form will tell you about the study to help you decide whether you want to take part in it.

What am I being asked to do?

If you decide to be in the study, I will ask you to take a short pretest and posttest survey to help me know more about how connected you feel to others. You may experience an intervention of music improvisation activities during your class.

Why might it be good for me to do this study?

If you participate in this study, you might be able to help other students feel less isolated or alone by showing us ways to use music improvisation to help students feel more connected to others.

Can anything bad happen if I am in this study?

I do not expect anything bad to happen to you, but some kids may feel uncomfortable at first if they are participating in making music. If you feel uncomfortable, let me know, and we can talk and take a break.

Who will know that I am in the study?

If you decide to be in the study I will not tell anyone else how you respond or act as part of the study. Even if your parents or teachers ask, I will not tell them what you say or do in the study.

Do I have to be in the study?

No, you do not. The choice is yours. No one will get angry or upset if you do not want to do this. And you can change your mind or stop at any time.

What if I have questions?

If you have questions about the study, you can ask me now or anytime during the study. If you have any questions about your rights as a participant in this research or feel you have been placed at risk, you can contact the HSC Office at hsc@andersonuniversity.edu or (864) 231-2000. You will receive a copy of this form for your records.

Signing below means that you have read this form and that you are willing to be in this study:

Name of Participant (Write your name in the line): _____

Signature of Participant (Put your signature in the line): _____

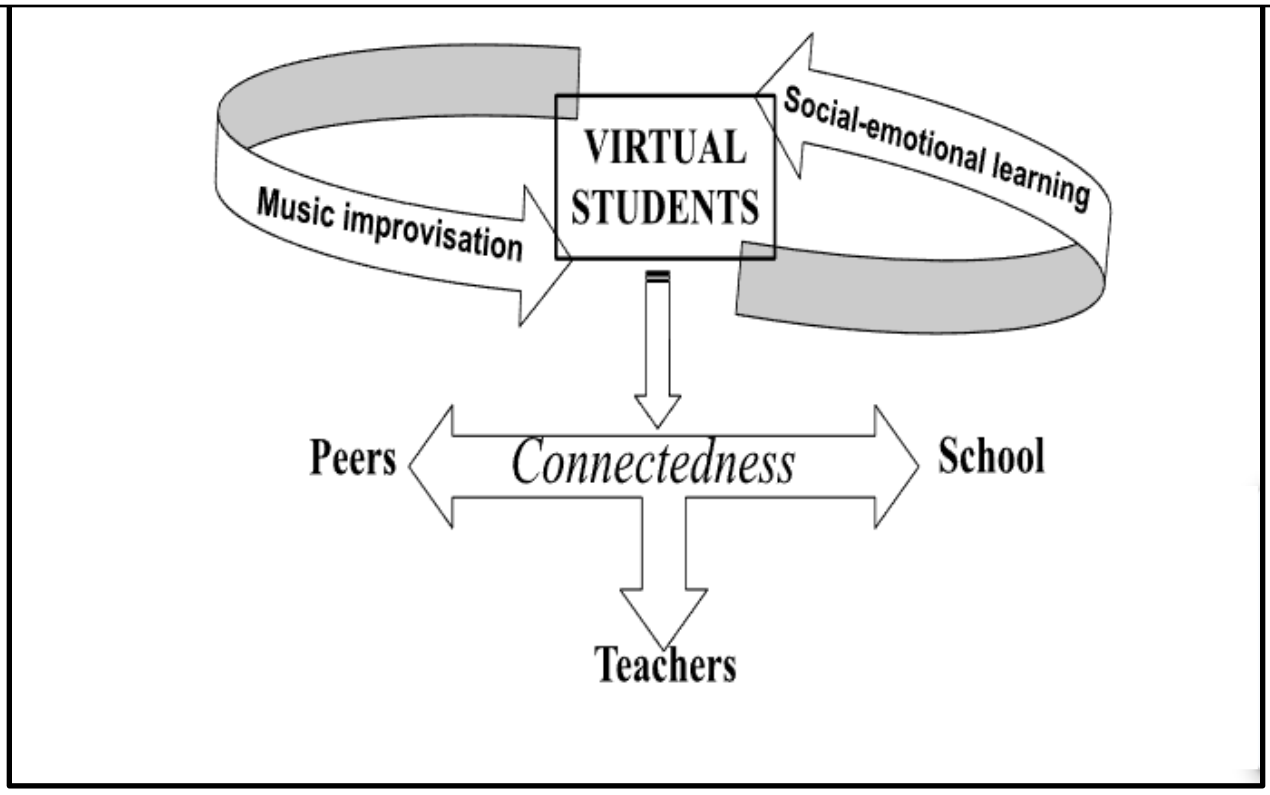
Date: _____

**Upload a photo of this signed form and submit it using the Google form from Jody Webb you received in this email.

Appendix E

RESEARCH DIAGRAM

Action Research Intervention



Appendix F

Field Note Form for Qualitative Research

(*Adapted from* Roulston, 2017)

Observation Summary

Observer: _____ Date of observation: _____

Time:_____ Today's date:_____

Place: ____Google Meet Classroom_____

Actors: ___6th 7th 8th (circle one)_____

Activities: _____Improvising with small groups using Music Doctor Improv Cards___

1. What were the main issues or themes that struck you in your observations in this setting?

2. Was there anything else that struck you as salient, interesting, illuminating, or important?

*See process coding form related to singing/speaking, smiling, laughing, and making eye contact.

