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Rhythmic Characteristics of Improvisational Drumming Among Preschool Children

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Abstract

A call-and-response drumming activity was carried out to determine the rhythmic characteristics of improvised patterns created by preschool children. Specific goals of the study were to: (1) determine the durations, start and stop times, and rhythmic patterns of improvised responses to a simple given call using drums; (2) determine the presence or absence of steady beat in improvised responses; and (3) describe the social factors that may affect the improvisational choices of young children. Six 4- and 5-year-old children participated in the activity over five weeks. Each week, the researcher played a four-beat rhythmic call and invited each student to individually play an improvised response within four beats. Results indicated that 86% of responses began on beat one immediately following the call, and 80% of responses ended on beat four. Seventy-nine percent of responses were four beats long. Eighty-four percent of improvised responses contained a steady beat. Students were either not able or did not wish to mimic the responses of other students, and very rarely repeated the call provided by the researcher. Results suggest that 4- and 5-year-old children are able to improvise both simple and complex rhythmic patterns on drums within specified guidelines.

Rhythmic Characteristics of Improvisational Drumming Among Preschool Children

Improvisational activities in the music classroom can provide opportunities for young children to explore, discover, and create their own musical ideas. The act of improvising allows children to simultaneously play, listen, and make musical choices based on their growing musical vocabulary. The music education profession has historically shown support for the implementation of improvisation in music classrooms. Notably, Donald Pond's work at the Pillsbury Foundation School from 1937-1944 (Moorhead & Pond, 1941, 1942, 1944; Moorhead, Sandvik & Wight, 1951) provided music educators and researchers with detailed descriptions of the spontaneous musical activities of young children. In addition, both the Contemporary Music Project for Creativity in Music Education in 1957 and the Manhattanville Music Curriculum Project in 1965 shined a light, both philosophically and practically, on improvisation as a vital part of a comprehensive music education for all students (Mark & Gary, 1992). Currently, the inclusion of improvisational activities in music instruction is supported and encouraged within the music education profession. Improvisation is included in the National Standards for Music Education (Consortium of National Arts Education Associations, 1994), many state standards documents, and the Performance Standards for Music: Prekindergarten (Ages 2-4) (Performance Standards for Music, 1996). The National Standards for Music Education, first published in 1994, have led to curricular reform throughout the United States. Many state standards documents have paralleled the ideas within the original National Standards publication, with improvisation often included as a suggested activity within music instruction.

The process of teaching improvisation can be challenging for music educators. Upon completion of improvisational lessons, teachers may wonder whether or not the students have lived up to their improvisational potential, and whether the activities chosen were developmentally appropriate and challenging. In order to provide meaningful improvisational activities for young children, it may be helpful for teachers to become more familiar with the characteristics of children's improvisation at various ages. Research studies observing students' individual improvisational abilities have generally indicated that children are able to develop melodic and rhythmic improvisational skills over time (Azzara, 1992; Brophy, 1999, 2005; Flohr, 1979; Laczo, 1981; Paananen, 2006; Reinhardt, 1990). With the exception of the study by Paananen (2006), this research has primarily utilized xylophones, providing children with melodic choices during their improvisational endeavors. However, additional knowledge can be gained by conducting studies using non-pitched percussion instruments. Eliminating melodic choices may, in fact, inform our understanding of the rhythmic capabilities of preschool children. Paananen supports this idea as she points out that in studies providing children with melodic choices in addition to rhythmic choices, "children may have focused on *pitch relations* rather than on rhythm" (p. 352). When relating these ideas to the needs of practitioners, results from studies using non-pitched percussion in improvisational activities may be helpful to teachers without access to or funding for pitched percussion.

