

The Role of Music in Children's Development

Sarah Lytle: These webinars will introduce you to some of the latest research on child development and give you ways to connect the research to your practice. Before we begin, I'd like to go over some information regarding the webinar. We will be using some of the Adobe Connect features to help us interact today. At times, we will ask you to type in the chat box, located to the right of the PowerPoint slides in response to specific questions. We would also like to point out the Q&A on the lower right. If at any time you have questions related to the presentation or other related topics, please type your question there. We will be monitoring that box throughout. Supporting documents for this webinar, including a PDF of this presentation can be found in the supporting documents box in the bottom right of your screen. If, for any reason, you get disconnected from the webinar, you can use the same link you used previously to rejoin the webinar.

We want to let you know that the session will be recorded. Finally, following the webinar, you will receive an e-mail with a link to an evaluation form. We request that you complete the evaluation. That leaves us information for improving our webinar presentations and planning for future webinars. Upon completion of the evaluation, you can download a ticket of completion for your participation in the webinar. If you are viewing the webinar with colleagues on one computer and only one person is registered for the webinar, please forward the evaluation e-mail to your colleagues who also viewed the webinar so that they can complete the evaluation and receive a certificate of completion. Today, I am very pleased to introduce you to Tal-Chen Rabinowitch. Dr. Rabinowitch is a post-doctoral fellow with Dr. Andrew Meltzoff at the Institute for Learning and Brain Sciences at the University of Washington. Her research at I-LABS examines the connections between music, synchrony, and social and emotional interaction in toddlers and young children. She obtained her Ph.D at the Center for Music and Science at the University of Cambridge. Tal-Chen is also a flutist and has played in various orchestras and ensembles in Israel and the U.K. Her work is funded by a Fulbright Postdoctoral fellowship, a Grammy Foundation grant, as well as a grant from the John Templeton Foundation. Today, the title of her presentation is "The Role of Music in Children's Development." So, Tal, I'll let you take it away.

Tal-Chen Rabinowitch: All right, thank you, Sarah, for the introduction. Today we will be talking about the role of music in children's cognitive and social development. So after this webinar, you will be able to describe research on the effects of music on children's cognitive and social development, understand how different types of musical interventions may enhance cognitive and social capacities in children, and also identify opportunities and ways to implement these music interventions in your own setting. So in this webinar, we will cover the latest research on music and children's cognitive and social development. Today, we will review how music might influence children's cognitive and social development.

We will discuss why music may be linked to cognitive and social development. And, also, examine strategies for enhancing children's cognitive and social development through music. So music can take many different forms in children's lives. We often think about music as more of a passive mode of entertainment, such as when we listen to music in our home, car, or through headphones. And we can also think about music as an active participator activity where children are engaged in the experience or creating music themselves. And, lastly, music can also be seen as a social behavior where children engage in music with other people or peers and actively interact in complex and meaningful social interactions through music. Music also connects us to other people by exposing children to the music of their culture. Each of those three ways experiencing music has different implications for children's development. We shall now discuss those in detail. But before we move forward, I'd love to hear more about how you have used music with children. Have you listened to music together? Have you encouraged children to make their own music? Had you led groups of children in musical activity? Tell us more about how you use music with children. Please type your responses in the chat box.

Sarah: All right, the question is how have you used music with children? Have you listened, performed, or engaged in music socially? So looking forward to hearing or seeing some answers in the chat window. So Marcela says that she's used music as a behavioral re-directive. That's an interesting use of music.

Tal-Chen: Okay, great.

Sarah: Somebody's mentioning kinder music. Some of the users, music for transitions. Somebody's invited special performances. Somebody's suggesting that they danced or played musical instruments. Lots more comments about using music for transitions. That's a great idea, can be a very useful one.

Tal-Chen: Okay, great. I'd love to hear more about that, specifically.

Sarah: Mm-hmm.

Tal-Chen: Using music in transitions.

Sarah: So using music to engage children during center time, using music to teach phonological awareness -- that's a good one.

Tal-Chen: Mm-hmm, right.

Sarah: Somebody has taken the kids to ballet. That's a great -- that's a fun idea.

