

## Harmonizing Child-Friendly Early Childhood Education: The Impact of Gamelan Music on Focus and Attention in Child-Centric Learning Environments

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### Abstract

**Keywords:**

Early  
childhood;  
Focus;  
Gamelan  
Music;

Focus and attention are crucial cognitive skills for children, influencing various facets of their future development. This study explores the effect of gamelan music on young children's focus during cutting and pasting activities within child-centric learning environments. Employing an experimental approach, 30 children (12 boys and 18 girls) with a mean age of 5.54 years (SD: 0.50) participated, divided into experimental and control groups. The experimental group experienced gamelan music during the activities, while the control group did not. Surprisingly, the study found that children exposed to gamelan music exhibited lower levels of concentration. This underscores the significance of considering the auditory environment in early childhood learning design. Gamelan music, with its distinct sonic attributes, may serve as a distractor affecting children's task engagement. Thus, careful selection of background music in early childhood education is essential to optimize cognitive development. This research advocates for a thoughtful integration of auditory stimuli in child-friendly educational settings, ensuring an environment conducive to focused learning experiences.

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### Abstrak

**Kata Kunci:**

Anak usia dini;  
Fokus;  
Musik gamelan;

*Fokus dan perhatian adalah keterampilan kognitif yang penting bagi anak-anak, yang mempengaruhi berbagai aspek perkembangan mereka di masa depan. Penelitian ini mengeksplorasi pengaruh musik gamelan terhadap fokus anak kecil selama kegiatan menggunting dan menempel dalam lingkungan pembelajaran yang berpusat pada anak. Dengan menggunakan pendekatan eksperimental, 30 anak (12 laki-laki dan 18 perempuan) dengan usia rata-rata 5,54 tahun (SD: 0,50) berpartisipasi, dibagi menjadi kelompok eksperimen dan kontrol. Kelompok eksperimen merasakan musik gamelan selama kegiatan, sedangkan kelompok*

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*kontrol tidak. Yang mengejutkan, penelitian ini menemukan bahwa anak-anak yang mendengarkan musik gamelan menunjukkan tingkat konsentrasi yang lebih rendah. Hal ini menggarisbawahi pentingnya mempertimbangkan lingkungan pendengaran dalam desain pembelajaran anak usia dini. Musik gamelan, dengan atribut soniknya yang berbeda, dapat berfungsi sebagai pengalih perhatian yang mempengaruhi keterlibatan tugas anak-anak. Oleh karena itu, pemilihan musik latar yang cermat dalam pendidikan anak usia dini sangat penting untuk mengoptimalkan perkembangan kognitif. Penelitian ini menganjurkan integrasi rangsangan pendengaran dalam lingkungan pendidikan yang ramah anak, memastikan lingkungan yang kondusif untuk pengalaman belajar yang terfokus.*

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Received : 9 Februari 2024; Revised: 5 April 2024; Accepted: 1 Mei 2024

<http://doi.org/10.19105/kiddo.v5i1.12777>

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## 1. Introduction

Child-Friendly Early Childhood Education places the child at the center of the learning process, recognizing their unique needs, interests, and capabilities. In these nurturing environments, educators strive to create spaces that are not only safe and inclusive but also stimulating and enriching (Cobanoglu & Sevim, 2019). A different method of learning, including music could increase many aspects of students such as creativity (Sa'ida, 2023). Music, with its innate ability to captivate young minds and evoke emotional responses, plays a pivotal role in fostering such environments. Whether through playful melodies, rhythmic patterns, or cultural expressions, music invites children to engage actively with their surroundings, promoting exploration, creativity, and self-expression (Kirby dkk., 2023).

The symbiotic relationship between music and cognitive development in early childhood is well-documented. Music engages multiple cognitive processes, including auditory perception, memory, attention, and executive functions. As children listen to and interact with music, neural pathways are stimulated, laying the groundwork for enhanced cognitive abilities. Research suggests that exposure to music from an early age can bolster neural connectivity, improve language skills, and sharpen cognitive functions such as problem-solving and spatial reasoning (Sagala & Zakarias Aria Widyatama Putra, 2024). In the context of Child-Friendly Early Childhood Education, leveraging music as a tool for cognitive development holds immense potential. By incorporating music-based activities into the curriculum, educators can provide children with enriching experiences that not only promote cognitive growth but also foster a lifelong appreciation for music and learning (Hallam, 2010).