Studies by Flohr (1979) and Reinhardt (1990) perhaps provide the most relevant insight into the rhythmic characteristics of improvisational endeavors by preschool children for the purposes of the current study. Flohr studied the improvisations of children ages four, six, and eight years old by conducting ten 15-minute sessions with each child using xylophones and one mallet. He used the phases of improvisation outlined in the Manhattanville Music Curriculum Project as a guide as he divided each session into three phases: free exploration, guided exploration, and exploratory improvisation. Of particular interest to the current study are the guided exploration and exploratory improvisation phases. The guided exploration phase included short musical tasks such as echoing, playing sounds based on human moods, programmatic improvisation, and improvisational conversations. The exploratory improvisation phase consisted of the researcher playing "Hush, Little Baby" on the xylophone and then inviting the child to make up a song while the researcher played a bordun accompaniment (i.e., a repetitive pattern using the first and fifth scale degree played simultaneously on a barred instrument). Results of the study indicated that music educators can use the musical improvisations of young children as a resource for pedagogical possibilities by listening to the ideas inherent in these improvisations and planning instruction based on these ideas. Flohr states that since young children have shown the ability to improvise patterns related to melodic and rhythmic stimuli provided in phase two, music educators can use these types of activities to expand the musical repertoire of young children. Finally, Flohr concluded that since four-year-old children improvise complex rhythmic patterns, music educators can use improvisation as a way to sustain this rhythmic ability as children grow and develop.

Reinhardt (1990) studied 105 preschool children to develop an understanding of the rhythmic elements found in the improvisations of 3-, 4-, and 5-year-olds and to determine any significant differences in the use of rhythm among the improvisations of these children. The author met individually with each child and conducted an interview in three parts. The first part provided each child with the opportunity to explore an alto xylophone, with a 5-minute time limit. The second part consisted of a musical conversation between the researcher and the child and an opportunity for the child to respond to programmatic suggestions given by the researcher for playing the xylophone. The third section of the interview contained the improvisations to be analyzed for the study. This began with the researcher playing "Hush, Little Baby" on the xylophone and stating, "I've played a song for you, and now I'd like you to play a song for me. I'll help you out by playing this on my xylophone" (p.11). The researcher played a bordun accompaniment on the xylophone. Improvisations were analyzed based on beat, meter, duration (using notes of different values), and pattern (combination and repetition of notes). Reinhardt found that 104 of the 105 children provided a steady beat in their improvisations. The same statistic held for the establishment and maintenance of a recognizable meter. The improvisations contained more variation when analyzed in terms of duration and rhythmic patterns. The author states, "The number of improvisations using notes with different durations was lowest for the 3-year-olds and highest for the 5-year-olds" (p. 14). Similarly, the number of improvisations containing rhythmic patterns was highest for 5-year-olds and lowest for 3-year-olds. Reinhardt states that a possible weakness to the study was that examples of steady beat, different durations, and rhythmic patterns were provided in the accompaniment played by the researcher. However, Reinhardt does suggest that this study can contribute to music teaching and learning since the ability for preschool children to improvise has been shown. She concludes by stating, "Given the developmental nature of preschoolers' use of durations and rhythm patterns, activities which enable these preschool student [sic] to discover and experiment with the concepts of duration and rhythm pattern are appropriate for this age group" (p.18).

Since many improvisational activities with young children occur in a group environment, the developing rhythmic choices and abilities while improvising may be affected by social factors. Davies (1986), Hamilton (1998), Kanellopoulos (2007), and Wiggins (1999/2000) have contributed to research in this area through their descriptions of how improvisation is affected by shared understanding and the presence of others in the creative process. The results of this collective research indicate that children share, elaborate, and develop the musical ideas of others, thus reflecting shared understanding. Kanellopoulos (2007) states, "musical improvisation emerges as a source of genuine musical experiences and a core means for the creation of communities of practice, dialogue, and reflection" (p. 120). While these studies included children older than preschool age and did not focus specifically on the rhythmic characteristics of improvisational endeavors, the social nature of improvisational processes is certainly something to consider when conducting a study in a group setting.

The purpose of the current study is to determine the rhythmic characteristics of call-and-response drumming of 4- and 5-year-old children in a group setting. Hand drums were used to isolate rhythmic choices made by children as they spontaneously create music. Specific goals of this study were to: (1) determine the durations, start and stop times, and rhythmic patterns of improvised responses to a simple given call using drums; (2) determine the presence or absence of steady beat in improvised responses; and (3) describe the social factors that may affect the improvisational choices of young children.

