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## Fostering Infant and Toddler Music Competence at the Jean Tyson Child Development Study Center

### Meet the Student-Author



**Ellen Mathews**

I was born and raised in Fayetteville, Arkansas. I graduated from Fayetteville High School in 2019. I am now graduating from the University of Arkansas with a major in Birth through Kindergarten with a minor in Agricultural Business. I came to the University of Arkansas knowing that I wanted to get accepted into occupational therapy graduate school. This is when I decided to go back to my roots and pursue my childhood dream of teaching as my undergraduate degree. I believe it was the best decision I could have made.

What drew me to the Birth through Kindergarten degree was the Jean Tyson Child Development Study Center (JTCDSC). I was able to engage in hands-on learning throughout my college experience and be a part of an early childhood education classroom environment. This allowed me to practice interacting with and designing learning experiences for young children.

As I was nearing graduation, I wanted to find a way to give back to the community that helped shape me into who I am today. This was when I decided to implement an honors creative research project at the JTCDSC. In this way, I was able to build on my knowledge, give back to my community, and have a lasting impact on the infant and toddler students at the center.

I came up with this honors project when talking with my mentor, Dr. Laura Herold. What I did not expect was how big an impact it would have on me. Through lots of hard work, I learned a valuable lesson: when you do something you love, people will notice and success will follow.



Ellen Mathews with mentor Dr. Laura Herold, accepting Honors College awards for receiving the Student Undergraduate Research Fellowship (SURF) Grant.

### Research at a Glance

- Music is a crucial part of supporting and extending infant and toddler development.
- Introducing musical instruments led to observations that suggest growth across many learning domains of development.
- The developmentally appropriate introduction of musical instruments in an outdoor learning environment fostered a positive learning community that will affect the growth and development of children for many years to come.

# Fostering Infant and Toddler Music Competence at the Jean Tyson Child Development Study Center

*Ellen Mathews,\* Laura Herold,† Shelley McNally,§ and Donia Timby‡*

## Abstract

This paper presents a creative research project that introduced musical instruments in an outdoor setting to infants and toddlers ages 0-to-3 years old. It was grounded in research suggesting that music plays a vital component in expanding development in the early childhood years, helping to promote learning across many domains. This project began with a survey distributed to 7 infant and toddler classroom educators, after which responses were analyzed for themes regarding perceived infant interests. Subsequent observations were conducted to evaluate the best fit for the implementation of an outdoor experiential music space. Based on the findings, a developmentally appropriate musical space was implemented on the infant and toddler playground of the University of Arkansas Jean Tyson Child Development Study Center. Key elements of the space included a design allowing for open exploration, comfortable seating for all ages, and promoting conversations and interactions. Finally, observations were conducted to evaluate the impact of this setting on infant and toddler interactions. Qualitative analysis suggested that the new outdoor music space promoted interactions and engagement, dramatic play episodes, and the expression of emotions, which are all critical to the development of self-esteem and social-emotional competence.

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\* Ellen Mathews is a May 2023 honors program graduate with a degree in Birth through Kindergarten and a minor in Agricultural Business.

† Laura Herold, the faculty mentor, is an Associate Teaching Professor in the School of Human Environmental Sciences.

§ Shelley McNally is the Executive Director of the Jean Tyson Child Development Center and is an Associate Professor of Professional Practice.

‡ Donia Timby is a Senior Instructor of Human Development and Family Sciences in the School of Human Environmental Sciences.

## Introduction

Research shows that music is a crucial part of child development (Adams and Parlakian, 2016; Baumgart and Kroll, 2018; Darrow, 2011; Luckenbill et al., 2019). Because music connects multiple domains of development, bringing music to an infant and toddler playground can help meet developmental needs across domains, promoting learning and development in the young learners with access to the space.

There are many advantages to incorporating music into students' early education experience, as it is a foundational art that can support all students' development. Music benefits emergent literacy and language development (Luckenbill et al., 2019), cognitive development (Adams and Parlakian, 2016), cultural awareness, and social and emotional learning (Baumgart and Kroll, 2018), and science and technology development (Baumgart and Kroll, 2018). Indeed, music can be incorporated across many learning domains (Darrow, 2011).

Music helps develop emergent literacy and language development skills through repetition and rhyming. Through exposure to music, students become familiar with vocal sounds, repetition, and rhyming (Playing with Music at Home, n.d.). It also promotes cognitive thinking through learning cause and effect. Being able to experiment and create conclusions based on experience is the foundation for building skills later in life (Luckenbill et al., 2019).

Playing music also promotes social and cultural awareness. When a student learns about their cultural history, they, "develop a stronger sense of themselves, including their abilities to pursue their goals and tell their own stories" (Wright, 2019). In other words, music helps them to develop and build a sense of identity.

In addition, music supports emotional and social expression. Music can allow students to express the way they feel without using words. "[They] use instruments to portray symbolic representations of different feelings and situations. The ways that they design their sounds to represent specific patterns become a common language for all the students to connect with" (Baumgart and Kroll, 2018). This is important since expressing emotions is important for communicating and coping with emotions.

Research also indicates that music can impact learning in the domains of science and technology (Baumgart and Kroll, 2018). Correlations exist between students making music and their emerging concepts of science and technology. "They are like little engineers going around their environments..." (Baumgart and Kroll, 2018). Students can experiment with a variety of materials to form sounds that they desire. It shapes their experience of materials and the world around them.

