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The Use of Kagan Cooperative Learning Structures
In Music Education to Promote Rhythm Skills and Knowledge

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Northwestern College

An Action Research Project Presented
in Partial Fulfillment of the Requirements
For the Degree of Master of Education

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Abstract

The purpose of this action research was to determine if Kagan Cooperative Learning Structures produced greater achievement in music education than those who did not have the opportunity to engage in Kagan structures. The participants included 114 fourth grade students attending a public school in southern Minnesota. The scores of pre and post-tests determined student growth and achievement for both the control and treatment groups. The specific music skill assessed was rhythm. Results indicated that there was a statistically significant difference on rhythm when assessed by a paper and pencil exam when Kagan Structures were used. Analysis of a performance assessment determined there was no statistical evidence to support the conclusion that the use of Kagan Structures was effective in rhythmic performance.

Keywords: Cooperative Learning, Kagan Structures, rhythm, music education

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The Use of Kagan Cooperative Learning Structures in Music Education to Promote Rhythm Skills and Knowledge

The sound of singing and instrument playing can often be heard coming from music classrooms, these sounds demonstrate student learning. Students work together to create, perform, respond and connect to music in various ways. For the purpose of this paper, the teacher researcher wondered if teaching strategies used in the music classroom impacted student learning, specifically when using cooperative learning structures to teach musical foundations. The Minnesota academic standards set guidelines and expectations for public schools across the state (Minnesota Department of Education, 2019). The standards ensure that all public school students in Minnesota obtain the same requirements for graduation as specific academic achievements are met at each grade level (Minnesota Department of Education, 2019). How school districts and educators ensure students are able to meet the standards vary by curriculum and teaching pedagogies. Although the standards and learning targets are the same, teachers have decisions to make regarding how to teach the material, and best practices for their students learning.

As a teacher begins to make choices about his or her classroom, they must decide how to teach curriculum. In order to be an effective teacher, teachers must select the appropriate teaching strategies for themselves and the students. One teaching strategy that allows for assessment and differentiation is cooperative learning (Blackburn, 2016; Heacox, 2012). Cooperative learning strategies also promote student engagement (Smith, Sheppard, Johnson, & Johnson, 2005). Kagan Strategies are a specific set of cooperative learning structures, developed by Kagan, which can be used to enhance or promote student learning and engagement in all academic areas (Kagan & Kagan, 2017). Kagan Structures are also believed to increase positive

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peer interactions, individual participation and close the achievement gap (Kagan & Kagan, 2017).

In order to fully implement cooperative learning, teachers should receive training on the benefits and strategies (Battistich, Delucci, & Solomon, 1993). In August 2018, all educators in the Fairmont Area Schools District received Kagan training. In October of 2019, district teachers received the second level of Kagan training. The Kagan training occurred on a required professional development day and was provided by the district, therefore, it is expected that the structures are used in the classroom.

In the music classroom, Kindergarten through sixth grade at FES, content has been taught using the Quaver Music curriculum. Quaver Music is an online curriculum, which provides subscribers with digital resources and professional development. The Quaver Music curriculum utilizes technology to present student-centered lessons by incorporating various approaches of music education including philosophies of Orff, Kodaly and Gordon (Quaver Music, 2019). Song-based lessons and music theory are also highlighted throughout the curriculum (Quaver Music, 2019). The Quaver lessons are aligned to the National Coalition for Core Arts Standards.

Music education includes learning about composition, melody, rhythm, harmony, form, tone color, texture, and expression (Katz & Brown, 2011). Different pedagogical approaches can be used to teach the elements of music. However, this researcher explored the use of cooperative learning, using Kagan Structures, in the music classroom. The musical concept that was evaluated for this action research was rhythm. Rhythm is an essential element in the music education curriculum (Bell & Bell, 2018; Brown & Katz, 2011; Crooke, 2016; Sarrazin, 2016). The focus of this action research was to determine if the use of cooperative learning in music education promoted student learning and understanding. This teacher researcher predicted that

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the use of Kagan Structures in music education would, in fact, produce higher student achievement as compared to those who did not engage in cooperative learning strategies.

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Review of the Literature

This literature review examines research regarding the benefits of cooperative learning, music education, and cooperative learning in music education. Past studies have discussed the vast benefits of cooperative learning in the general education classroom, including positive impacts on academics, social and emotional well-being, self-efficacy, engagement, interdependence and motivation (Baker & Harvey, 2014; Battistich, Solomon, & Dulucci, 1993; Cooper, M. 1995; Dean, Hubbel, Pitler, & Stone, 2012). However, there is minimal information pertaining to cooperative learning in the music classroom. This researcher explored different databases using various search terms, such as combining cooperative learning and music education to discover the need for further research.

Cooperative learning is defined as the incorporation of five elements of student interaction which includes positive interdependence, face-to-face positive interaction, individual and group accountability, interpersonal skills, and group processing (Dean, Hubbell, Pitler, & Stone, 2012; Dyson & Rubin, 2003; & Whitener, 2014). The use of cooperative learning requires students to work together on goal-oriented tasks. Cooperative learning is not the same as group work, and the two are not interchangeable (Koutselini, 2008/2009).

Group work activities allow some students to work, while others remain unengaged (Koutselini, 2008/2009). In order for cooperative learning to be successful, teachers must understand the difference between the two. Simply putting students in groups and expecting positive outcomes does not yield the same results as cooperative learning structures (Davis & Magnesi, 2010; Koutselini, 2008/2009). One differentiating factor between group work and cooperative learning is that cooperative learning adopts specific structures that foster individual accountability (Koutselini, 2008/2009; Smith, Sheppard, Johnson, & Johnson, 2005). The

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positive benefits of cooperative learning depend highly on the quality of group interaction, not time spent in groups (Battistich et al., 1993).

