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# A Study on Percussion Teaching Strategies for Preschool Children Based on Piaget's Theory of Cognitive Development

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**Abstract:** The goal of this article is to find a way to teach children in preschool percussion music that meets their needs through conceptualising by using Piaget's cognitive development model and the symbolic function and egocentric thought of 3–6-year-old children. In doing this, the article specifically identifies a real-world issue in current music teachers' rhythm lessons not matching with children's cognitive levels and will offer specific teaching techniques that match children's cognitive levels. By doing this, the article will provide valuable, targeted academic reference and practical suggestions for preschool music education practitioners to both assist cognitive ability and develop artistic education among preschoolers as they engage in percussion instruction.

**Keywords:** Piaget's theory of cognitive development; Preschool children; Percussion teaching; teaching strategy

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## 1. Introduction

Preschoolers learn about percussion as one of the most readily available and open-ended forms of arts instruction; thus, this type of experience will strongly support both their artistic growth and cognitive growth due to the type of arts instruction being provided to them by their preschool teachers. The Piagetian stages of cognitive development have a theoretical and empirical basis that affirms that preschools must have the ability to implement their teaching techniques. In applying the developmental characteristics of children at this age that Piaget identified (symbolic functions and egocentricity), we see that the ability to learn through imitation of another person's actions should not be the only way children are exposed to sound through percussion. In exploring the new methods of teaching percussion, preschool students can utilize percussion as a tool to further educate themselves and progress toward understanding the scientific and humanistic aspects of music through their preschool experiences.

# 2. Piaget's theory of cognitive development and cognitive characteristics of preschool children

## 2.1. Core characteristics of the preoperational stage

Piaget's theory of cognitive development describes the preoperational stage of development (ages 2–7) as one of the most important stages in cognitive development due to children's reliance on their own perceptions whilst developing new ways of representing those same perceived objects as they begin to incorporate these perceived objects into their own representational systems. However, children continue to be limited by their intuitive thinking when representing objects; because all of their perceived representations of these objects are concrete, they cannot understand any form of abstract representation, such as numbers or time. In the preoperational stage, children will also engage in reversible or schematic thought and have no understanding of the concept of conservation, or that quantities will remain the same if the same number of objects are rearranged differently. When children in the preoperational stage view an object, they will typically only pay attention to that aspect in which they are most interested, and because children in the preoperational stage are primarily ego-centric, they will only view the object from their own point of view - establishing a foundation for the preschool child's base cognitive ability for creating percussion music experiences [1].

## 2.2. Symbolic function and egocentric thinking in children aged 3–6

The development of a child's symbolic function and self-centredness is moving gradually forward between the ages of 3 and 6. Children are beginning to improve their symbolic function; however, their visual thinking will always limit the symbols they will use in relation to their experiences. In music, these symbols will be based on their personal experiences, such as using clapping hands as rhythmic symbols or using percussion instruments or force when playing them to express their emotional response to something. By using these natural, intuitive symbols rather than systematic symbols, children develop their own cognitive capabilities, as evidenced by the way they engage in percussive activities. For instance, children play to their own tempo and do not give consideration to the other children playing or the group rhythm. The interaction between these two developmental functions has a direct impact on a child's acceptance or reluctance to learn through percussion instruments or through percussion as an art form.

## 2.3. The intersection between percussion activities and children's cognitive development

Children aged between 3 and 6 have very real similarities with those who play percussion instruments. These similarities can be easily shown by their ability to understand how they can understand and use the symbols of percussion instruments; they will have methods of using their bodies as a tool to create an emotional connection to the rhythm and how to convey emotions through the sounds created by the instruments they are playing. Because percussion is played in a game format, children can learn to execute their body movements in accordance with the rhythms of the instruments. Children will be able to use their existing symbol system for percussion when they participate in the practice of their body, and when they are using their instrument. As they do this, they will also gradually be moving beyond their self-centred thought process as they are developing new, more intuitive methods to use percussion instruments. This means that the physical attributes of percussion and the cognitive abilities of children are both compatible.

