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Rhythm Responses of Preschool, First, and Second Grade Children in Different Tasks of Duplicating Rhythmical Patterns

Extended summary

Rhythm, in the broadest sense of the term, is one of the key components of music; the primary element that creates the perception of time (Thaut, 2013: 15). A generally accepted definition of rhythm does not exist. In a broad sense, rhythm is considered to be a complex reality composed of several variables – distinct temporal components or sub-elements such as beat, tempo, meter and (rhythmic) pattern (Fraisse, 2013; Thaut et al., 2014). The multidimensional nature of rhythm itself implies there would be differences in performance on different rhythmic tasks, involving the use of multiple dissociable rhythmic skills (Bonacina et al., 2019; Bonacina et al., 2021, Dalla Bella et al., 2017; Fiveash et al., 2022; Tierney & Kraus, 2015).

Various tests are used to evaluate rhythmic abilities, with the rhythmic reproduction test holding a significant position among them. Rhythm reproduction task is a task where an individual remembers and duplicates rhythmic patterns as precisely as possible, right after hearing them. There are numerous versions of this task, depending on the original performance of the rhythmic pattern and the manner in which it is reproduced. Synchronizing one's movements with music pulse or beat is a task that seems very simple, but in reality, it is a complex process and its execution is dependent on the auditory processing, sensorimotor (auditory-motor) synchronization ability and fine motor control (Tierney & Kraus, 2013).

In Serbian preschools and primary schools there are different activities aimed at fostering children's rhythmical development and possible preparations for further training in this

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area. These include performing rhythmical accompaniment to reciting nursery rhymes or singing (steady beat, rhythm, grouping of the beats) with different movements and engaging in rhythmic games. Apart from the previously mentioned activities, when working on sustaining a consistent rhythmic pulsation and coordinating movements with music, musical games are indispensable, and among them traditional musical games with singing.

Public school system in Serbia, apart from general primary schools, includes specialist music schools as well. Since the resources of these schools are limited, and "the best way to ensure that resources were well used was to select children on the basis of ability" (Hallam, 2006: 55), entrance exam is considered necessary. In this paper, we focused our attention on that very important moment when a child potentially, in parallel with attending general education, starts attending specialized, music education. Evaluation of children's music abilities is not completely standardized on the national level – in the official document it is only listed that "The entrance exam includes tests of hearing, rhythm, and musical memory (Nastavni plan i program osnovnog muzičkog obrazovanja i vaspitanja, 2010: 8). However, the entrance exam is traditionally performed similarly in all schools. Usually, there are several tasks that it consists of. Specifically, children's rhythmic abilities are usually evaluated through one of two tests: a test where children are duplicating rhythmic patterns vocally, using neutral syllable while they are the reproducing the steady beat by clapping hands (test A); a test where children are duplicating rhythmic patterns by clapping hands (test B). Which one of these two tests will be performed is arbitrary and depends on the decision of the team of teachers who carry out the entrance exam. Teachers are usually inventing tasks in situ for each child, and their level of complexity is also arbitrary. Children's performance is assessed on a unified ranking list, irrespective of their age. The same two tests are usually a part of a process of evaluation of musical abilities of students, as a part of enrolment exams for teacher training faculties and colleges of preschool teacher training in Serbia.

The aim of this paper was to contribute to the potential improvement of the quality and fairness of the enrolment exam for all participants, through investigation of the possible differences in the results on duplicating rhythmic patterns in two different ways (test A and test B) and comparing the results between the tasks with different level of difficulty, between the three groups of children (preschool, first and second grade of primary school) and between the two genders. The research was conducted within school and preschool institutions in Belgrade, and the sample consisted of 278 children.

This research confirmed the differences in the performance of individuals in different rhythmic tasks. A statistically significant difference in children's successfulness when they duplicate rhythmical patterns vocally, using neutral syllable while reproducing the steady beat by clapping hands (test A) and duplicating rhythmic patterns by clapping hands (test B) has been found. 76,5% of participant had bigger success in test A and 23,5% were more successful performing test B. We determined a positive correlation in the achievement of these two tests, where an increase in the number of points in test A was associated with a higher number of points in test B. The study has also confirmed that a statistically significant difference in children's achievements performing simple tasks opposed to their achievement in duplicating complex tasks – majority of children were more accomplished in duplicating simple rhythmic

patterns, rather than complex patterns. The difference between girls and boys performing both tests was established, with large statistical significance, in favour of girls. Finally, the study has confirmed, like many different studies noted earlier, there are significant differences between achievement of second grade children and younger children in duplicating rhythmic patterns, while, on the other hand this difference was not noted in the achievement of preschoolers and first graders.

The significance of designing a more precise guidelines for testing procedure at entrance exams for music schools and teacher training faculties was pointed out, in order to have similar and unified testing procedures around the music schools in Serbia. The testing process should include short introduction to the testing procedure, and dividing children into groups based on their age, so that their accomplishments could be compared among the ones in the same age group. Engaging in practicing the reproduction of rhythmic patterns through the two mentioned methods should be incorporated into educational practice within music-related activities in preschools and Music Culture classes in primary schools in order to ensure that children who choose to take entrance exams are well-prepared for rhythm-related tests in music schools.

Keywords: duplicating rhythmical patterns, rhythmical abilities, preschool music education, general music education, music school

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