Before learning can begin, educators must understand how to create productive groups and depict clear expectations that set students up for success (Battistich et al., 1993; Kagan & Kagan, 2017). Enforcing interdependence and individual accountability, keeping groups small and using cooperative learning consistently and systematically are also suggestions for successful cooperative learning (Dean et al., 2012). While students are participating in cooperative learning, teachers must continually communicate, engage and monitor the groups (Battistich et al., 1993). Participating in cooperative learning groups teaches students social skills that prepare them for life beyond the classroom (Kagan & Kagan, 2017). These learning groups are beneficial for all students, including gifted, mainstream and English Language Learners (Reddy, 2019).

To implement cooperative learning in the classroom, teachers must familiarize themselves with different structures of cooperative learning and become comfortable using them (Battistich et al., 1993). One way to learn about specific structures and strategies would be to attend trainings or workshops (Battistich et al., 1993). Without formal training of cooperative learning, failure may result, causing the teaching method to disappear out of classrooms like other educational “innovations” have throughout the years (Battistich et al., 1993). Lack of training might also result in poor cooperative learning practice and not produce the same results as a highly trained teacher. When structured and implemented correctly, cooperative learning can impact more than a student’s academic achievement (Baker & Harvey, 2014; Battistich, Solomon, & Dulucci, 1993; Cooper, 1995; Dean, Hubbel, Pitler, & Stone, 2012). The following sections will provide further information regarding the many benefits of cooperative learning.

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Cooperative Learning and Academics

When students participate in formal learning activities, their brains are trained how to learn and organize thoughts (Azwihangwisi & Kriger, 2019). The concept of learning can then be transferred across subjects (Azwihangwisi & Kriger, 2019). There are different teaching pedagogies that engage the brain to enhance learning (Smith et al., 2005). This is understood because of the neurological response of the brain (Igel & Urquhart, 2012). When a student is forced into a stressful learning situation, such as reading or answering a question in front of their peers, neurological imaging shows a negative response (Igel & Urquhart, 2012). When students are under pressure, information does not enter the memory bank, but is instead blocked by the hyperactivity of the amygdala, the control center of the brain (Igel & Urquhart, 2012). When working in cooperative learning groups, students are not faced with the pressure of a large group setting. Instead, they are working interdependently within small groups (Whitener, 2014).

When engaged in cooperative learning, students are encouraged to engage in high-level thinking (Kagan & Kagan, 2017). According to Battistich et al., (1993), Cooper (1995), Kagan & Kagan (2017) and Reddy (2019), students who participate in cooperative learning activities demonstrate higher-order thinking skills. High-level thinking skills allow students to synthesize, problem solve and discuss information at a deeper level than those who never develop such skills (Cooper, 1995; Kassner, 2002). With this ability, students who engage in cooperative learning activities have been shown to produce statistically higher achievement scores than those who participate in traditional classroom activity (Battistich et al., 1993; Egger, 2019; Koutselini, 2008/2009), especially when compared to competitive or individual learning structures (Smith et al., 2005). Higher levels of retention and student satisfaction in learning have also been documented in regards to cooperative learning and academic achievement (Cooper, 1995;

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Kassner, 2002). This is in part because through student conversations and interactions, they find meaning in the content. Students retain more information when they have the opportunity to engage verbally with peers, as opposed to traditional instruction where students sit and listen to a lecture (Katz & Brown, 2011; Kagan & Kagan, 2017).

Cooperative Learning and Social/Emotional Outcomes

Cooperative learning strategies are known to have a positive impact on student academic achievement, but there are social and emotional benefits documented as well (Battistich et al., 1993; Bruhl, Prater & Serna, 1998; Smith et al., 2005; Van Ryzin & Roseth, 2018). Van Ryzin and Roseth (2012) found that cooperative learning significantly reduces bullying and retaliation behaviors among peers. There are potential risk factors as a concern for students who engage in bullying tactics, including substance abuse, criminal activity and poor relationships (Ansary, Elias, Greene, & Green, 2015; Evans & Smokowski, 2015; Menesini & Salmivalli, 2017; Studer & Mynatt, 2015). Bullying is a prevalent concern for school districts as there is continual work to decrease acts of bullying (Evans & Smokowski, 2015; Studer & Mynatt, 2015). Bullying can be categorized into different types of bullying behaviors, including verbal, physical, emotional and cyber bullying (Menesini & Salmivalli, 2017; Studer & Mynatt, 2015). According to Studer and Mynatt (2015) behavior is considered bullying when it is repetitive and there is intent of harm. Policies and interventions are often set in accordance to prevent bullying behaviors (Studer & Mynatt, 2015). Positive school culture has been shown to decrease bullying behaviors, especially when students feel a sense of safety and support (Ansary, Elias, Greene & Green, 2015., 2015; Evans & Smokowski, 2015). Interventions to prevent bullying require commitment and must be long lasting, intensive, and involve teachers, administrators, students and parents (Ansary, et al. , 2015; Evans & Smokowski, 2016; Menesini & Salmivalli, 2017; Studer & Mynatt, 2015).

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Cooperative learning could be used as one piece of school preventative measures to decrease bullying as it addresses many of the problems that result in acts of bullying (Van Ryzin & Roseth, 2018).

Schools that frequently use cooperative learning have reported positive interactions among peers, as well as positive student perceptions of the classroom environment (Baker & Harvey, 2014; Battistich et al., 1993; Cooper, 1995). Increasing cooperative learning strategies in schools provides a more friendly and welcoming school climate (Van Ryzin & Roseth, 2012). Use of cooperative learning aids in teaching students how to interact, communicate and resolve conflicts with one another (Di Natale & Russell, 1995).

Misconceptions and Drawbacks of Cooperative Learning

The research presented thus far vastly portrays the benefits of cooperative learning. However, there are many teachers who are reluctant to use cooperative learning strategies in their classrooms (Koutselini, 2008/2009). There are varying reasons why teachers do not utilize cooperative learning structures, including misconceptions and difficulties (Cooper, 1995; Koutselini, 2008/2009).