Child-Friendly Early Childhood Education seeks to create optimal learning experiences that cater to the holistic development of young learners (S. Fitriani dkk., 2021). Music, as a versatile and universal

medium, contributes significantly to this endeavor. Beyond its cognitive benefits, music serves as a vehicle for emotional expression, social interaction, and cultural exploration (Brodsky & Gruhn, 2020). In Child-Friendly environments where music is embraced as a fundamental aspect of learning, children experience a harmonious blend of cognitive stimulation, emotional engagement, and cultural immersion. By integrating music into daily routines, transitions, and learning activities, educators cultivate environments where children feel valued, engaged, and motivated to explore the world around them. Ultimately, by harmonizing Child-Friendly Early Childhood Education with the transformative power of music, including traditional music such as Gamelan, educators lay the foundation for a lifetime of learning, creativity, and holistic well-being.

Gamelan music is a rich cultural heritage from Indonesia, having deep roots in the history and traditions of its people. The origins of gamelan music can be traced to the era of the Hindu-Buddhist kingdoms in the archipelago, with its rapid development and spread in various regions of the Indonesian archipelago. The instruments used in gamelan ensembles vary but usually consist of gongs, kendang, saron, slenthem, and various types of metallophones and other percussion instruments (Riskiyanto & Asnawi, 2023). The uniqueness of gamelan music lies not only in the distinctive sound of the instruments but also in its complex system of scales and rhythmic structures, which create deep and enchanting rhythms (Sanjaya, 2022).

Gamelan music has a significant role in maintaining the sustainability and cultural identity of the Indonesian nation. Generations have inherited and preserved the gamelan tradition, ensuring that the cultural values contained within it remain alive and relevant in modern society (Kholidah, 2023). In fact, the use of gamelan music is increasingly widespread, not only in traditional contexts, but also in the fields of education, performing arts, and even in collaborative exploration with other music from various cultures around the world (Kristanto, 2022).

Music is known to have a significant impact on human physics (Trappe, 2012) and psychology (Welch dkk., 2020). Psychological theories have identified that music has the ability to influence mood, modulate emotions, and stimulate areas of the brain associated with attention and concentration. For example, theories related to the "arousal theory" show that music with a fast tempo and strong rhythm can increase a person's level of physiological and mental activation, which in turn can improve focus and concentration (Thompson dkk., 2003).

Furthermore, neurological research has provided a deeper understanding of how music affects brain functions related to focus and concentration. Brain imaging studies, such as fMRI (functional magnetic resonance imaging), have shown that listening to music can lead to increased activity in brain areas such as the dorsolateral prefrontal cortex and auditory cortex, which are involved in the regulation of attention and auditory processing (Habibi dkk., 2016). Thus, through its influence on brain activity, music may help improve

children's ability to maintain focus and concentration while they engage in activities such as cutting and pasting.

The relevance of these theories to early childhood experiences is important to understand. Early childhood children are still in a critical stage of cognitive and neurological development, where they are learning to control their attention and improve their concentration abilities. Therefore, understanding how music can influence children's focus and concentration at this stage can provide valuable insights for educators and parents in designing learning environments that support optimal cognitive and academic development for children (Hallam, 2010).

Focus and attention are important skills that need to be developed early in children's education because they have a significant impact on children's academic, social and emotional development. Research has shown that children's ability to maintain good focus and concentration is closely related to their ability to understand subject matter, complete tasks efficiently, and achieve better academic performance (Gallen dkk., 2023). In addition, good focus also helps children develop the critical and analytical thinking skills needed to solve problems and make decisions effectively (Diamond, 2020).

Furthermore, good focus and concentration in early childhood also provides a strong foundation for their social abilities. Children who are able to focus on social interactions can better understand other people's emotions, communicate well, and work together in groups (Korom dkk., 2022). These skills are critical in forming healthy relationships with peers and developing effective leadership abilities later in life. Therefore, education that pays attention to developing focus and concentration from an early age helps children prepare themselves for success in various aspects of life.

Cutting and pasting activities are an important component of the early childhood education curriculum because they provide many benefits for their development. Apart from helping develop fine motor skills, such as controlling a pencil and scissors, this activity also trains hand-eye coordination and precision. According to recent research in the field of early education, cutting and pasting activities also help in the development of visual-spatial abilities, understanding geometric concepts, and increasing children's creativity (Lillard dkk., 2013). In addition, these activities are often a start for children to understand the sequence of time and processes that occur, helping them develop an understanding of the sequence and flow of a story.