Method

Six children participated in call-and-response drumming for five weeks as part of a children's community music class. The class met for one hour each week for a total of ten weeks. Activities in the class included singing, playing classroom instruments, moving to

music, listening to music, and improvising. The researcher taught the class with assistance from undergraduate music education students.

During the first drumming session, the researcher introduced the activity to the children first with echo drumming, as she stated, "I'm going to play a pattern on my drum, and I just want you to echo it back." After a few four-beat patterns were echoed by the children, the researcher stated, "This time, I'm going to play a pattern for Miss Elise, and she is going to play a different pattern back to me. She can play whatever she wants." The researcher, along with Miss Elise (an undergraduate music education student), performed call-and-response improvisational drumming for the students and then said, "Let's listen to a different pattern," as modeling of the spontaneous call-and-response drumming continued. Once the structure of the activity was modeled for the children and various improvised patterns were demonstrated, the researcher said, "It is your turn, boys and girls. This time, you don't have to play what I play. You can play whatever you want. First, it will be my turn, then it will be [Student A's] turn, then my turn again, and then [Student B's] turn, and we'll go all around the circle." The instructions did not specify the desired length of the patterns because the goal was to determine the natural rhythmic tendencies of 4- and 5-year-olds as well as provide a welcoming environment where all spontaneous musical creation was honored and invited. Instructions such as those described above were repeated as reminders for the children each week before the improvisational drumming activity.

The rhythmic call for the first two weeks was the familiar *ta ta ti-ti ta* pattern, followed by *ti-ti ta ti-ti ta* for the third and fourth weeks. For week five, the rhythmic call varied. The researcher went around the circle twice each week, allowing each child to play two responses during each class session. The call provided was at a tempo of approximately 100 beats per second. After the call, the researcher rested for four beats while each child played a response. Regardless of whether the previous child was finished responding, the researcher repeated the call for the next student after exactly four beats so that the start time of the next student could be clearly determined and the rhythmic structure of the activity could be maintained.

Each drumming session was video-recorded, with additional audio equipment used for backup purposes. Upon completion of all sessions, the researcher analyzed the video-recorded sessions. Two undergraduate music education students also analyzed the video-recorded sessions for the purposes of inter-judge reliability. Data analysis included the symbolic representation of the students' improvised responses, indications of whether each child repeated the call or created an original rhythmic pattern, the presence or absence of steady beat, and the duration of each response, including the starting and ending times of each response. Frequency counts and percentages are reported for each rhythmic element. Percentages are rounded to the nearest whole number. The age of each child at the time of the study is also reported. In addition, the researcher analyzed the video-recordings to determine possible social factors that affected the improvisational drumming activities. Social factors are reported descriptively.

Results

Rythmic Patterns

There were a total of 56 improvised rhythmic responses over five drumming sessions. Tables 1, 2, and 3 show the symbolic representation of the students' improvised responses to the given call. The rhythmic call is included at the top of each table, and both responses from each student are represented for each week. Forty-eight of the 56 responses were able to be transcribed using standard rhythmic notation. The additional eight responses were labeled *indiscernible* due to the complexity and/or speed of the rhythmic pattern played by the child. When a child was absent, it is so noted in the appropriate box within each table.

The shaded rhythmic patterns on Tables 1, 2, and 3 indicate instances when students repeated the call played by the teacher. Ninety-three percent of responses did not repeat the call. Table 3 includes the responses for the fifth week of the improvisational drumming activity. During the first response, Student F repeated the call. Although the call provided before the second response was different than the first call, Student F responded with the same pattern.

Start and Stop Times, Durations

One goal of the study was to determine the start and stop times of the improvised drumming responses in relation to the four-beat rhythmic call played by the teacher. Eighty-six percent of improvised drumming responses started on beat one immediately following the call. Of the eight responses (12%) that did not start on beat one after the call, only one began before the call was completed; all seven others started late. Similarly, 80% of improvised drumming responses ended on beat four (four beats after the call was completed).