# 3. Major issues in percussion instruction for preschool children

## 3.1. Rhythm instruction neglects the stage of symbolic function development

A key issue with teaching preschool-aged children percussion rhythm is that it strays away from the rules of children's symbolic development. Teachers often use abstract rhythm symbols, such as "x" or "0," to teach children rhythm and do so using a single teaching approach without taking into account how children from 3–6 can understand symbols through their life experiences. Teachers will show students the abstract rhythm marker (i.e., "x" or "0") and ask students to memorize the

rhythm and play the rhythm back either by imitating the teacher or by hearing a rhythm on an instrument, but they never relate the abstract rhythm marker to a familiar scene (e.g., "when I hit my hands on the table, it sounds like 'x'" ) through the use of symbolism. Young children learn abstract symbols through experiences. When they learn to think symbolically through their life experiences, they will develop a connection between the abstract symbol rhythm and the associated percussion movement/sound through this process. Eventually, when they are not able to utilize the symbol to convey rhythm, they will lose interest. Additionally, as they lose interest in rhythm, they will also have trouble with the concurrent development of their symbolic function and the ability to understand and use rhythms. This issue is prevalent in many preschool and kindergarten music percussion classes, and yet it often goes unnoticed by teachers [2].

### 3.2. Inadequate guidance of egocentric thinking during imitation

Many children who are in the preschool stage learn the way of playing percussion instruments by imitating. Most of the teachers in this kind of setting will give the preschool - aged children some cues about movement that are related to their bodies and about how they ought to move when they are playing with the percussion instruments so that they can closely imitate the rhythms that are being played during these times of the lessons. Many teachers also do not offer support to the parents by permitting the preschoolers to think of themselves as being an individual without being under the influence of other preschoolers during the lessons, and this provides a plan that is structured and for development for the preschoolers to follow all through. That the preschoolers are not thinking about anything apart from themselves is not a sign that they have decided not to cooperate with other preschoolers. Instead, it is a sign that the preschoolers are not yet capable of successfully interacting with other preschoolers because of limitations in their physical and developmental capabilities [3]. Since young kids do not understand the sounds produced by other preschool - aged children as they play together with percussion instruments, each child is very distinct in the manner in which he or she plays their instrument along with the other children. As a result, they cannot synchronize their playing together with the rest of the group. Most teachers will tell the children to "play with everybody", without considering the cognitive limitations or developmental capabilities of preschoolers to provide them with auditory support.

### 3.3. Lack of conservation and reversibility leading to insufficient rhythmic stability

Preschool children's cognitive development has not matured to the point of acquisition of conservation or reversibility; consequently, instability of rhythm while performing on percussion instruments occurs due to this reason. Many educators do not identify the main cause as being a reflection of children's stage of cognitive development and attribute their performances to distractions or careless behavior, whereas children's understanding of rhythm continues to be based on their perceptual judgment, thus being unable to conceptualize rhythm value(s) stability as a result of minor changes in tempo and volume. Children perceive the same rhythm differently, based on how fast or slow they are playing it. When children are using a consistent rhythm and then stop playing it, they will have trouble going back to that original rhythm again. Many teachers do not use developmentally appropriate teaching practices when they teach percussion through modeling or imitation; instead of teaching children about general rhythm and how to use feedback from their earlier experiences of playing the same rhythm to help them develop understanding of these principles (e.g., conservation and reversibility of rhythm), many times, children do not acquire experience through simple repetition of a rhythm and by learning from errors made during previous attempts to achieve stability with a given rhythm. Examples of this type of situation can occur frequently during the performance of percussion instruments, including instances in which children take or drag a beat instead of using a steady beat, or perform exaggerated or inconsistent rhythmic patterns, even after having practiced those previous examples of bilateral patterns successfully. The challenge for instructors of small children learning percussion is that these types of circumstances are frequently encountered.