Tal-Chen: Mm-hmm, yep.

Sarah: So some are using music for group interaction and body movement, expressing feelings through sound. Marcela says that she's using music for math concepts. I think that would be kind of a fun one to hear more about, if you agree, Tal.

Tal-Chen: Yeah, definitely.

Sarah: Marcia says that they use calming music to get children ready for nap time.

Tal-Chen: Okay, great. Yep.

Sarah: Let's see, so another comment about transitions and helping the child focus by using hand movements with a song. Tracy says that they use music to access development.

Tal-Chen: Okay.

Sarah: Oh, some more comments about language development. So it seems like transition is a big winner here in terms of how people are frequently using music. But lots of academic skills coming in, too, in terms of language, executive functioning skills, math concepts, things like that.

Tal-Chen: The transition one is merely children listening to music and moving into another activity, or do they have to perform it, too, with the transition one?

Sarah: I think that's a question for people listening. I assume probably just to help them transition between activities. But maybe they're also doing something as well. So if people want to comment on that, whether children are performing music as they are transitioning between activities, that would be interesting to hear. So maybe while people are typing, if you want to move on, Tal, we can still -- I'll keep track of the chat window as you talk some more.

Tal-Chen: Okay, great.

Sarah: Thanks.

Tal-Chen: Okay, absolutely. So we will now start with looking specifically at research that explored the possible impact of music on children's cognitive and social capacities in those three modes of musical engagement -- where we said listening, performing, and interacting with others. We will first explore the what -- which aspect of children's cognitive and social capacities can music make better? And we will then consider the why. What could the be reason for why music is able to contribute and impact those capacities in children's lives. But before we do so, I'd like to explain the basic process that allows music to have an effect on children's lives outside of the musical context. There's a process called the transfer where certain capacities and skills that are being practiced in one domain can influence and improve skills in a completely different domain. I'm sure you came across this before in many different areas, not just music. And we think that music, specially, can transfer certain skills to other non-musical cognitive and social areas in children. So in the next few slides, I will first show you which transfer effects may happen between music and other areas, and I will then explain why we think this is the case. But first, what is going on, and then why, and what are the underlying mechanisms or processes we think is happening here.

So research has found that following music listening specifically, there may be a possible short-term cognitive enhancement in areas such as spacial ability -- meaning the ability to extract accurate information and predictions regarding the space and objects around us. For example, in terms of their size and orientations, and also an enhancement in creativity in children. So both things -- spacial ability and creativity. Since music is a highly abstract activity, it is possible that when children listen to music, they are using other capacities such as their spacial ability and creativity to understand.

It makes more sense to the music. This is why only listening to music could help your child be a bit more intelligent and creative. However, the effects of music listening seem to be small and short-term. We will now move on to other more active forms of musical engagement. So we're moving on to music as a performance, and we're looking at the what. What can music performance boost in children? So musical training such as when children take music lessons with a teacher has been shown to have quite an impact on children's cognitive abilities. For example, music lessons in elementary school children have been shown to have greater increases in IQ and specifically in reading, mathematical, spacial, and verbal abilities. Music has also been shown to have a positive influence on children's working memory as well as on the acquisition of a second language. Even though these studies have been performed mostly with elementary school children, we believe that younger children could also benefit from musical training, of course.

So we're coming into the why. Why music performance may boost certain cognitive skills in children. So what could be the underlying processes that create all of thee transfer effects? There are a few possibilities to consider. First, when a child receives musical training in the form of music lessons, for example, already there are additional learning opportunities the children enjoy doing, which in itself, may be beneficial for children. So in a sense, it's just another opportunity to learn more things in general. Now going into the more specifics of music moreover, this additional schooling embodies a specific constellation of abilities the music lessons train and improve. Abilities that include focused attention and concentration, memorization, reading -- so you need to read the notes of the music, for example, fine motor skills, expressing emotions.