There are teachers who have never been trained or taught how to form groups that set students up for successful collaboration and interaction (Koutselini, 2008/2009). When there is little or no success, negative attitudes are formed in regards to the structures (Koutselini, 2008/2009). Cooperative learning also requires the teacher to give up some control in the classroom (Cooper, 1995), as students take responsibility for their own learning and there is interdependence between group members (Smith et al., 2005). By giving up the traditional role of the teacher, educators become the facilitator between groups to monitor interaction and activity (Battistich et al., 1993; Dyson & Rubin, 2003).

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When teachers step back and allow students to learn through cooperative learning, there is also a fear that there will be students who do all of the work, and students who do nothing (Cooper, 1995; Reddy, 2019). Although this could happen, the principles of cooperative learning set specific expectations to avoid these circumstances (Cooper, 1995; Kagan & Kagan, 2017; Kassner, 2002). Another common misconception of cooperative learning is that academic content cannot be covered (Cooper, 1995), while planning and implementing the structures takes too much time (Koutselini, 2008/2009). Cooperative learning structures do take time to learn and master, but to be effective, teachers need to accept the challenge and provide the opportunity for their students (Koutselini, 2008/2009).

Benefits of Music Education

Music is part of the educational curriculum, allowing students to learn while development is supported (Azwihangwisi & Kriger, 2019; Kim, 2017). Music is a part of every culture around the world, which allows people to find fellowship and common goals no matter their cultural background (Curtis & Fallin, 2014; Tiszai, 2015). Given the universal commonality of music, it is a medium that should be understood and appreciated by individuals of all ages and abilities (Azwihangwisi & Kriger, 2019). Music education allows for students to learn songs and dances of their own cultural communities, as well as others (Azwihangwisi & Kriger, 2019).

There are different methods of teaching music to children (Pretty-Norbury & Pontarini, 2018; Tiszai, 2015). The common teaching methods of music education are based on philosophies, pedagogies, goals and objectives (Pretty-Norbury & Pontarini, 2018; Sarrazin, 2016). Some of the most well known methods in music education are those of educators and philosophers Zoltan Kodaly, Emilile-Jacques Dalcroze, Orff Schulwerk, Edwin Gordon, Shinseki Suzuki and Reggio Emilia (Pretty-Norbury & Pontarini, 2018; Sarrazin, 2016). The

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pedagogies utilize different approaches and methods to teach music. For example, Kodaly introduces concepts in three stages, introduce, identify and implement as the historical music educator believed children should engage in music listening, reading, writing, composing and improvisation (Pretty-Norbury & Pontarini, 2018). A process of Orff is teaching students to transfer musical concepts of speech to the body and then to an instrument (Pretty-Norbury & Pontarini, 2018).

The foundations of music education include teaching sound, melody, harmony, rhythm, texture, form composition and expression (Bell & Bell, 2018; Brown & Katz, 2011; Crooke, 2016; Sarrazin, 2016). These musical elements are taught through creating, responding, performing and connecting to music (Bell and Bell, 2018). Music is a multi-sensory subject as it uses multiple senses at once (Curtis & Fallin, 2014). Some intrinsic values of music education include finding joy and enhancing creativity, imagination and emotion (Crooke, 2016). As students engage in formal music learning, they receive benefits far beyond the music itself (Bell & Bell, 2018; Crooke, 2016; Curtis & Fallin, 2014; Tiszai, 2015).

Aside from learning music content, there are many other benefits of receiving a music education (Kassner, 2002; Kim, 2017). Along with establishing a set of music skills and knowledge, students that have a positive music experience also acquire benefits in their social and emotional well being (Azwihangwisi & Kriger, 2019; Crooke, 2016). Music education teaches generalized life skills such as the value of learning and hard work (Azwihangwisi & Kriger, 2019). Participation in formal music learning has been documented to show increased confidence, self-esteem, social behavior, coping skills, cooperation and engagement (Crooke, 2016).

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Active music making begins in early childhood, when students learn the repertoire of children's songs (Azwihangwisi & Kriger, 2019). Participation in music activity changes the brain for life-long learning (Curtis & Fallin, 2014). The body and the brain respond to both learning and music, music education combines the two (Curtis & Fallin, 2014).

When the brain is exposed to music instruction the auditory, motor and neurological systems are strengthened (Curtis & Fallin, 2014). The brain responds to music during formal instruction, which promotes memory, brain plasticity, spatiotemporal reasoning, Intelligence Quotient and executive functioning (Crooke, 2016). When the brain is exposed to musical stimuli, it is trained to quickly respond to that stimulus which in turn enhances learning, recall and retention (Curtis & Fallin, 2014). Learning and playing a musical instrument has been shown to strengthen neurological pathways at all ages (Curtis & Fallin, 2014). The neurological benefits of music education can be transferred to other core subject areas to promote academic achievement (Bell & Bell, 2018; Crooke, 2015; Curtis & Fallin, 2014).

Music education has been shown to have a direct correlation to reading skills, verbal ability, language development and math. (Azwihangwisi & Kriger, 2019; Crooke, 2016; Curtis, 2014). Students who participate in a formal music class present with higher reading scores compared to those who do not such training (Azwihangwisi & Kriger, 2019). The musical concepts of rhythm and melody are similar to speech and language (Azwihangwisi & Kriger, 2019; Curtis & Fallin, 2014). The rhythm of how words are spoken connect to musical rhythm and patterns, where as vocal inflections connect to melody (Azwihangwisi & Kriger, 2019). A neurological connection between music and language can be made as both stimulate the left and right sides of the brain (Azwihangwisi & Kriger, 2019; Curtis & Fallin, 2014).