Appendix G

Music Doctor Improv Cards (Oshinsky, 2021)

Add an element of humor.	Be the clown or fool.
Provide a heartbeat rhythm.	Play as many "wrong notes" as possible.
Add spontaneous lyrics or spoken words.	Work in a familiar melody or a hook from a song.
Provide the drama.	Play your instrument in a new way.
Sing what you play; switch between singing and playing.	Include a strong, repeated phrase or groove.
Use your instrument mainly as a drum.	Do the most you can with only one note.

Appendix H

CASEL Framework's Five Competencies (CASEL, 2023)

Appendix I

Lesson Plans For Sessions 1-9 (Intervention & Control)

SESSIONS 1-2		
Group	**First 10 minutes**	**Final 30 minutes**
Intervention	Social Music Improvisation	**Introduction to Music History**
Control	Music Choice Board	

SESSIONS 3-4		
Group	**First 10 minutes**	**Final 30 minutes**
Intervention	Social Music Improvisation	**Medieval & Renaissance**
Control	Music Choice Board	

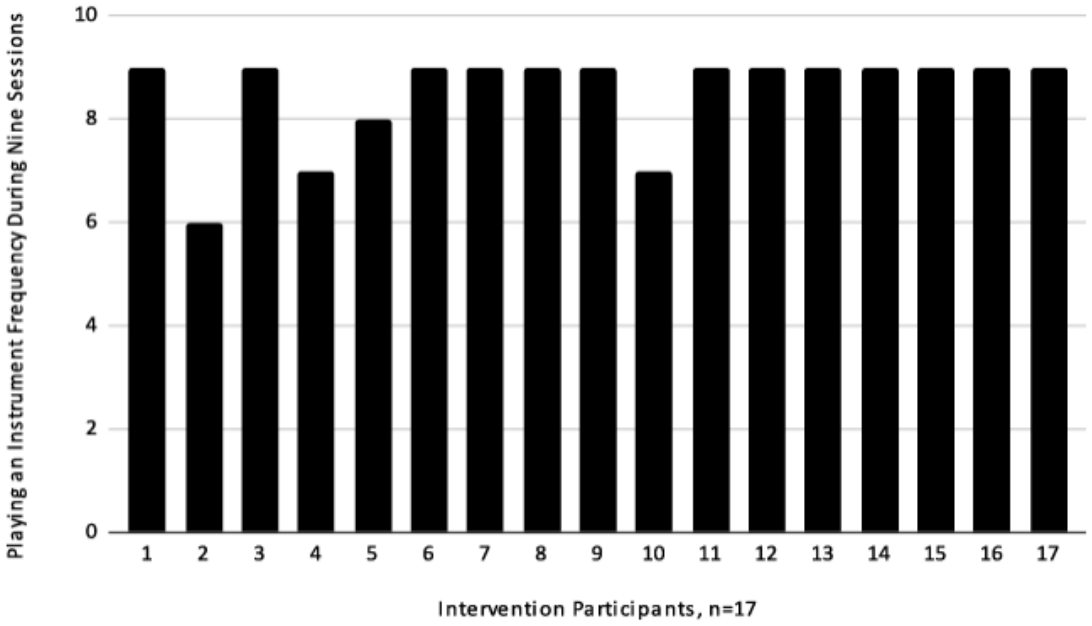
SESSIONS 5-6		
Group	**First 10 minutes**	**Final 30 minutes**
Intervention	Social Music Improvisation	**Baroque & Classical**
Control	Music Choice Board	

SESSIONS 7-9		
Group	**First 10 minutes**	**Final 30 minutes**
Intervention	Social Music Improvisation	**Romantic, 20th Century, & Modern**
Control	Music Choice Board	