Another goal of the study was to determine the durations of improvised drumming responses in relation to the four-beat rhythmic call played by the teacher. Seventy-nine percent of improvised drumming responses were four beats long. Of the other twelve

(21%), four responses were three beats long, two responses were five beats long, and six responses were other durations. After playing the call, the teacher stopped for four beats and resumed the call after four beats. The fact that the teacher began playing the call even if the child's response was not finished may have had an influence on the duration of some longer responses.

Steady Beat

Forty-seven of the 56 responses (84%) contained a steady beat. Eight responses did not contain a steady beat. An exception was made for one response. For the purposes of this study, the researcher notated the rhythmic responses of the children in relation to the call. The call established the steady beat (or macrobeat). For instance, the first call included two quarter notes, two eighth notes, and a quarter note, respectively. Each child's response, then, was analyzed relative to the fact that the quarter note served as the steady beat for both the notation of the response and whether or not the child maintained a steady beat. In the case of the one exception (Student B, Week Five), the researcher noticed that although the student did not maintain the beat that was provided in the call, the child demonstrated a steady internal beat and played a pattern while maintaining this internal beat. The steady beat in this case was slower, but still evident. In their rhythm development stages, Guilmartin and Levinowitz (2003) suggest that although a child may consistently move or sing with a consistent tempo, that tempo can be "different than the tempo of the music he is hearing" (p.27). In this case, the researcher made the decision to acknowledge that the child kept a consistent beat, but that the beat contained a slower tempo than that of the researcher's call.

Analysis of steady beat in relation to individual students revealed that out of the six students in the study, three did not maintain a steady beat at least once, while the other three maintained a steady beat for each response. Student A maintained a steady beat eight out of ten responses; Student F maintained a steady beat seven out of eight responses; Student E maintained a steady beat five out of ten responses. Therefore, of the eight instances where there was an absence of steady beat, five were the responses of the same child.

Social Factors

The final goal of the study was to determine the social factors affecting the improvisational choices of young children. Upon review of the video-recordings, a few themes emerged. Regarding the rhythmic characteristics of the drumming patterns, it is clear from the data that the students either were not able or did not wish to mimic the responses of other students. Based on the vast differences in patterns from one student to another each week, it may seem that students were not immediately influenced by the rhythmic ideas of one another. However, future studies focusing solely on this area may be able to determine the influence of other students' improvisational ideas on the rhythmic choices of individuals. When looking at the progression of patterns from each individual student over the course of five weeks, there are more similarities. Students, therefore, were rather consistent in their pattern creation and were not affected rhythmically by the patterns played by others. Similarly, the rhythmic call provided by the teacher did not seem to influence the students either. The call was only repeated in 7% of the responses. Students seem to be waiting for their turn rather than listening to other students' responses. Further study is needed to determine if these tendencies could be related to egocentrism apparent in 4- and 5-year-old children.

The students did not improvise in the same order each week. When analyzing the rhythmic characteristics of each child's improvisation from week to week, there does not appear to be many differences. This fact further supports the idea that students were not immediately affected by the patterns of others when improvising on drums. For instance, Student C played the *ti-ti ta ti-ti ta* pattern four out of the five weeks, regardless of placement within the circle.

Regarding the social interactions of the children during the improvisational drumming, one incident of interest occurred. One student in the circle would play his drum much louder than the other students. Another student reacted to this by saying, "It sounds like a giant!" Then, when it was time for the students to play their second response, the student who had reacted to the loud drumming of the first student played her drum louder than in her previous turn. The following week, a similar exchange took place. While this probably did not affect the rhythmic choices of the child, it did affect the dynamic level of the child's drumming and is interesting anecdotally.

Discussion

The purpose of this study was to determine the rhythmic characteristics of call-and-response drumming of 4- and 5-year-old children in a group setting. Rhythmic call patterns were chosen based on their prevalence in traditional musical repertoire used in preschool settings, such as the popular rhymes and songs included in *Music in Preschool* (Forrai & Sinor, 1998) and other respected publications. Drums were used to determine the rhythmic characteristics of improvised patterns without providing students with melodic choices. Students were given four beats in which to improvise, with the researcher repeating the call for the next student after four beats.