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Non-musical domains can be impacted with the integration of music in the core academic areas to reinforce learning (Azwiangwisi & Kriger, 2019; Crooke, 2016; Egger, 2019; Kim, 2017). Other academic areas that have a connection to music include math, as it relates to pitch, tempo and rhythm; linguistics, as it relates to intonation, cadence and articulation; and science, as it relates to form, structure and space. In turn, core academic areas can be introduced and embraced in the music classroom (Crooke, 2016). Music can also be integrated with science, technology, engineering and mathematics (STEM), as there are similarities between computational thinking and music such as notation in formal language, and concepts built around sequence and repetition (Bell & Bell, 2018). Arts integration with STEM aids in the promotion of creativity, communication and teamwork (Bell & Bell, 2018). In conclusion, music education can have a positive academic impact on a student's achievement in other subject areas as transfer of knowledge and concepts is made (Crooke, 2016).

Connecting Cooperative Learning and Music Education

Cooperative learning and music education both have a solid foundation of benefits that include academic areas and non-academics (Azwiangwisi & Kriger, 2019; Bruhl, Prater & Serna, 1998; Dyson & Rubin, 2003; Kagan & Kagan, 2017; Kassner, 2012; Van Ryzin & Roseth, 2018). Given the presented research and benefits of both cooperative learning and music education, one could hypothesize that using cooperative learning strategies in the music education classroom would act as a power house to yield positive results in multiple areas of student life.

Although it is not extensive, there is literature that supports cooperative learning in music education (Baker & Harvey, 2014; Di Natale & Russel, 1995; Kassner, 2002). Di Natale and Russell (1995) state that the use of cooperative learning in music education, especially in the

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ensemble setting, is overlooked despite the fact that both cooperative learning and music education promote social skills and interdependence. Baker and Harvey (2014) specifically identified the benefits of cooperative learning when teaching and working on music composition. The findings indicate that cooperative learning experiences in music education enhance the opportunity to participate in positive social engagements (Baker & Harvey, 2014). Kassner (2012) provides the music educator with specific learning activities, connecting cooperative learning ideas to each of the music standards. Lesson ideas are included for singing, instrument performance, improvisation, composition, reading and notating music, listening and analyzing music, evaluating music and understanding the connection between music and the other arts (Kassner, 2012).

There are different structures of cooperative learning including informal, formal and base groups (Reddy, 2019). For the purpose of an action research project, this researcher focused on Kagan Structures as a model for cooperative learning. Developed by Kagan (2017), the structures provide educators with specific strategies to be used in the classroom to promote cooperative learning (Kagan & Kagan, 2017).

Kagan Cooperative Learning Strategies

Kagan and Kagan (2017) identify cooperative learning as a positive way to focus on four crises found in education today. The four major educational crises are identified as academic achievement, the achievement gap, race relations and the socialization void (Kagan & Kagan, 2017). Kagan cooperative learning structures promote peer interaction through experiences to engage students in the learning experience (Kagan & Kagan, 2017). Popular Kagan structures include Numbered Heads Together, Timed Pair Share, RallyRobin and Quiz-Quiz-Trade (Kagan & Kagan, 2017). As suggested by Kagan & Kagan (2017), the

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implementation of the structures requires all students to be engaged in learning. Kagan structures do not contain academic content and can therefore be used to teach all subject areas (Kagan, 2017).

Katz and Brown (2011) have developed an entire book dedicated to cooperative learning in the music classroom through the use of Kagan structures. By implementing Kagan structures in the music education classroom, students have the opportunity to learn by talking with each other, thinking together, responding to high-level questions and explaining musical knowledge (Katz & Brown, 2011). Throughout the book, the authors provide structures for teaching melody, rhythm, harmony, form, tone color, texture and expression. Kagan cooperative learning activities engage all students, and enhance music learning (Brown & Katz, 2011).

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Methods

Participants

The participants of this action research were fourth grade students at Fairmont Elementary School (FES), a public school in southern Minnesota, during the 2019-2020 school year. There were five sections of fourth grade students who participated in the study. The action research took place in the teacher researcher's general music classroom, where students attended music class every three school days on a rotating specialist schedule. During the time frame of this action research, the specialist rotation included music, gym and art. The classes were 45-minutes in duration.

All FES 4th grade students served as participants for this research. There were 114 total participants, including 55 (48.2%) girls and 59 (51.8%) boys ranging from ages 9 to 11 years old. The majority of the students were ages nine or ten, while four students were eleven years old. The cultural demographics of the participants included 89 (78.1%) white, 22 (19.3%) Hispanic, one (0.9%) American Indian, one (0.9%) Asian/Pacific Islander and one (0.9%) Black. Of the participants, 14 students (12.3%) identified Spanish as their home language.

FES is a Title I school. According to the Minnesota Department of Education website (2019), schools that receive Title I aid must "provide all children with fair, equitable and significant educational opportunities to obtain a high-quality education and reach, at a minimum, proficiency on challenging state academic standards and assessments." Given the participants of this action research, 17 students (14.9%) received special education services and 53 (46.5%) received Title 1 services. The specific diagnosis of the population who received special education services included four students with a speech or language impairment, one mild-moderate mentally disabled, one moderate-severely mentally disabled, six with specific learning

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disabilities, two with emotional disorders (EBD), two other health impaired and one student with Autism.

According to the Minnesota Department of Education website (2019), free or reduced lunch is available to students based on an application and criteria process. Free lunch was provided to 51 participants and reduced lunch to 16 participants, for a total of 67 (58.8%) fourth grade students who received this benefit.

Measures

For this action research, a written test and a performance test were used to determine student’s understanding of rhythm. The written test required students to define the music terms “beat” and “rhythm” as well as identify different notes and rests by name. Students were also required to identify the number of beats a rest or note receives. There were twelve possible points on the test. The notes and rests on the test included a quarter note, quarter rest, set of eighth notes, set of sixteenth notes and a half note. The written assessment, shown in Figure 2 was developed by the teacher-researcher.

Figure 2. Written rhythm assessment developed by the action researcher.