So music laden with emotional content, and so on. So music lessons may train executive functions, which may in turn promote general cognitive capacities. So this is a very specific outlook on why music specifically may enhance musical functions and cognitive abilities in children. Now, a third

possibility is that music promote intellectual development because of its inherently abstract nature. For example, a tune is defined solely by relational information. That means when you listen to even a simple tune, in order to make sense of the music, you need to understand how the notes relate to each other. And that involves some kind of an abstract understanding of the melody. And this in itself could possibly boost cognitive capacities in children. But it's also possible that children who take music are more open to experiences since they are ready to take on and learn a new thing. And this, in itself, helps them succeed in intelligence tests. So this latter quality has to do with the type of personality of children who actually decide that they will do music and not with the activity itself. So something to think about -- not music specific, but the type of crowd that is attracted to music. So we will next discuss music as a social interactive activity. So we discussed music as a listening medium, then as a performing medium, and now as a social interactive medium. And interacting with other children or adults in music has been shown to have positive effects on mainly children's social and social emotional behaviors. For example, musical interaction has been shown to have a positive impact on children's cooperation, sharing, gross social skills, and a capacity for empathy. So first, I'd like to delve into the underlying processes or the reason behind those transfer effects between musical interaction and children's social capacities. Why is it so that music is -- doing music together is such a good tool for enhancing social skills in people who are interacting in it?

So when playing and interacting in music with other people, in order for the musical interaction to be successful and harmonious, there are certain basic skills that children need to develop. Let's think about them. For example, being in synchrony. The experience of being in time together, of sharing the same beat. Think about any kind of music or musical interaction you've ever been in. It always involves a joint beat. So it doesn't have to be exactly synchronous, but if people are playing together, they share a very similar beat together. And sometimes it's highly synchronized, in most cases. So, for example, think about children, the most simple case would be with a clap or drum together at the same time. Recently, there have been many studies looking specifically on the role of synchrony in children's social behavior. Results show that when children are moving, drumming, or tapping together with another peer or adult, they tend to be more helpful, cooperative, and generous towards the person they're interacting with. Some studies also found that being in synchrony together with another group of people creates a strong bond between those group members. Stronger when compared to when children are moving, drumming, or tapping with another peer or adult in an asynchronous way. That means sharing different beats at different times.

So if you think about, for example, jazz, that may not be the perfect example for asynchrony. When I say asynchrony, I mean, something far more disorganized in terms of the beat than just playing groovy music. So I would consider jazz to be a type of a very groovy synchronized activity, but this is a very different type of experience of being completely asynchronous with each other. So there are many more studies being done with adults, actually, showing how synchrony between two or more adults enhances their memory towards the person with whom they're interacting, so their sense of a person's perception, their affiliation towards the person, their sense of perceived similarity and so forth. The reason why synchrony might promote all of those positive social interactions is not completely clear yet, and most probably, there is more than one mediating factor that could contribute to this effect. Possible explanations include an enhanced sense of perceived similarity to the person with whom one is synchronizing with. So think about it. Since the movements when being in synchrony are so intensely similar, people may expand and extrapolate that feeling of being similar to the other person to other areas, different areas, not just the beat, such as their personalities, hobbies, et cetera. Meaning, if we are similar in once sense, in this case, movement, we may be similar in many different ways, too. This sense of feeling similar to one another might in itself create rapport between the interacting individuals, and thus raise their motivation to engage in positive social behaviors with each other.

We actually tested this hypothesis in a study with kids, with children where we had two children play drums together, either in synchrony or in asynchrony. And then we asked them how similar and

actually close to they felt towards each other. Children who had been drumming in synchrony rated themselves as substantially more similar to their drumming partner than children who had been drumming in an asynchronous way with each other. Children who were in the synchronous condition also rated themselves as feeling closer to their partner when compared to children in the asynchrony condition or children who did not have any type of rhythmic interaction with a partner at all. So, in essence, drumming together for two minutes had enhanced children's perceived similarity in many different areas, not just in music or the interaction itself or the physical movement towards their interacting partner. And also it made them feel closer to that person. So this may be a mediating factor that may facilitate positive social interaction in children later on. Our explanations for the connection between synchrony and social interaction is that being in synchrony enhances in-group affiliations. So it takes the interacting participants -- it makes the interacting participants feel like they belong to the same group, and by that, it lessens social distance and motivates them to help cooperate, and, for example, remember more things about each other.