During cutting and pasting activities, children are also taught to pay attention to details and maintain focus on the given task. Focus during this activity is very important because small mistakes or lack of attention can disrupt the final result of the work created. Additionally, through good focus, children learn to follow instructions carefully and consider the steps necessary to complete a task well. Studies on activity-based learning emphasize the importance of focus and attention in increasing the effectiveness of early childhood learning (Hirsh-Pasek dkk., 2015). Therefore, teaching children to maintain focus during cutting and pasting activities not only helps them

complete the task successfully, but also develops important skills that they will need in later learning.

The importance of focus during cutting and pasting activities can also be seen from a cognitive development perspective. According to developmental psychology theory, the ability to maintain focus and concentration is the basis for the formation of more complex cognitive processes, such as memory, problem solving, and creative thinking (Diamond, 2020). Thus, training children to focus during these activities not only helps them in the practical aspects of learning, but also in building a strong cognitive foundation that will support their future academic development.

Previous research has provided valuable insight into the relationship between music and concentration in early childhood. A number of studies show that exposure to music, including gamelan music, can improve children's focus and concentration. For example, research by Rickard and his team found that children who received music training for a year had significantly improved focus and concentration abilities compared to a control group (Rickard dkk., 2010). Similarly, research other showed that participation in an elementary school music program improved children's ability to focus in the classroom. However, there are several shortcomings that still need to be addressed in this research (Bugos & DeMarie, 2017). Furthermore, music has become favorite activities both for the teacher and the children in the class (D. N. Fitriani dkk., 2022).

One of the major shortcomings in previous research is the lack of consistency in the definition and measurement of concentration in young children. Some studies use standard cognitive tests to measure concentration, while others rely on teacher or parent observations. Additionally, the duration and intensity of music exposure also varies between studies, making it difficult to draw consistent conclusions about the impact of music on concentration. Additionally, most studies tend to focus on the influence of music in general, without paying attention to differences in music genres or specific musical characteristics that may have different impacts on the children they focus on. Therefore, future research needs to address these shortcomings by using clear and consistent definitions of early childhood concentration as well as more controlled research designs. Additionally, paying attention to differences in musical characteristics, such as tempo, rhythm, and melodic complexity, can provide deeper insight into the types of music that are most effective in improving focus and concentration in young children.

This study aims to investigate the potential impact of gamelan music on young children's focus when they are involved in cutting and pasting activities. By unraveling the dynamics of music-induced concentration in child-centric learning environments, this research endeavors to enrich early childhood education practices and underscore the significance of integrating cultural elements like gamelan music to foster optimal cognitive development.

## 2. Methods

The author used experimental research in this study, using between-subjects designs. This design allows researchers to compare data from two research groups (experimental and control) (Hastjarjo, 2014). Comparative research aims to find similarities and differences about objects, people, work processes, ideas, criticism of people, and groups, especially in terms of ideas or work processes (Siregar dkk., 2023). The aim of this study is to determine the differences in the focus or attention level of early childhood during cutting and pasting activities, namely groups that use gamelan music as background and those that do not.

The participants in this research were students aged five to six years eleven months old who is a student from a private kindergarten in Malang City. The number of participants is 30 children (12 boys and 18 girls) with a mean age of 5.54 years (SD:0.50). The research subjects were divided into two groups, namely the experimental group who were given gamelan music and the control group who were not given. The sampling technique used was purposive sampling.

The instrument of this research is an observation guide sheet developed based on measuring attention in early childhood by Heaton et.al. with three indicators, including sustained attention attentional, control/switching, and selective attention. *Sustained Attention* refers to a child's ability to maintain their focused attention on a task or activity for a long period of time without being distracted. For example, a child who can sit and play with his favorite toy for some time without losing interest is demonstrating good defensive attention skills. *Attentional Control/Switching*: This relates to the child's ability to shift their attention from one task or stimulus to another with flexibility and efficiency. For example, when a child can switch from playing with a toy to listening to instructions from an adult without significant difficulty, this indicates good attention control abilities. *Selective Attention*: This refers to the child's ability to select and focus on a particular stimulus among the various stimuli available. For example, when a child can focus on reading a book even though there are lots of noises and other activities around him, this shows good selective attention skills (Heaton dkk., 2001). Each indicator is given a rating with a range of 1 to 10 for each child.