### 3.4. Movement coordination exercises disconnected from multisensory integration

Coordination between the auditory, visual and tactile senses is a primary principle of teacher training that coincides with

children's cognitive development. However, most preschool teachers tend to train children mechanically (single sensory experiences) and do not develop a multi-sensory approach to support the growth of all three senses through training. Teachers usually model the movement of children to provide a means for children to practice their hand strength and body coordination. However, they do not provide adequate instruction on the sound of the instrument, sufficient rhythm cues to assist with practice, and rarely allow children to touch/tactilely explore the material and the material's sound. The involvement of all three senses when working together is essential to the ongoing development of a child's coordination; therefore, the coordination of both spatial and temporal aspects of a movement relies on all three senses collaborating as a system. When children are subjected to the many repetitions of each type of movement, making a connection between the different forms of auditory perception, visual perceptual information and hand-percussion movement becomes increasingly difficult. Many children's movements are stiff and the rhythm of each movement is typically out of synchronisation with the respective rhythm of the hand movement associated with that particular type of movement. Moving at a pace that is not in sync with that of the hands, children can lose interest in continuing to practice playing percussion after performing repetitive and boring types of training.

## 4. Problem-oriented improvement measures for percussion instruction in preschool children

### 4.1. Strategies for graphical representation of rhythmic symbols

Making use of a system that involves visual representations instead of using abstract symbols is able to help teachers to guide those preschool - aged children who have difficulties in learning rhythmic notation. As preschoolers (around the ages from 3 to 6) mainly think by means of concrete images, it is of great necessity for teachers to design visual representations of rhythmic symbols that are based on the concrete images that preschoolers come across in their daily lives. For example, the symbols "×" and "0" can act as graphical representations for certain types of rhythms, and these representations can also be made by using objects that are found in the preschoolers' surrounding environment. For instance, long notes can be shown by circles, short notes can be shown by small squares, legato rhythms can be shown by wavy lines, and rests can be shown by dots. One example of including graphic symbols in the instruction when students are learning the rhythmic notation system is to use circles to stand for slow rhythmic strikes and small squares to stand for fast rhythmic strikes. Teachers can make a simple rhythmic chart by using a variety of graphic symbols and put it up in a place that is accessible to all the students. Teachers can also urge students to design their graphic symbols according to their sensory experiences so as to help them make use of the rhythmic representation system. By taking this approach, teachers can offer students learning tools that are suitable for their developmental level, adjust the level of participation according to students' ability to use the rhythmic representation system, and at the same time cultivate and set up connections between abstract graphic symbols and the concrete applications of the rhythmic representation system [4].

### 4.2. Strategies for rhythmic internalization during imitation and turn-taking

Given the fact that children have a tendency to think in an egocentric way, those children who are in the pre-operational stage of cognitive development frequently have difficulties in coordinating their actions when they are within a group. Therefore, instead of having group imitation performances, it is a more feasible alternative to have students take part in individual performance activities and to teach performance skills by means of rhythmic internalization. This alternative helps children learn to take turns in performing and to imitate the performances of others. Teachers can use pre-designed rhythm charts to teach children how to break down rhythms into smaller segments for the purpose of listening before group rhythm imitation activities. Once children have managed to master this skill, they can start taking turns in group performances. The teacher requests one child from a group of 2 to 3 to perform for the whole group at first, and at the same time, the other group members listen. Next, the teacher plays the rhythm of the first child while having the other children in the group perform their own versions of the rhythm for the entire class. During the activity, the teacher ought

to minimize the use of verbal instructions and use hand signals to show when the children should start or stop playing. Teachers should encourage children to listen to the rhythms of each other and assist them in comparing their own rhythms with those of others, so that they can gradually make adjustments to their rhythm and volume through mutual performance. This method helps structure the daily teaching in kindergarten. Through continuous repetition, it supports children in developing an internal sense of rhythm through group performance, instead of thinking and acting independently outside the group. In comparison with using verbal prompts only, this method is generally more effective and better fits in with the typical cognitive development of children.