Name _____ Class _____ Score _____

Define the following words:

1. Beat

2. Rhythm

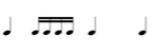
Fill in the chart:

The Note	What is the name of this note or rest?	How many beats does the note or rest get?
		
		
		
		
		

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The second test was a rhythm performance test. This test consisted of nine different four-beat rhythm patterns combining the notes and rests from the written exam. Students were instructed to clap and say the rhythm out loud using rhythm syllables. In the teacher researchers classroom, rhythm is taught using syllables. A quarter note is performed with one clap and saying the syllable “ta.” A set of two eighth notes is performed by clapping twice on one beat while saying “ti-ti.” A set of four sixteenth notes is performed by clapping four times on the beat and saying the syllables “ti-ki-ti-ki.” A half note is one clap held over two beats using the syllable “ta-ah.” A quarter rest receives one beat of silence and students open their hands indicating no sound. The nine rhythms used for the performance test were taken from “Tikatika ta titi too & (rest) rhythm assessment with rubric” by Britt’s Music Education Store found on the Teachers Pay Teachers website (2019). The rhythms used for the test can be found in Figure 1. For a rhythm to be counted as correct, the students had to maintain a steady beat, clap the rhythm and say the rhythm syllables out loud. Students received one point if all criteria were met, or zero points if at least one element was lacking.

Figure 1. Rhythms for the written performance test, adapted from “Tikatika ta titi too & (rest) rhythm assessment with rubric” by Britt’s Music Education Store.

	
	
	
	
	Rhythms taken from “tikatika ta titi too & (rest) rhythm assessment with Rubric” By Britt’s Music Education Store on teacherspayteachers.com

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Procedures

Given the five sections of fourth grade classes that participated in this action research, the researcher split the grade level into two groups. Three classes (69 students) were randomly assigned to the treatment group and two sections (45 students) served as the control group. Classes in the treatment group engaged in Kagan Strategies to promote cooperative learning, as opposed to the classes in the control group, which did not participate in cooperative learning structures.

During the first week of the 2019-2020 school year, fourth grade students at FES were given the two tests to determine baseline data of their understanding and knowledge of rhythm. The first test administered was a written test. This was a paper and pencil test completed by each individual student and created by this teacher researcher. The purpose of the test was to determine if students could identify the name of a note or rest and identify the number of beats it receives. The notes and rests presented on the test included a quarter note, set of eighth notes, set of sixteenth notes, half note and quarter rest. Students were also asked to define the music terms “beat” and “rhythm”. There were twelve possible points on the written test. Verbal instructions regarding test expectations were given to the students prior to the exam. No information regarding rhythm was stated. Students were given as much time as they needed to complete the written rhythm test during the 45-minute class period.

During the next music class, each student was required to perform the nine rhythm patterns from the performance test for this teacher. Each student performed individually while being called to the teacher’s desk away from other students. The verbal instructions provided to each student were to clap and say the rhythm. Within the first two weeks of the school year, all participants had completed both pre-tests.

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After the pre-tests (shown in Figure 1 and Figure 2) were administered, the teacher researcher spent three weeks teaching fourth grade students about rhythm. Students in both groups completed the same lessons and activities. The difference was that the treatment group used Kagan Structures to promote cooperative learning. The following Kagan Structures were implemented over the duration of the teaching cycle of this action research as cooperative learning structures: Quiz Quiz Trade, Match Mine, Stand Up Hand Up Pair Up, Round Table Consensus and Fan-N-Pick. Activities using Kagan Structures for teaching rhythm in music education were utilized from Brown and Katz (2012) and Katz and Brown (2011).

This teacher researcher had not used Kagan structures in the past, so all structures were taught and modeled to the students by the teacher. Teachers at Fairmont Elementary School have received training in Kagan strategies. After the training, administration expected all teachers to implement the strategies in the classroom. However, the extent to which they were used in the general education classrooms was unknown to the researcher. Therefore, all structures were demonstrated and explained as if no students in the classroom had ever participated in the strategies.

All testing and instruction took place during music class time. Data that was collected from the pre and post-tests were compiled and stored in an Excel document. The purpose of this action research was to determine if the use of cooperative learning, specifically Kagan structures, would increase students' understanding and performance of rhythm. Pre and post-tests from the control and treatment groups were analyzed to determine student growth in rhythm.

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Results

In order to answer the initial research question, “Does the use of cooperative learning enhance student’s understanding of rhythm?” the researcher determined the student’s baseline knowledge of rhythm through the use of two pre-tests, a written test and a performance test. After students participated in four general music classes to learn about rhythm, the same written and performance tests were administered to determine growth. Data was analyzed to determine the means and standard deviations of each test. Results were compared to discover if either group significantly showed more understanding of rhythm, both on the written exam as well as the performance assessment.

Pre-test scores were analyzed to determine if the control and treatment groups began with the same rhythmic knowledge. This was determined by comparing the treatment group pre-test mean scores with the control group pre-test mean scores. An independent groups *t* test analysis revealed that there was not a statistically significant difference in control group written rhythm ($M = 1.13, SD = 1.17, n = 45$), as compared to the treatment groups written rhythm scores ($M = 1.58, SD = 1.48, n = 69$) at the beginning of the research with moderate effect size, $t(114) = -1.52, p < .05, d = 0.33$. On average there was a 0.45 point difference between groups. Groups were not identical, but within a range that would be expected to typical variability. Pre-test performance scores were also compared and revealed that there was not a statistically significant difference in control group rhythm performance ($M = 0.11, SD = .06, n = 45$), as compared to the treatment groups rhythm performance scores ($M = 0.01, SD = 0.12, n = 69$) at the beginning of the research with weak effect size, $t(114) = 1.04, p > .05, d = 0.99$. On average there was a 0.1 point difference between groups. The comparison indicates that the groups were

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not identical with their beginning rhythm performance skills, but within a range that would be expected due to typical variability.