So earlier, I mentioned one study that showed that children who experienced synchrony in a group tended to create a stronger bond with members of that group when compared to experiencing asynchrony with other group members. Of course, there is still a lot of work and many more studies to be done in this area decomposing and understanding synchrony as a constructive and beneficial tool for social -- and beneficial social phenomenon. Next imitation. When children engage with others in music, they tend to imitate each others movements and phrases. This happens very naturally. They are sharing the beat, the melody, the harmony, et cetera, together. And imitation has been shown to be related to positive social behavior and specifically to empathy.

So when we imitate another person, it gets us closer to the first-person perspective rather than to the third-person perspective. And so it makes it easier for us to be in someone else's shoes and understand their emotion and feelings better. Some studies also show that imitation creates rapport between people. So this is why it is possible that experiencing imitation in music while interacting with other people may benefit children in real-life social interactions later on. So, in addition, when engaging musically together with another person or persons, children need to be generally attentive to the other people with whom their interacting with in order for the music to sound well. And focusing your attention on another person is an important first step for children to be able to understand and engage with the other person, and, ultimately, be motivated to cooperate, help, or be involved with any kind of positive social interaction. Therefore, using and developing these skills during musical interaction with others in such an enjoyable and non-competitive activity such as music is likely to give those skills, specifically synchrony, imitation, and attentiveness a boost when children come to interact with others in their everyday lives, also outside of the musical context.

And as we described above, these very same skills are considered to be important in maintaining a positive and cooperative social behavior. So before I move on to the practical part, I'd like to show you some examples of those underlying processes we discussed. And specifically to show you a study we conducted with four-year-olds and how a brief intervention of only synchronous swinging made those kids be more cooperative with one another. Our experiment comprised 81 dyads of four-year-old children, either boy dyads or girl dyads, who were complete strangers to each other. When they first met, we only introduced them to one another by their first names. So think about it. Children are coming into our labs in dyads. They've never met each other before. And they introduce themselves by the first name only. And then we divided them into three groups. In one group, the two children were swinging in synchrony, as you can see on the left-hand side of the picture, in the exact same pace and the exact same phase. The second group consisted of dyads of children who were swung in asynchrony, at different paces, and differed phases. In the third group were children who did not swing with each other at all. So a baseline control group. For the first two groups, the synchrony and asynchrony, we then swung both children for two and a half minutes.

As you can see in the picture on the left-hand side, this was how it looked when we swung the

children in synchrony. And as you can see in the picture on the right-hand side, this is how it looked when we swung the children in asynchrony with each other. I don't have access to the computer. Yeah. There -- it got stuck in the middle. Okay. So and as you can see in the picture on the right-hand side, this is how it looked when we swung the children in asynchrony so that they're not together in terms of their position in space. So after the swinging, we gave the children two cooperative tasks, cooperation tasks. On the left-hand side, you can see the button-push test. I hope you can see that, where the children were asked to push a button together at the same time in order to make an animated figure pop up on a computer screen. They were asked to do this four times in a row. On the right-hand side, you can see the give-and-take task where we asked the children to pass toys from one bucket to another through a hole in an apparatus. One child passed the toys and the other one grabbed it. What we found was that overall, children who were swung in synchrony with each other cooperated better than kids who were swung in asynchrony or kids who did not swing at all. This was evident in both of the tasks. So in the button-push task on the left-hand side, children who were swung in synchrony tended to make less failed taps prior to success when compared to children who were swung in asynchrony or children who did not swing at all. In this sense, children who were swung in synchrony showed better coordination and overall cooperation than children in the other two groups. Okay. We found that the same effect also with the give-and-take test, as you can see on the right-hand side. Children who underwent the synchronous movement experience tended to perform the task more efficiently and quickly when compared to children who underwent the asynchronous movement experience or children who did not swing at all.