### 4.3. Strategies for accumulating conservation experiences through varied repetition and movement decomposition

Due to the fact that preschoolers lack the cognitive capacity for conserving and reversibly manipulating objects, their play with percussion instruments is also very erratic. Consequently, the best ways to promote the development of preschool - aged children on percussion are through some combination of the following: rhythmic variations, repetition and decomposed motions. Teachers can begin developing the children's skills on percussion instruments by presenting them with basic rhythms that are simple to do initially, then allowing them to play the entire rhythm as it has been presented to them and finally providing them with slight variations in how to perform the same rhythm using a different amount of force and a different type of instrument, which allows the children to easily adapt to each new version of the rhythm without becoming overwhelmed by the difficulty of the new rhythm. As children develop their skills in these areas, the teachers will support each student's ability to find similarities between individual rhythms being created and to identify methods for their students to look back at previous examples of graphic representations of rhythm when creating repeated variations of nearly the same rhythms through these changes to help them create new rhythms by developing an individual thought process to change their rhythm to return to synchronised rhythm and through gradual repetition build reversible thought processes for children in the early years of education. The repeatability of rhythmic changes correlates with classroom practice in all areas/situations of kindergarten children as being part of the daily process of supporting the pace at which children learn cognitively, while giving each child an opportunity to develop skills other than by just doing physically repetitive mechanical exercises and to avoid boredom with traditional mechanical repetitive exercise [5].

### 4.4. Movement coordination teaching strategies incorporating multisensory integration

In order to address the issue of a single mechanical coordination of practice in percussion music movement, it will therefore be imperative to use early childhood cognitive characteristics along with multiple sensory links when teaching that material, as well as develop multi-sensory links for percussive style movement coordination as part of a teaching strategy. Simple physical imitation of preceding practice examples can be eliminated from the curriculum, and instruments, such as sand hammers, bell drums, and wooden fish, may be utilized for use in early childhood children based on existing material in kindergartens where they are to be taught.

First, there must be an opportunity for children to experience the surface of an instrument's material, its weight, and its sound, and therefore become familiar with each instrument through tactile means. After having completed this activity, the teacher definitely must provide examples of audio that feature slow and repetitive patterns of rhythm and introduce the ideas of rhythm and melody. In the process of classroom instruction, teachers ought to give to students the chance to observe charts that depict pre - set patterns of rhythm which are represented by symbols. They should then motivate students to imitate the sounds that they hear by means of body movements while observing the charts so as to express rhythm. Teachers are able to demonstrate the creation of rhythm by gently tapping on the shoulders of students and providing physical support. Such kinds of lessons help children to establish connections between the movement of the body and the sounds of music through activities that are guided. Another activity in the classroom could be a game that is simple and stimulates multiple senses, which helps children to learn to control their bodies while playing or taking part in activities of rhythm with musical instruments [6]. All of the activities mentioned above can be carried out at home

without the necessity for specialized equipment, which allows teachers to easily incorporate them into the daily routines of children. Such lessons may increase the willingness of children to learn musical instruments, and when compared to relying only on methods of rote teaching, this approach can be used more frequently in settings of preschool.

## 5. Conclusion

As percussion educators, the act of applying Piaget's theory of cognitive development provides a learning model for children who are in the age range of 3 to 5 years old, and this model is adjusted in accordance with their cognitive levels. Being guided by Piaget's theory, scientific methods are worked out to deal with the problem of making teaching approaches match with children's cognitive functions, and thus connect the instructional content with students' cognitive abilities. The key point for successfully teaching children to play rhythms is located in the educator's capability to set up effective methods by means of "presentation and retention" in order to make the rhythm learning process better. Moreover, by making use of simple forms of artistic expression, a positive relationship is constructed between the quality of teaching and children's cognitive and artistic development. In this manner, preschool children are constantly supplied with educational and artistic experiences that are centered around quality.

## Disclosure statement

The author declares no conflict of interest.

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