The control group increased rhythmic knowledge on the written and performance rhythm tests. A dependent groups *t test* analysis revealed that there was a statistically significant difference in pre-test scores of the control group on written rhythm skills ($M = 1.13$, $SD = 1.17$, $n = 45$) compared to the post-test written rhythm skills exam ($M = 8.32$, $SD = 3.44$, $n = 45$) following rhythm instruction with strong effect size, $t(45) = -13.25$, $p < .05$, $d = 2.79$. On average there was a 7.19 point increase of the control group on the written rhythm test. A dependent groups *t test* analysis revealed that there was also statistically significant difference in the control groups pre-test scores of performance rhythm skills ($M = 0.11$, $SD = 0.61$, $n = 45$) compared to control group performance post-test scores ($M = 6.09$, $SD = 3.37$, $n = 45$) following rhythm instruction with strong effect size, $t(45) = -11.69$, $p < .05$, $d = 2.46$. On average there was a 5.98 point increase of the control groups performance test. The growth shown in both the written and performance tests for the control group would not be expected by chance alone.

The treatment group (Kagan Structures), showed growth on both the written and performance rhythm exams. A dependent groups *t test* revealed that there was significantly significant difference in pre-test scores of written rhythm skills ($M = 1.58$, $DS = 1.49$, $n = 69$) as compared to post-test written rhythm scores ($M = 9.47$, $SD = 2.84$, $n = 69$) following rhythm instruction with strong effect size $t(69) = -20.43$, $p < .05$, $d = 3.47$. A dependent groups *t test* revealed that there was statistically significant difference in pre-test score on rhythm performance ($M = 0.01$, $SD = 0.12$, $n = 69$), as compared to post-test scores on rhythm performance ($M = 6.85$, $SD = 2.99$, $n = 69$) following rhythm instruction with strong effect size,

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$t(69) = -18.93, p < .05, d = 3.23$. On average there was a 6.08 point increase on the treatment groups rhythm performance tests.

A final comparison was conducted to compare the growth of both the control and treatment groups in both written and performance rhythm skills. A t test analysis revealed that there was statistically significant difference in post-test scores of written rhythm skills of the control group ($M = 8.32, SD = 3.44, n = 45$), as compared to post-test scores of the treatment group ($M = 9.47, SD = 2.84, n = 69$) after rhythm instruction with weak effect size, $t(114) = 1.87, p < .05, d = 0.36$. On average there was a 1.15 point difference between groups. This data supports the conclusion that the use of Kagan Structures was effective in student's learning of rhythm as assessed on a written exam.

An independent t test revealed that there was not a statistically significant difference in post-test scores of performance rhythm skills of the control group ($M = 6.09, SD = 3.37, n = 45$), as compared to the post-test performance scores of the treatment group ($M = 6.85, SD = 2.99, n = 69$) after rhythm instruction with weak effect size, $t(114) = -1.23, p > .05, d = 0.24$. On average there was a 0.76 point difference between groups. This data is not statistically significant. Therefore, the use of Kagan Structures did not make a difference in student's performance of rhythm skills.

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Discussion

Summary of Major Findings

The initial question for this action research was to discover if the use of cooperative learning, specifically Kagan Structures, increased rhythmic knowledge and understanding of general music students. The growth shown on the written test for both the control and treatment groups was statistically significant. The written test used to assess rhythm was worth a total of 12 points. The control group scored with a mean score of 1.13 (9.44%). On the written post-test, the control group scored with a mean score of 8.32 (69.32%). Thus, showing overall growth of 59.88%. On the written pre-test, the treatment group scored with a mean of 1.58 (13.16%), with post-test mean scores of 9.47 (78.92%). Thus, showing an overall growth of 65.76%. The treatment group grew 5.88% more than the control group on the written test. The *t-test* comparing post-test written scores of the control and treatment groups indicated that the growth was statistically significant because this much difference would only occur due to chance variation about 3.26% of the time. Therefore, supporting the conclusion that the treatment was effective.

The second test was the performance test, worth a total of nine points. The control group scored with a mean score of 0.11 (1.23%) on the performance pre-test while the treatment group scored with a mean of 0.1 (0.16%). Grading of the post-tests indicated that the mean score of the control group performance test was 6.09 (68.68%) and the treatment group scored with a mean of 6.85 (76.14%). Both groups increased their scores on the performance exam, with the treatment group showing 7.46% more growth. However, the *t-test* comparing the post-test scores of the control and treatment group indicated that this is not statistically significant because this much difference would likely occur due to chance variation about 11% of the time. The

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statistical evidence does not support the hypothesis that the treatment, use of Kagan Structures, made a difference in rhythm performance.

There were 45 students in the control group. These students did not participate in cooperative learning activities to enhance rhythm skills. In the control group there were three students (6.6% of the control group population) who showed no growth on the written test. Of these students, one received special education services and one was an English Language Learner. In the same group, there were three students (6.6% of the control group population) who showed no growth on the performance test. One of those students received special education services and one was an English Language Learner. In addition, there was one student in the control group who showed no growth on both the written and performance tests. This student received special education services.

There were 69 students in the treatment group, which participated in Kagan Structures to enhance rhythm skills. In the treatment group, there was one student (1.4% of the treatment group population) who showed no growth on the written exam. In the same group there was one student (1.4% of the treatment group population) who showed no growth on the performance exam; this student received special education services. In addition, there was one student (1.4% of the treatment group population) who showed no growth on both tests; this student also received special education services. One student (1.4% of the treatment group population) in the treatment group showed a decline in score on the written test. The comparison of students showing no growth indicates there were more students in the control group who did not improve their rhythm skills over the duration of the action research.