In this sense, too, children in the synchrony group out-performed their peers from the other two groups in terms of being more coordinated and cooperative. So why would synchrony enhance these children's cooperative behaviors? So as we mentioned earlier, we think that this is because swinging in synchrony made those children feel more similar to each other, starting from the simple similar movement experience they underwent together, which may have expanded in their mind to other areas where they might be similar to each other. And to this ability to be more cooperative with each other overall, that's the effect that we had observed. Interestingly, we also noticed that some children, when they pressed the button, tend to raise their hands up in the air in a stylized manner, as if to signal the other child that they're about to push the button. We see this as an interpersonal communicative mechanism where children are signaling to the other child so that they would be ready to push, too, when they are. What we found were two very interesting things.

First, we found that overall, raising the hand up in the air before pushing the button proved to be a successful strategy. So the dyads who raised their hands before pushing the button tended to be more successful in the task than children who did not raise their hands. In addition, we also found that the stylized hand behavior was substantially more prevalent in the synchrony group when compared to the asynchrony group so that the children who underwent the synchronous movement experience had used a specific social communicative mechanism in order to succeed in the task. Okay. Moving on to another study we conducted and are currently pursuing further. We gave children a year-long musical group interaction program where they played different kinds of musical games with each other, mainly concentrated on being in synchrony with one another, imitating each other, and learning to be attentive to the other children while playing music together. Later today, we will look at specific examples of games played in this program. We also had two control groups, an arts-oriented control group where children played very similar games to the ones played in the music group, but instead of using music, we used drama, story-telling, and plastic arts techniques instead. We also had a baseline group of children who did not participate in any additional education programs on our part. And what we found was that this specific musical group interaction program boosted children's capacity for empathy outside of the musical context. So there was a transfer effect happening between music or musical group interaction and empathy in this case. We are not in the process of performing more studies and experiments to understand this transfer effect better, and, of course, know more about it. So to summarize what we have said so far.

Music can be experienced in three main forms, listening, performing, and interacting with others.

All of those forms have been shown to have cognitive and social benefits for children, but mainly the latter two forms, the performing and interacting ones. In order for these benefits to happen, there needs to be a transfer effect taking place where some skills are transferred from one domain, music in this case, to another, the cognitive and social domains in this case. Likely explanations for a cognitive transfer for music includes additional schooling develops specific related abilities, music's abstract nature, and perhaps the personality type such as openness to experience. A likely explanation for a social transfer from music includes synchrony, imitation, and attentiveness to others in a fun and non-competitive context such as music. I'd now like you to consider two important points about what I just said before summarizing and moving on to the practical level some questions I usually get from people. So, first, it doesn't matter what kind of music is being played. The important thing is the how. How kids are engaged with music and how they do it might lead to transfer effects. For example, playing musical games that include opportunities for synchrony and imitation might facilitate a transfer effect of social skills. Second, of course, music is not the sole medium or tool that may enhance social and cognitive capacities in children. There are many, many more ways of doing so. Music is just a great medium, or rather an arsenal that embodies multiple processes that have the potential to enhance cognitive, as well as social skills in children. It is also so much fun to do, so it makes it easy to engage kids in it and sustain them in those activities.

Okay. So I would now like to turn to practice and discuss the different ways in which we as teachers, educators, and parents can use music in order to help our children enhance their cognitive and social skills in an enjoyable and meaningful way through music. Anytime is a great opportunity for children to play and engage with music. We've talked about it today with regards to preschoolers, but music is something that cuts across age, culture, language, and ability. Anyone can listen to and engage with music. Of course, listening to music is easy to do. All you need is to provide children with a playing device and headphones when necessary. It doesn't necessarily need to be in a quiet or an isolated space. It could also be along with other activities. In addition, going to children-specific or any kind of musical concerts or shows would be fun and beneficial for them. Opening them up to as many different types and styles of music widens children's horizons and helps them figure out what kinds of music they especially like listening to.

You might also consider playing music that has particular cultural significance to you or your community. There are many ways to get children actively engaged in music by themselves. Around the house and in school, there are always tools children can bang on and create music with. It doesn't have to be a designated musical instrument for it to be considered as music. And the children should be free to explore this on their own so it is not contingent on an adult facilitating those activities. Music training, learning how to sing or play an instrument is another great way to create opportunities for children to perform music themselves. This is usually done by a qualified teacher, either at school or outside of school. And here are ways to create opportunities for children to engage in group music-making. Around the house and in schools, gather a few children and provide them with musical instruments or tools to play with. Especially for the younger children, singing and making music together as a group is a wonderful opportunity for them to experience music. For older children, encouraging and supporting families to involve children in a choir or an ensemble when available in their communities is a wonderful way for them to practice those interactional music skills with other peers. With listening to music, one can do the following, for example.