## Materials and Methods

Building on the abundance of evidence that music plays a vital role in promoting development for children ages 0-to-3 years old, data collection for this study took place at the University of Arkansas Jean Tyson Child Development Study Center (JTCDS). Upon receiving institutional review board approval, a survey was distributed to educators in the infant and toddler classrooms at the JTCDS. This survey was designed to reveal i) educator beliefs about the importance of music, ii) current practices related to exposure to music in infant and toddler classrooms, and iii) potential design ideas (layout, content, etc.) for an outdoor music area that would best meet the children's needs and interests. There was a total of 6 questions in the survey. The first question asked about the ages of the children in the classroom. The subsequent open-ended questions sought to gather information on how the educators envisioned a functional and exciting outdoor music space.

A total of 7 classrooms were offered the survey, and 7 classrooms completed it. This meant that 100% of the students who use the playground were represented in this study. Surveying educators was the closest way to hear the voices of these very young children; as educators are closely connected with their students and routinely observe their behaviors, they are informed about children's interests. Survey results influenced the purchasing and design of the playground to best fit children's needs and interests. Specifically, educator responses revealed the high demand for drums to be purchased (requested in 86% of survey responses). Duplicates of instruments were provided so that multiple students could play with the same type of instrument at the same time.

Patterns of use of the space and levels of engagement were also gathered to evaluate the level of effectiveness and impact this research project had on the students, educators, and school community. This occurred through observations of the outdoor playground both before and after the musical exploration area's introduction. Through the collection of objective and subjective running record observational notes, students' patterns of use of the space, as well as their engagement levels, were tracked over three nonconsecutive days prior to and three consecutive days after the intervention. Pre-intervention observations helped track the level of engagement before the intervention and also informed the purchasing of developmentally appropriate project materials. Post-intervention objective observations allowed for comparisons of patterns of use of the space and levels of engagement. Refer to Fig. 1 to view the area before intervention.

## Results and Discussion

Surveying the educators allowed for a space design that meets children's developmental needs and interests as perceived by the educators, therefore allowing for the most effective use of the instruments purchased. With the help of funding (\$2,750), opportunities for musical exploration were brought to life through a space for outdoor music experiences that were truly beneficial for all students to use. The purchased items were easily accessible for educators to identify and access. This was accomplished by having storage units and transparent plastic containers, with concise labeling and colored pictures. Refer to Fig. 2 to view the area after intervention. This project unified classrooms across the center and deepened student development. Incorporating music in an outdoor space on the JTCDSO playground allowed for multiple classrooms to interact together. Students were able to collaborate and

create music together. The music could be heard by all who are outside, helping to create social connections and encourage communication.

Post-intervention objective observations allowed for comparisons of patterns of use of the space and levels of engagement. During qualitative analysis of the anecdotal records, particular attention was paid to the questions of whether students were engaging in the instruments, and if so, how and what were the perceived levels of engagement.

Content analysis of observational records indicated that students were engaging with the instruments. During observation, there was a substantial increase in the number of minutes spent in the music area. Student involvement in the music space grew from 36.7% pre-intervention to 84.4% post-intervention. Their level of observed engagement went from spending <1 min. in space pre-intervention, to >10 mins post-intervention (Table 1).



**Fig. 1.** Music space pre-intervention at the University of Arkansas Jean Tyson Child Development Study Center.



Engagement during the post-intervention observation included vignettes like the following that suggest that musical instruments aided in sense-making and communication in the largely preverbal children using the playground:

*A lawn mower began to run behind the fence. The environment became extremely noisy as the mower ran back and forth along the fence line. A few children on the playground began screaming and running. The children who had a drum began banging on the drum loudly and quickly. It began to feel like a chant, and the tone of the environment changed. After a few minutes, the banging slowed down, and the screaming and running quieted down. The mower moved further away. The moderate pace of drumming seemed to entice two students to run over to the space, and they began twirling and spinning right outside the back pergola. They waved their arms slowly up and down.*

Students were using a variety of instruments. As drums were in highest demand and familiar to most students, they were the most utilized (Fig. 3). However, after some time spent in the music space, students began to explore other instruments like the bells, maracas, loofas, whisks, chimes, etc. (Fig. 4).

Results revealed students engaged in activities and conversations they were not able to prior to the intervention. Conversations between educators and students included how we treat new materials, how we keep ourselves safe, what the new unfamiliar instruments were, and how some instruments worked. By incorporating a variety of instruments with varying degrees of difficulty to manipulate, all students were intrigued and challenged, no matter their age and level of development.

In the future, this project will continue to impact the young students and educators at the JTCDSC. Opportunities also exist for expanding the outdoor music environment. Similarly, opportunities exist for expanding on the



**Fig. 3.** Student utilizing instrument at the University of Arkansas Jean Tyson Child Development Study Center.

research presented here. Future studies should include longer-term observations, as opposed to the short-term observations featured in this study. Ideally, observations could be completed over several years as part of a longitudinal study to gather the full impact of fostering music in infants and toddlers. This would lead to a better understanding of how introducing instruments impacts all domains of development.

### Conclusions

The goal of this project was to foster the growth of infants and toddlers by introducing musical instruments to a local community of young learners. The results of the project align with research indicating the proven positive effects that music has on the development of young infants and toddlers. Building on survey and pre-observation data, a developmentally appropriate outdoor music space was designed, incorporated, and then well-utilized by all

students. Evidence from the post-observations clearly suggests increased engagement and opportunities for learning across domains among the infants and toddlers who used the space.

### Acknowledgments

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Fig. 4. Students collaborating with multiple instruments at the University of Arkansas Jean Tyson Child Development Study Center.



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