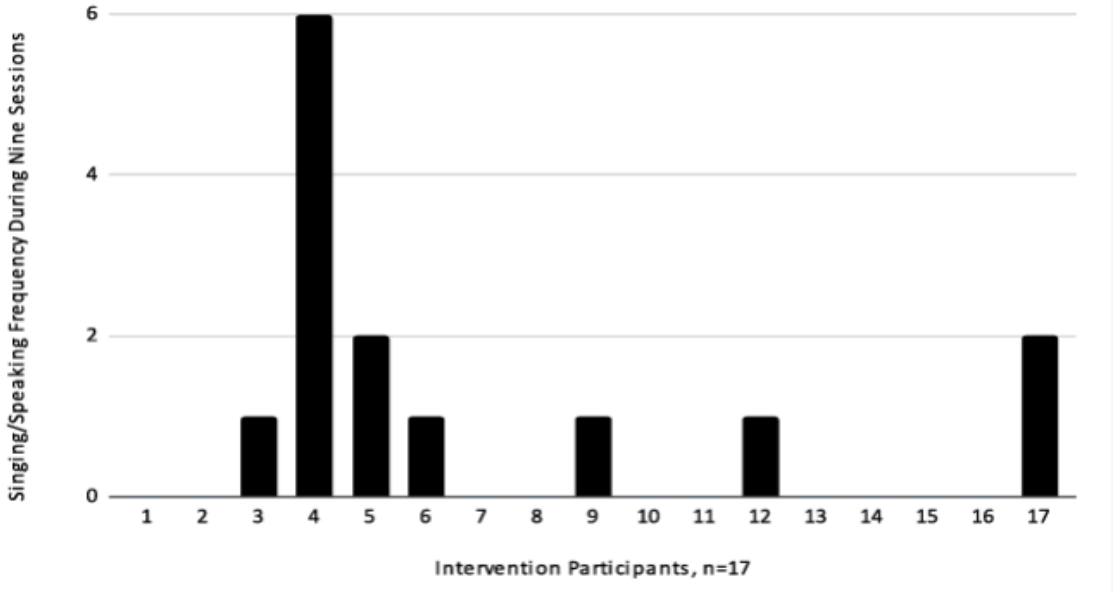
Appendix J

Frequencies of Process Coding Actions

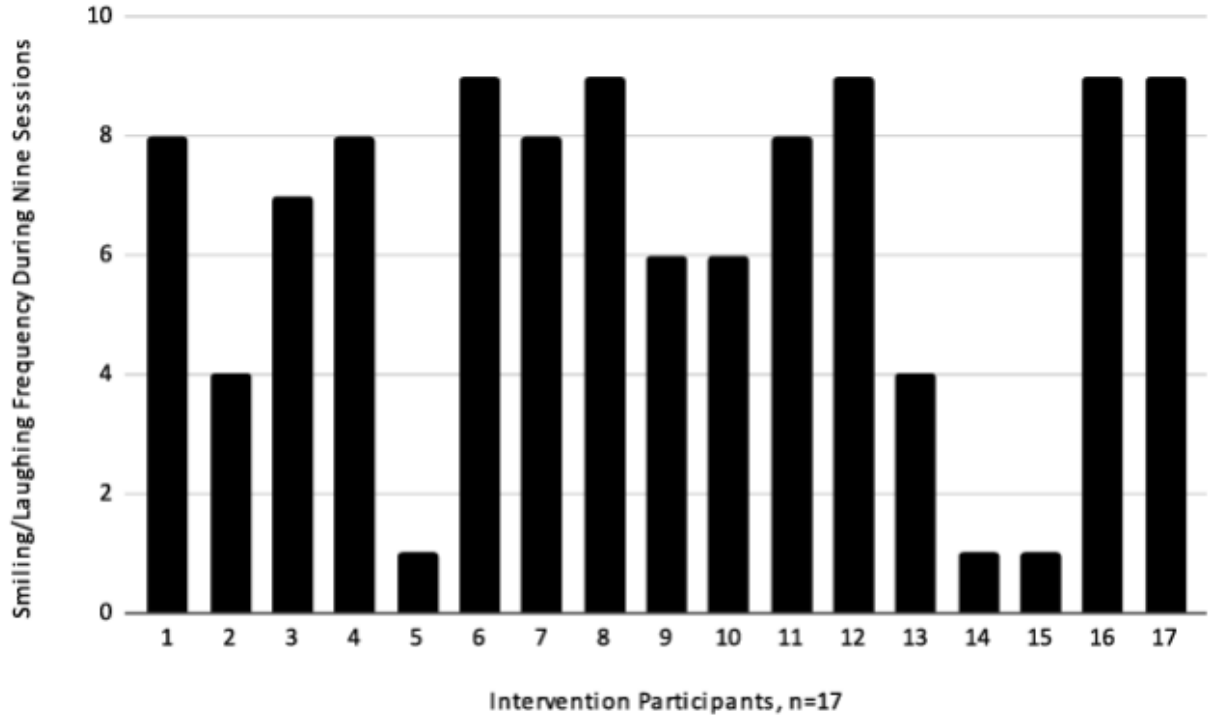
Frequency: Playing an Instrument



Frequency: Singing/Speaking



Frequency: Smiling/Laughing



Frequency: Making Eye Contact