Play the child a musical excerpt and ask questions about it, such as what kind of instruments were played, did you like it, and if so, what parts and why? This will enhance and deepen the child's engagement with the music being played. So you can play it as a little quiz for them to listen and then answer some questions or they need to pay attention and tell you what they hear in the music. So it can be done in many, many different ways. Another option would be to provide the child with information about the origin and culture of the music being played. So what's really special about music is that it's both a very universal language, so it embodies or it can speak to many different

people at the same time. But also it could be very culture-specific. So if you had a classroom that has many different kids from different cultures, you can use music to connect other kids to someone else's culture and use the music as a tool for everyone to connect together. So that's a very useful thing to have. For actively engaging children with music, when provided with tools to play with -- so I'm saying tools just because it really does not have to be musical instruments, it can be anything in the home that makes some kind of sound. It could be the body of a child or of the caregiver, the parent. It really doesn't matter. Anything that makes some kind of a sound is good to go.

So when provided with tools to play with, encourage the child to try out as many sounds and sound combinations as possible. And provide enough space for that, too. Also, working with your community resources to provide children with formal musical training is a great way to widen ones opportunities for engaging with music. So there's many different extracurricular programs children can enroll to such as music and movement, music and storytelling, maybe take a lesson, a private lesson or a group lesson on how to play an instrument, even at age four or five or six so we can start earlier to -- so many, many different ways for engaging children in music, either at home, at the school, or in community centers or other different spaces for the children. So I'll now lay out a few examples of musical games that could be played as a group and are likely to be beneficial in strengthening social skills in children who engage in them. What is really nice about these games is that you don't need to be an expert to facilitate or lead those games with the children, not at all. We'll start with the synchrony game. And all you need for these games is to provide children with some kind of instrument they can bang, tap, or drum on. First, ask the children to drum together very slowly. Then very fast, and then gradually go back to being slow so that they would have a deep pattern of slow, fast, slow. The one condition of this game is that they need to do everything together at the same time. You can then suggest to them to play that game in a loud, quiet, loud pattern, too, that they start off playing very loudly together, then go on to playing more quietly, and then get back to playing loudly again. So in a sense, it's a game where you can have either the children lead or one of the facilitating adults. So they start together, they start either very loudly or very softly, then somehow it turns into a very loud or the other way around interaction, and then it goes back to how it used to be. So -- in a kind of a forward movement. And these types of games can also be done with musical instruments that have specific pitches.

And then the children could play a game that goes specifically according to the pattern of low pitch, high pitch, and then low pitch again. So they play very, very low on bass instruments or the lower part of the instrument, and then they try to play a very high-pitch instrument or high pitch in the same instrument, high-pitched voice, and then go back to the low pitch. And the one condition, that they do it together at the same time. Also, of course, possible to just use percussion instruments, a drum or pots and pans -- or even ones own body as an instrument could work. So anything works with these types of games, the synchrony games. And I'm sure you can think about many, many different more iterations of these games to play. So the important thing is to just keep the beat.

You can also take some music and give the kids some drums and ask them to maintain a beat together. And then you can take the music out and ask them to maintain that beat again without the music. So that would help them be very attentive towards one another and keep the beat without any external aids. So that's another idea. So many, many different variations, and the only ideas is for kids to actually learn to keep a beat with another person. Next imitation games where children are either fully imitating or just matching their partner. As with the synchrony games, these games could be done with musical instruments, but also simply with using ones own body as an instrument. Let's take the matching game, for example, where one child is asked to play or drum a musical phrase, and the child next to her is asked to try to either completely imitate that phrase or else play a similar matched version of it. So imagine kids sitting in a circle, and one child starts playing something on a percussion instrument or a piano, it doesn't really matter. So they play for about 20, 30 seconds, and then the child that sits next to him or to the child that just played, is asked to either play to imitate that phrase or play something that's really similar, continues that same phrase. So this is the matching game where they learn how to listen and imitate and match each

other through playing. So the children are sitting in a circle, and each of them has a turn to play and match the child sitting next to them in the circle. Another example of an imitation game is the dancing mirror game.