The results of the rhythmic analysis indicated that improvised drumming responses included a variety of different patterns, with a combination of simple and complex rhythmic ideas. Combinations of quarter notes, eighth notes, sixteenth notes, triplets,

dotted rhythms, and syncopation were included within the patterns created by the children. Simple patterns included those found in traditional song repertoire and may be the result of other activities occurring within the music class. Some patterns were quite complex and unable to be transcribed using traditional rhythmic notation. These results support the findings of previous research and may suggest that planning activities such as call-and-response improvisational drumming may help to preserve the complex rhythmic ideas of children as they develop musicianship skills due to both the presence of common patterns within the call and the opportunity for children to stray from the simplicity of common patterns without penalty in their improvised responses.

Analysis of the start and stop times and durations of the rhythmic patterns allowed the researcher to determine the ability level of 4- and 5-year-old children to feel the four-beat duration and spontaneously create within the confines of four beats. This required each child to listen to the call, anticipate the start time based on this call, spontaneously play for four beats, and anticipate the end of his/her turn. Since it is not developmentally appropriate for the researcher to explain the complexities of that process, the children were required to become acquainted with the process by listening to the modeling provided by the researcher and the assistant. As in the Reinhardt (1990) study, the challenge here is to provide enough of a model for students to understand the process, but to also limit modeling so students are free to create their own original ideas. Other activities involving four-beat patterns were included in the music class as well, which may have positively affected the participants' abilities to feel the four-beat duration. Given the complexity of this task for this age group, it is promising that 79% of responses were four beats long. In addition, most of the 4- and 5-year-olds in this study were able to anticipate the first beat of their turn, with 86% of students starting on beat one. Of the eight responses that did not start on beat one, all but one started late. Although it is difficult to determine the cause of late responses, it may indicate that students need time to think about their musical ideas before playing, or they may want to ensure their drumming will be heard.

Perhaps the most interesting results of this study relate to steady beat. In previous studies, as described earlier, steady beat was prevalent in the improvisational creations of young children. For instance, 104 out of 105 students in the Reinhardt study maintained a steady beat. Data from the current study were analyzed both in terms of improvised responses and individual children. In both cases, the presence of steady beat was not as prevalent as in previous studies. Only 84% of *responses* contained a steady beat, and three out of six *children* improvised without a steady beat at least once. However, it is interesting to note that one child accounted for five of the eight instances where steady beat did not occur. One reason for the absence of steady beat in this study when compared to previous studies may have to do with the length of time provided for the students to improvise. While it is somewhat unclear how many beats Reinhardt and Flohr provided for the students, it appears that students had at least 16 beats, and may have had an unlimited number of beats for improvisation. Students in previous studies may have begun their improvisations without a steady beat but may have demonstrated and maintained a steady beat at some point during their improvising. The students in the current study did not have the opportunity to develop musical ideas because they were only permitted to play for four beats. Another factor affecting the presence of steady beat related to accompaniment. The researcher in this current study did not provide a steady beat accompaniment while the students were improvising, which differs from the studies of Reinhardt and Flohr. This aspect of the study may be the reason for a smaller percentage of students maintaining a steady beat in comparison to previous studies. Since no accompaniment was provided for the students, they were required to maintain a steady beat on their own. Finally, due to the small number of participants in this study, these results may not be indicative of the larger population of preschool students and may account for the difference in results from previous studies.