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Limitations of the Study

There are different suggestions for group or team formations in cooperative learning (Kagan & Kagan, 2017). One suggestion is to use teams, in which the same group of students are combined and used over a length of time in order to promote team identity, acceptance and support (Kagan & Kagan, 2017). The other suggestion is groups, which do not have an identity, change frequently and can be assigned at random (Kagan & Kagan, 2017). For this action research, students were randomly assigned groups by this teacher researcher. The group formation was different for each class period and cooperative learning activity utilized during the study. However, “shoulder partners” remained the same over the course of the action research study. Shoulder partners were used for discussions or answering questions during large group instruction. When teams are formed, usually in quadrants, Kagan & Kagan (2017) suggest pairing a high level student with a low and two from the middle. For continued use of Kagan structures after the completion of this action research, the teacher researcher used the post-test data from this study to form sustained teams in the music classroom following Kagan & Kagan’s (2017) suggestions for group configuration.

For successful cooperative learning, Kagan & Kagan (2017) also suggest that educators incorporate teambuilding activities into weekly schedules to promote support, trust and excitement among classmates. It is suggested that teambuilding activities occur about twice a week (Kagan & Kagan, 2017). Teambuilding activities do not contain academic content, but are completed using Kagan structures. This action research took place in a music classroom where the teacher saw the participants every three school days. Therefore, there were weeks when certain classes only attended music class one day on a given week. Due to the rotating schedule structure and the timeline of the research, teambuilding activities were not used.

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This teacher researcher created the written test used in this action research. Therefore, there was no proof of validity or reliability. The performance test was adapted from a resource found on the Teachers Pay Teachers website (2019). When this teacher researcher graded the performance assessment, students either performed the rhythm correctly, receiving one point, or incorrectly, and received zero points. To receive one point for a performance rhythm (with a total of nine rhythm patterns and points possible), students had to say the rhythm correctly using rhythm syllables, clap the rhythm correctly and maintain a steady beat. This teacher researcher, however, observed students being able to perform one element of the performance test, but not all three. Even though part of the rhythm performance was present, no points were assigned. With performance being part of the music standards, this researcher believed it was important for students to demonstrate their ability to perform rhythm patterns as part of their understanding of rhythm. In hindsight, this teacher researcher would re-evaluate scoring process of the performance test and create a rubric, giving points to students when one element of the performance test was met. While preparing to conduct the action research, this teacher researcher could not find a suitable performance test for the population used in the study, which is why the performance test was adapted from another resource. There were similar difficulties when selecting a resource for the written test.

The final limitation of this study the researcher would address is the essence of time. Students received only five instructional lessons on rhythm before having to complete the post-test. Scores from the pretest indicated that students had very minimal rhythmic knowledge before participating in the presented action research. This researcher would be interested in continuing to teach the fourth grade music class using Kagan structures and retest the participants toward the end of the school year. Rhythm is a skill that takes repetition and practice. Although

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participants in this action research showed growth, there is continued work to be done to reach a level of mastery.

Further Study

Rhythm is one foundational skill in music education, which was the element used for this action research. It would be this teacher researchers suggestion that the use of cooperative learning, specifically Kagan structures, continues to be researched in music education. Further research could examine cooperative learning in the general music classroom to teach other musical concepts. Cooperative learning strategies should also be used to promote music performance in ensemble settings such as band, orchestra and choir. Although the results from this action research indicated that there was no significant difference between the treatment and control group on the performance test, the use of cooperative learning still indicated student growth higher than the control group. It would be interesting to have an extended timeline and discover how cooperative learning structures could be beneficial in music performance and the classroom.

For this action research, quantitative data was collected and analyzed. Given the benefits on academic achievements with the use of cooperative learning, further research could explore teacher's feelings and opinions through qualitative classroom observations. Student engagement levels, peer relationships and values of learning could also be examined. Data from this action research indicated that Kagan Strategies significantly increased student understanding of rhythm as assessed by a written exam. However, there was no significant difference between treatment and control groups on performance growth. This teacher researcher enjoyed teaching the classes with the use of cooperative learning strategies as students engaged and interacted in a positive manner. This was an enlightening observation that could potentially impact the climate and

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dynamic of a learning environment. It should never be assumed that students have the proper social skills to develop positive peer relationships, cooperative learning structures help develop those skills which are essential for life beyond school years.

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Conclusion

There are many benefits of cooperative learning, including both academic and non-academic skills (Baker & Harvey, 2014; Battistich, Solomon, & Dulucci, 1993; Cooper, 1995; Dean, Hubbel, Pitler, & Stone, 2012). Cooperative learning involves the use of specific structures, making the teaching strategy different from group work (Dean, Hubbell, Pitler & Stone, 2012; Dyson & Rubin, 2003; Koutselini, 2008/2009; Whitener, 2014). Kagan (Kagan & Kagan, 2017) has developed a set of cooperative learning structures that do not contain academic content. Kagan suggests the structures can be used in all academic areas. Past studies have shown that the use of cooperative learning enhances academic achievement (Battistich et al., 1993; Egger, 2019; Koutselini, 2008/2009). Wondering about the benefits of cooperative learning in the general music classroom, this teacher researcher began with the research question, “Does the use of cooperative learning strategies promote rhythm skills and understanding in music education?” The use of Kagan structures was used to teach rhythm to fourth grade music students participating in the action research.

The results of this action research determined that the use of Kagan structures did promote greater achievement in rhythm, compared to participants who did not participate in cooperative learning structures. Rhythm was assessed using both a written exam as well as a performance test. Results indicated that there was a statistically significant difference in rhythm skills using Kagan structures on the written test, but no statistical difference on the performance assessment.

Data from this action research and the information presented in the literature review supports the hypothesis that the use of cooperative learning supports academic achievement. Rhythm is one element of music education and the generalized statement that cooperative

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learning structures promote music achievement should not be assumed. Instead, music educators should continue to utilize cooperative learning structures in the music classroom to teach a variety of skills. Using cooperative learning structures in the music education classroom is not the traditional method for teaching music. However, the benefits of music education combined with the benefits of cooperative learning, provides the opportunity for students to succeed beyond the walls of the classroom.