So just saying a side note about music and dance, they're very, very similar -- pretty much almost the same mode of behavior. Music used to have a very active participative role prior to the modern era in a sense, and dancing is part of music, music is part of dancing. So in this mirror game, two children stand facing each other, and while music is being played, they are asked to improvise a dance together where one child imitates the other child's movements while dancing, or in the harder case, both children try to imitate each other's movements, which could be slightly tricky -- but they'll work it out. So that's another example of imitation game. You can use anything, the children's bodies, instruments, their breathing pattern. You can ask them to breathe together when they dance or when they play music. There are many, many different ways in which you can take the idea of them imitating and matching each other while interacting in music or in dance, for that matter. And attentiveness games are games where the children are required to be focused on the partner or partners with whom they are playing. For example, the musical mind-reading game. The musical mind reading. In this game, the children are asked to improvise on a musical or percussion instrument and think about a specific theme while they play. For example, a specific animal such as a dog or a lion, or even a certain emotion, such as being sad or happy. They're also asked to try and convey that theme to the other interacting participants while they play. So at the same time, the children are also asked to try and guess what themes their partners have in mind. And this is all happening while interacting musically with one another without using words or describe the themes that they have in mind. Only after the musical interaction is over can the children talk about the themes they had in mind while playing and compare their impressions and guesses about them. So, in essence, think about two children who are playing with each other, each of them thinks about something they decided to think about. So, for example, one is thinking about a lion, and the other is thinking about a dog.

A child who is thinking about a lion is trying to convey that lion-ness in their playing. But at the same time, while trying to do that, he is also trying to understand what kind of theme their partner has while they're playing. So it's a dual task. So on the one hand, they need to be focused on themselves, but they can't do that, can't succeed in the task or in the game without actually really being focused on the other, on the partner and trying to figure out what they had in mind when they're playing. So it's a complicated task, but it works really well, even with younger children, a game that I've used many times before with young children. So, therefore, in order to make ends meet, children who participate in this mind-reading game need to be very attentive to the other child's playing while actively, musically interacting with them. Another musical game that focuses on attention is when one child is dancing and the other child is playing music according to the dance. So the child who is dancing is, in a sense, dictating the child who is supposed to improvise. And playing music accordingly, what kind of music they should play.

So if the child who is dancing is dancing very slowly, you'd imagine that the child who is improvising to that dance would play a very slow melody or a slow form of rhythmic progression. Or if the child is jumping, I'd assume that the music would change accordingly. So this also allows children who engage in this kind of interaction to be able to be very focused on their partner while doing this, while interacting musically and in a movement way with one another. Okay, so moving on... We wanted to ask you before we wrap up, we'd love to hear more about your musical plans for the future. How will you use music in the future, what games and activities might you incorporate into your interactions with children. So please type your responses in the chat box as before.

Sarah: Thanks, Tal. So the questions is what kind of activities are you inspired to try with children? So if you can type some of those activities into the chat box, that would be great. Somebody earlier said that they let children pick their own instrument every day, which is fun. Tracy said that she uses music to accompany telling stories.

Tal-Chen: Right, mm-hmm.

Sarah: Jennifer says that she might try asking children to match tempo to the pace of their friends while they're dancing. Rose suggests drumming together in synch, like you were talking about.

Tal-Chen: Okay.

Sarah: So some fun ideas. It will be interesting to hear more. I see a lot of people are typing.

Tal-Chen: Okay.

Sarah: So Michelle who works in -- mm-hmm. Michelle works in a home-based program, and says that she sings songs with children and parents that incorporate movement. Oh, this is an interesting one. Asking parents and children to make instruments together, so making string or percussion instruments.

Tal-Chen: Right, that could be really good and really fun.

Sarah: So you get involved in the making of the instruments as well.