An interesting aspect of this study was the determination of social factors affecting the improvisational choices of 4- and 5-year-old children. The egocentric nature of the children was evident, as there were very few instances of repeating the call or repeating the patterns of fellow students. Furthermore, the relationship of environmental stimuli to rhythmic patterns created by children has been an area of interest for pedagogical approaches such as *The Early Childhood Music Curriculum,* developed by Edwin E. Gordon (Valerio, Reynolds, Bolton, Taggart, & Gordon, 1998). Gordon and colleagues present a progression of rhythmic abilities that include a continuing awareness and response to the sounds in the environment in 2-year-old through 4-year-old children. The results of the current study support the idea that children are developing the ability to respond to rhythmic stimuli. For instance, the majority of students responded (most of the time) to the steady beat provided by the call. This fact, in combination with the lack of imitation, shows that the students are aware of the musical environment but still focused on their own musical ideas. It is important to note that students improvising within this study were doing so in a group setting. Many previous studies were designed with children improvising in a separate room with only the researcher present. The fact that other students were in the room during the current study may have, in some ways, affected the improvisations of the children due to the overwhelming amount of stimuli in the research environment.

Implications for Music Educators

As stated earlier, it is a challenge for music educators to plan activities that provide developmentally appropriate opportunities for children to improvise. One way to address this challenge is to become aware of the improvisational capabilities and tendencies of

young children. The results of this study support the idea that 4- and 5-year-old children can improvise simple and complex rhythmic patterns and maintain a steady beat. Furthermore, stimuli such as a rhythmic call provide opportunities for children to become familiar with common patterns and expand their musical repertoire. Allowing children to improvise within specified guidelines, in addition to planning free improvisational activities, may reinforce traditional musical concepts while also fostering creativity and preserving the natural rhythmic characteristics of young children. This study also shows that improvisational activities can be carried out successfully using non-pitched percussion, which may be encouraging to teachers with limited budgets for pitched percussion.

The children in this study demonstrated the ability to improvise patterns that are included in traditional song and rhyme literature as well as patterns that may be more complex than those found in such literature. When planning instruction, teachers can honor these complex rhythmic ideas by incorporating them into related activities such as echo playing, speech patterns, rhymes, and body percussion. A combination of simple and complex rhythmic ideas will enhance the musical environment and broaden the rhythmic vocabulary of the students.

Recommendations for Future Research

Continued research on the rhythmic characteristics of improvisation in young children is needed to determine best practices in early childhood music instruction. Future research should include the following: (1) studies using drums and other non-pitched percussion instruments that allow children more time (longer than four beats), within specified guidelines, to improvise; (2) studies that provide opportunities for free improvisation using non-pitched percussion; (3) studies focusing on vocal improvisation, such as rhythmic speech patterns on a neutral syllable; (4) studies that compare the rhythmic characteristics of improvisations of children enrolled in music instruction with those of children with no previous formal musical training; and (5) replication studies that expand the number of 4- and 5-year-old participants. As music educators become more informed about the improvisational tendencies and abilities of young children, they will be better able to plan meaningful musical experiences that include improvisation.

Table 1

Weeks One and Two

Rhythmic Call:

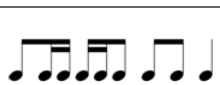
	Week One First Response	Week One Second Response	Wee First
Student A (5 yrs., 10 mos.)			
Student B (5 yrs., 0 mos.)			
Student C (5 yrs. 7 mos.)			
Student D (4 yrs., 11 mos.)		Indiscernible	
Student E (4 yrs., 8mos.)	Indiscernible	 continues...	
Student F (4 yrs., 3 mos.)			

Table 2

Weeks Three and Four

Rhythmic call:

	Week Three First Response	Week Three Second Response	W F
Student A (5 yrs., 10 mos.)			
Student B (5 yrs., 0 mos.)	Absent	Absent	
Student C (5 yrs. 7 mos.)			
Student D (4 yrs., 11 mos.)			
Student E (4 yrs., 8mos.)	Indiscernible	Indiscernible	
Student F (4 yrs., 3 mos.)	Indiscernible		

Table 3

Week Five

Rhythmic Call: Various Patterns

	Week Five First Response
Student A (5 yrs., 10 mos.)	Indiscernible
Student B (5 yrs., 0 mos.)	 Augmented*
Student C (5 yrs. 7 mos.)	
Student D (4 yrs., 11 mos.)	Indiscernible
Student E (4 yrs., 8mos.)	Indiscernible
Student F (4 yrs., 3 mos.)	

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