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Resources

- Ansary, N., Elias, M., Greene, M., Green, S., (2015). Best practices to address (or reduce) bullying in schools. *Phi Delta Kappan* 97(2), 30-35.
- Azwihangwisi, E., M., & Kriger, S. (2019). Music instruction and reading performance: Conceptual transfer in learning and development. *South African Journal of Childhood Education; Little Rock*, 9(1), 9-11.
- Baker, W., & Harvey, G. (2014). The collaborative learning behaviors of middle primary school students in a classroom music creation activity. *Australian Journal of Music Education; Nedlands*, 1, 3-14.
- Bell, J., Bell, T. (2018). Integrating computational thinking with a music education context. *Informatics in Education*, 17(2), 151-156.
- Battistich, V., Solomon, D., & Delucchi, K. (1993). Interaction processes and student outcomes in cooperative learning groups. *The Elementary School Journal*, 94(1), 19-32.
- Blackburn, B. R. (2016). *Motivating Struggling Learners*. New York, NY: Routledge.
- Brown, C., Katz, M. (2012). *Match Mine Music*. San Clemente, CA: Kagan Publishing.
- Cooper, M. M. (1995). Cooperative learning. *Journal of Chemical Education*, 72(2), 162.
- Crooke, A. (2016). Extrinsic versus intrinsic benefits: challenging categories used to define the value of music in schools. *Voices*, 16(2). <https://doi.org/10.15845/voices.v16i2.875>
- Curtis, L., Fallin, J. (2014). Neuroeducation and music: Collaboration for student success. *Music Educators Journal*, 101(2), 52-56.
- Dean, C., Hubbell, E., Pitler, H., & Stone, B. (2012). *Classroom instruction that works, 2nd edition*. Denver, CO: Mid-continent Research for Education and Learning.
- Di Natale, J., & Russell, G., (1995). Cooperative learning for better performance. *Music Educators Journal*, 82(2), 26-28.

KAGAN STRUCTURES IN MUSIC EDUCATION

- Dyson, B., & Rubin, A. (2003). Implementing cooperative learning in elementary physical education. *Journal of Physical Education, Recreation & Dance*, 74(1), 48-55.
- Egger, J. O. (2019). Effects of cooperative learning on preservice elementary teachers' interest in and integration of music into core academic subjects. *International Journal of Music Education*, 37(4), 608-621.
- Evans, C., Smokowski, P. (2016). Theoretical explanations for bullying in school: How ecological processes propagate perpetration and victimization. *Child and Adolescence Social Work Journal* 33(4), 365-375.
- Heacox, D. (2012). *Differentiating Instruction in the Regular Classroom*. Minneapolis, MN: Free Spirit Publishing Inc.
- Igel, C., & Urquhart, V. (2012). Generation Z, meet cooperative learning. *Middle School Journal*, 43(4), 16-21.
- Kagan, Dr. S., & Kagan, M. (2017). *Kagan cooperative learning*. San Clemente, CA: Kagan Publishing.
- Kassner, K. (2002). Cooperative learning revisited: A way to address the standards. *Music Educators Journal*, 88(4), 17-19, 21-23.
- Katz, M., Brown, C. (2011). *Cooperative learning and music*. San Clemente, CA: Kagan Publishing.
- Kim, J. (2017). Transforming music education for the next generation: Planting 'Four Cs' through children's songs. *International Journal of Early Childhood*, 49(2), 181-193
- Koutselini, M. (2009). Teacher misconceptions and understanding of cooperative learning: An intervention study. *The Journal of Classroom Interaction*, 43(2), 34-44.

KAGAN STRUCTURES IN MUSIC EDUCATION

- Menesini, E., Salmivalli, C. (2017). Bullying in schools: The state of knowledge and effective interventions. *Psychology, Health & Medicine*, 22(Sup1), 240-253.
- Minnesota Department of Education (2019). Academic standards. Retrieved from <https://education.mn.gov/MDE/dse/stds/>
- Minnesota Department of Education (2019). Teacher development and evaluation state model. Retrieved from <https://education.mn.gov/MDE/dse/edev/mod/>
- Prater, M. A., Bruhl, S., & Serna, L. A. (1998). Acquiring social skills through cooperative learning and teacher-directed instruction: *Remedial and Special Education*, 19(3), 160-172.
- Pretty-Norbury, G., Pontarini, L. (2018). Kodaly or Orff? Why not both? *Canadian Music Educator*, 60(1), 9.
- Quaver Music (2019). Retrieved from <https://www.quavermusic.com/info/>
- Reddy, M. M. (2019). Cooperative learning as a teaching pedagogy for large classes: Enhancing higher order thinking skills. *Journal of Gender, Information & Development in Africa*, 8(1), 31-49.
- Sarrazin, N.R. (2016). *Music and the child*. Genesio, NY: Open SUNY Textbooks.
- Smith, K., Sheppard, S., Johnson, D., & Johnson, R. (2005). Pedagogies of engagement: Classroom-based practices. *Journal of Engineering Education*, 94(1), 87-101.
- Studer, J., Mynatt, B. (2015). Bullying prevention in middle schools: A collaborative approach. *Middle School Journal; Columbus*, 46(3), 25-32.
- Tiszai, L. (2015). Kodaly approach in the crossroad of education and therapy. *Voices*, 15(2). <https://doi.org/10.15845/voices.v15i2.804>

KAGAN STRUCTURES IN MUSIC EDUCATION

Van Ryzin, M., & Roseth, C. (2018). Cooperative learning in middle school: A means to improve peer relations and reduce victimization, bullying, and related outcomes. *Journal of Educational Psychology, 110*(8), 1192-1201.

Whitener, J. (2014). Using the elements of cooperative learning in school band classes in the United States. *International Journal of Music Education, 34*(2), 219-233.