The data did not meet parametric requirements, namely, the number of samples was small and the data was not normal (significance results of 0.00 or less than 0.05), so non-parametric statistical analysis was used. Analysis was carried out with the help of SPSS 20.0 for Windows. Analysis of different tests was carried out using the Mann-Whitney U Test.

## 3. Result and Discussion

### Results of descriptive and inferential statistics related to focus or attention level.

The results of calculating the scores for the two groups show that there is a difference in the average focus or attention scores. The group of students who were not given a gamelan music background

when cutting and pasting showed an average score of 23.57, while the group of students who were given a gamelan music background when cutting and pasting showed an average score of 17.15. These results require further analysis using inferential statistical comparison tests to find significant differences in the focus level scores of the two groups.

The results of the Mann-Whitney U-Test show a 2-tailed sig. value of  $1.46 > 0.05$ . Therefore, from the results of statistical tests, the differences between groups are statistically significant. This means that there is a significant difference in focus or attention scores between students who used gamelan music as background and the group that did not use it.

### **Variability of Auditory Sensory Sensitivity in Early Childhood: Implications in the Context of Gamelan Music**

Child-Friendly Early Childhood Education is predicated on the belief that each child is unique, with individual needs, preferences, and sensitivities. Early childhood children often show varying levels of auditory sensory sensitivity to the sound environment around them (Litovsky, 2015). This condition is reflected in their responses to various types of music. Gamelan music, for example, displays unique sound characteristics, with complex combinations of percussion instruments and melodies. However, it is important to recognize that children's responses to gamelan music may vary significantly.

At the individual level, early childhood auditory sensory sensitivity is influenced by a variety of factors, including genetic predisposition, learning experiences, and cultural context (Jones dkk., 2015). Some children may enjoy and respond positively to gamelan music, finding the richness and complexity of the sounds interesting and engaging. However, on the other hand, there are children who may find gamelan music to be a distracting stimulus, causing discomfort or an inability to focus.

In the pursuit of Child-Friendly Early Childhood Education, educators and caregivers must adopt a flexible and inclusive approach to accommodate the diverse auditory sensory sensitivities of young learners. This entails creating learning environments that are responsive to children's needs and preferences, including their reactions to auditory stimuli such as gamelan music. By fostering an environment where children feel supported and understood, educators can ensure that each child has the opportunity to thrive and learn optimally.

Furthermore, an awareness of the role of music in shaping the learning environment is essential in promoting children's concentration and focus during various activities. Educators can leverage music as a tool to enhance learning experiences, while also respecting children's individual sensitivities and preferences. By striking a balance between sensory stimulation and individual comfort, Child-Friendly Early Childhood Education endeavors to create inclusive and enriching learning environments that nurture the holistic development of every child.

## **The Influence of Gamelan Music as Distractions in the Context of Cutting and Pasting Activities in Early Childhood**

Child-Friendly Early Childhood Education places a premium on creating learning environments that are conducive to the optimal development and well-being of young learners. Central to this ethos is the recognition of children's unique sensitivities and preferences, including their response to auditory stimuli such as gamelan music. In the context of cutting and pasting activities, where focus and concentration are paramount, the influence of gamelan music as a potential distractor warrants careful consideration. In the context of cutting and pasting activities in early childhood, the role of gamelan music as a distractor factor needs to be considered carefully. Gamelan music, with its unique and complex sonic characteristics, may be a disturbing stimulus for some children, especially those who are not used to this type of music. Additionally, another factor to consider is the volume of music being played, such as too high a volume may increase the likelihood of distractions and cause unwanted division of attention (El Boghdady & Ewalds-Kvist, 2020).

Cognitive theory emphasizes the importance of unity of attention in ensuring optimal concentration in carrying out cognitive activities (Goltz & Sadakata, 2021). According to this theory, distractions, such as unwanted gamelan music, can divide children's attention and reduce their efficiency in completing tasks. This may lead to a decrease in the quality of their performance in cutting and pasting activities, as their attention is divided between the task at hand and distracting musical stimuli.

In addition, information processing theory suggests that the presence of distractions can disrupt the flow of information entering the child's cognitive system (Mendes dkk., 2021). In this context, unwanted gamelan music can act as a source of external interference that disrupts the processing of information relevant to completing cutting and pasting activities appropriately.

