

# Infants' engagement during an immersive contemporary music experience: a research/creation project inspired by neuroscience.

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## CONCERTS FOR YOUNG AUDIENCES FROM 0 TO 2 YEARS

### Kragness and his colleagues (2023a):

Engagement of infants (6 to 18 months) during the performance of an opera excerpt "The Music Box" included a song ("The Itsy Bitsy Spider") and a lullaby ("Lullaby and Goodnight" by Brahms).

Performers: two opera singers, a pianist, and a percussionist.

Listen to the performance twice, under two different conditions:

**Active condition**, parents were encouraged to respond to the sounds naturally by moving rhythmically.

**Passive condition** parents were asked to listen to the piece while limiting their movements.

#### Results:

##### Cognitive Dimension:

More sustained attention during the song than the lullaby.

Greater coordination with their own caregiver than with another observer watching the same performance.

##### Affective Dimension:

Children smiled more in the active condition during the song.

Rare expressions of negative affect were almost exclusively observed in the lullaby condition.

##### Behavioral Dimension:

Babies moved more rhythmically in the passive condition.

## CONCLUSIONS

The presence of the accompanying parent is essential for the smooth running of the performance.

Interacting with the musicians encourages active participation from the children.

The musical character elicits different reactions from the toddlers, allowing for the structuring of dynamics and contrasts in creating the musical experience.

Placing mats on which children and their parents sit enables them to move more easily and, consequently, participate more actively.

The structure of the performance is important, but it should be segmented with short scenes to create contrasts and surprises, reigniting the toddler's attention.

The concept of familiarity should be considered.

However, it's worth noting that these studies mainly focus on classical music (Brahms, Bach) and/or children's music (Itsy bitsy spider) and do not address (or briefly address) the question of music style.

### Kragness and colleagues (2023b):

Engagement of infants (6 to 14 months) during the performance of "The Music Box" presented under three different conditions:

(1) in a social context (within an audience), with the musicians present; (2) in a social context, without the musicians, who were replaced by a full-size video recording of the performance displayed on a large screen; and (3) at home, without the musicians, on a computer screen.

#### Results:

##### Cognitive Dimension:

Children's attention was more sustained in the condition where musicians were present.

##### Affective Dimension:

The heart rates of participants in the same audience were more strongly correlated during the live performance.

### Barbosa and colleagues (2023):

Engagement of infants (4 to 22 months) during the music theater show "AliBaBach" inspired by J.S. Bach's Goldberg Variations, comprising 12 short scenes.

The children, accompanied by a parent, were seated on the floor and were encouraged to listen to the show while having the freedom to move.

Duration: 45 minutes.

Performers: 2 singers. AliBaBach follows a scripted scenario with diverse and contrasting atmospheres influenced by classical and folkloric music, also incorporating toy instruments. Each scene can be slightly adapted based on the audience's responses to promote individual interaction between children and performers and emphasize communication between them.

#### Results:

##### Cognitive Dimension:

Children's engagement was primarily expressed through visual attention.

Their engagement did not decrease during the performance.

The children's attention varied depending on the scenes presented to them. Scenes featuring short stories with temporal organization and sequential relationships allowed infants to form expectations about events, recognize patterns or repeated elements, and anticipate, confirm, or be surprised by certain artistic actions.



## REFERENCES



## NEUROSCIENCE-INSPIRED CREATION

In addition to drawing on the findings of the above-mentioned studies, the creation of this immersive musical experience will be inspired by neuroscience studies:

- **Motherese** is a specific way in which adults talk to babies. In addition to being useful for development, this way of speaking is preferred by babies (Nakata & Trehub, 2004; Trehub et Degé, 2015; Nguyen, 2023). In particular, I want to use it for the composition of the electronics sections to encourage listening.
- This mode of communication also exists in sign language (Masataka, 1992; Masataka, 1996; Masataka, 1998), and will be a source of inspiration for my gestures and interpretation.
- The innate nature of rhythm (Winkler et al., 2009). Children are able to anticipate rhythm from birth. As a percussionist, this is a wonderful source of inspiration, whether with instruments, voice or electronics.
- Babies' sensitivity to music. The emotions that babies feel when exposed to music will enable me to create contrasts (more rhythmic, fast-paced, repetitive music or slower, calmer music, for example). (Nagy et al., 2022; Trehub & Degé, 2015).
- The familiar aspect (Cirelli & Trehub, 2020). Insofar as it's a creation, I'd look for familiarity in visual elements such as the show's theme (colors) and space, but also in the format (like a children's book) and using the points mentioned above (motherese, rhythm, emotions).

To this end, I need to adapt the composition and use a method that allows me to actively participate in it as an interpreter.

To enhance the performer's role in the composition and creation of this musical experience, I chose to use the **comprovisation** method. Composition will take place during improvisation sessions that I will direct. Joshua Bucchi, the composer, will transcribe the results of these sessions onto paper.

## PROJECT PRESENTATION

This research-creation project aims to (1) create an immersive and collective musical experience within the realm of contemporary music, (2) document the engagement of toddlers during their participation in this experience, and (3) identify factors that may influence children's engagement during their participation.

Thus, this project will unfold in three stages:

- **The first stage** includes a literature review, a survey of shows for children specializing in contemporary music, and meetings with artist-creators specialized in the field of performance for toddlers.
- **The second stage** involves the design of the musical experience in collaboration with composer Joshua Bucchi. It will be organized based on three criteria: (1) musical form, (2) my presence and interpretive gestures (Geoffroy, 2006; Schutz & Lipscomb, 2007), and (3) participatory aspect (Barbosa et al., 2021). It will unfold in three phases: (1) Meeting and initiation of writing, (2) Research phase based on written materials, and (3) Production of fragments for the third experimentation stage.
- **The third stage** is the experimentation. During this stage, as in the study by Barbosa et al. (2021), families will be invited to participate in the musical experience. Each session will be filmed and analyzed, allowing us to document the engagement of toddlers from the beginning to the end of each session. Based on the experiments, the design of the musical experience will be finalized and presented at a public event.