Ultimately, understanding the distraction effects of gamelan music in early childhood education settings offers valuable insights for designing more effective and inclusive learning experiences. By tailoring auditory stimuli to children's sensitivities and preferences, educators can create Child-Friendly environments that nurture concentration, engagement, and cognitive growth, laying the foundation for lifelong learning and success.

### **Activity Context and the Influence of Gamelan Music on Concentration in Early Childhood**

Child-Friendly Early Childhood Education underscores the importance of creating learning environments that are tailored to the unique needs and developmental stages of young learners. Central to this approach is the consideration of the relationship between learning activities and the auditory environment, particularly the type of music played in the background. In the context of early childhood education, it is important to consider the relationship between the activities carried out by children and the type of music played in the background (Kirby dkk., 2023). In this case, the use of gamelan music in the

context of cutting and pasting activities raises questions about the suitability of the music to the cognitive needs of children at that time. Cutting and pasting activity is a type of activity that requires a fairly high level of concentration to complete the task well. Children must be able to focus their attention on small details and make precise movements to complete the task. In this context, music played in the background should support children's efforts to maintain their focus.

However, gamelan music, with its characteristics that tend to create a relaxing or meditative atmosphere, may not fully suit children's cognitive needs when they are doing cutting and pasting activities. Gamelan music tends to have slow rhythms and soft melodies, which may not provide enough stimulation to maintain the level of concentration required for the activity.

Thus, the use of gamelan music in the context of cutting and pasting activities may not be optimal for supporting the level of concentration required by children. On the other hand, music with a faster, more energetic rhythm may be better suited to helping children maintain their focus during activities that require precision and accuracy.

In the pursuit of Child-Friendly Early Childhood Education, educators must be mindful of selecting music that is conducive to children's cognitive needs and the specific context of learning activities. Music with faster tempos and energetic rhythms may better support children's concentration and engagement during tasks that require precision and attention to detail. By aligning the auditory environment with the cognitive demands of learning activities, educators can optimize the effectiveness of learning experiences and foster children's optimal cognitive development.

Ultimately, the thoughtful selection of music in early childhood education settings reflects a commitment to creating inclusive and supportive learning environments. By choosing music that enhances rather than detracts from children's cognitive engagement, educators uphold the principles of Child-Friendly Early Childhood Education, nurturing the holistic development of young learners and fostering a lifelong love for learning.

### **The Importance of a Calm Environment in Maintaining Focus or Attention in Early Childhood**

Child-Friendly Early Childhood Education has a significant role on creating nurturing and supportive learning environments that prioritize children's cognitive development and well-being. Central to this approach is the recognition of the profound impact of the learning environment, including sound settings and background music, on children's ability to maintain focus and attention. In the context of early childhood education, it is important to understand the need for a calm and focused environment to support children's cognitive development. Young children generally need a non-distracting atmosphere to be able to concentrate well on their tasks. This is because their attention level is still developing, and a calm environment can help them focus on learning activities (Bento & Dias, 2017).

Gamelan music, with its distinctive characteristics and sometimes quite high volume, can be a distracting factor in creating a calm learning environment. Music at high volumes can create a noisy and distracting environment, which in turn can make it difficult for children to maintain their focus or attention. When the learning environment is filled with noisy and uncontrolled external sounds, children can have difficulty focusing their attention on the assigned tasks (Bento & Dias, 2017). Gamelan music played at high volumes can increase this level of distraction, complicating children's ability to concentrate properly.

Ultimately, understanding the importance of a calm and focused environment in supporting young children's focus and attention is paramount in designing effective learning experiences. By aligning the learning environment with the principles of Child-Friendly Early Childhood Education, educators create spaces where children feel safe, supported, and motivated to explore, learn, and thrive. In this way, Child-Friendly Early Childhood Education becomes not only a pedagogical approach but also a philosophy that nurtures the holistic development of young learners, laying the foundation for a lifetime of learning and success.

#### 4. Conclusion

Based on the results of research, it was found that children who were given gamelan music while doing cutting and pasting activities had lower levels of focus or attention. These findings highlight the importance of considering the influence of the auditory environment on early childhood focus and attention in the context of learning activities. Gamelan music, with its unique sound characteristics and potential to be a distracting factor, can influence children's ability to focus their attention on a given task. Therefore, in designing learning experiences for early childhood, it is important to carefully select the type of music played in the background and ensure a calm and focused environment to optimally support their cognitive development. These findings also underscore the need for further research to understand more deeply the relationship between types of music and concentration levels in early childhood, as well as the implications in the context of education and childcare.

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