Tal-Chen: Right. And understand it better, from that perspective.

Sarah: Mm-hmm. Yeah. Marcela says she wants to encourage music to encourage cultural sensitivity. I think you talked a little bit about that.

Tal-Chen: Right, yep.

Sarah: Another mention of making instruments with recycled materials. Using our body as an instrument -- this idea that you don't have to have actual instruments to do music with kids.

Tal-Chen: Absolutely. I can't agree more with that. And making instruments from recycled material, that sounds like a fantastic idea.

Sarah: Mm-hmm. That's an idea. So an idea that you can use music for departure and arrival times. So, again, back to that sort of transition kind of thing, that you're signaling different times of the schedule based on music.

Tal-Chen: I wonder if people can write a little bit more about why they think music is good for transitions.

Sarah: Oh, sure.

Tal-Chen: What they think is happening there.

Sarah: Yeah, that's a great idea. So if people want to talk a little bit more about why music works so well for transitions. In the meantime, Lauren said that she loves what you said about synchronizing and doing this with a musical instrument like a shaker, and making it go fast or slow using the shaker to find your head and toes, et cetera, and you can pair that with, you know, being loud or quiet and thinking about that.

Tal-Chen: Mm-hmm.

Sarah: So some answers to the questions that you posed about transitions. So Jennifer says that

hearing music triggers a response for children. So giving them sort of this auditory cue that, you know, a different activity is about to begin or a different time of the day is about to begin. Michelle says that she thinks music helps the process run more smoothly. Maria says that children enjoy listening to music, and so it facilitates the opportunity for them to be engaged, gives a positive context for children.

Tal-Chen: Right, the positive feelings. Because a bell is something audible, too. It could be like music is a more -- working better than a bell for example. Or if people have any ideas or thoughts about that.

Sarah: Yeah. It's interesting. I wonder if music is maybe more interactive or more enjoyable, you know, than just hearing a bell noise. So, again, more comments. So Juanita is talking about making a drum using coffee cans. So that's a really fun example of...

Tal-Chen: Nice.

Sarah: Of how this might work. Interesting. Well, we'll let people keep typing, but in the meantime, I wonder, Tal, if you want to move, we can move to the wrap-up, and then we can sort of invite general questions as people continue chatting. Does that sound good?

Tal-Chen: Yeah, okay. Sounds good. So to wrap up, here's a summary of things we've discussed. So we talked about how music can be experienced in different ways, mainly listening, performing, and interacting socially. And music can be beneficial for children's cognitive and social development by transferring skills from the music domain to other domains. So that was the whole idea of transfer between music and other non-musical domains. So our specific underlying processes that might be responsible for these transfer effects, and we discussed those in detail, mainly synchrony imitation and attentiveness, and others, too. And we also talked about ways to both create opportunities as well as activities for children to engage in music in a meaningful way. Again, thinking about the three main modes of engagement with music, which are listening to music, performing, and interacting socially with other peers and adults. And that's pretty much it. So, yeah.

Sarah: Great. So, thank you, everybody, for listening. And we hope this information will be valuable to you as you help programs, consider ways to enrich musical experiences for children and families. If you have thoughts you'd like to share about how this relates to your work or any additional questions about the content that Tal covered today, we will open it up for your questions and comments at this point. So please, we'd love to hear from you, what you think, and again, more information about how you do use music and how you might use music in the future with the kids and families you work with. And I'm sure Tal will be happy to take some questions.

Tal-Chen: Absolutely, yep.

Sarah: So a question from Sarah about how can we get a copy of the references from the presentation.

Tal-Chen: Mm-hmm. Do you have any ideas about that, Sarah?

Sarah: Well, you have the copy of the PowerPoint that's available to you. And then, Tal, perhaps, you can share a web site where people might find more information about your work.

Tal-Chen: Yeah. I will... We can add that. There's a web site on the Institute for Learning and Brain Sciences under my name. You can find that, and it will link you also to the music and empathy project and other references and papers that we have done in the past. So you can just type my name through I-LABS web site and discover all of that there.

Sarah: And I'm gonna provide a link for people here in a minute.

Tal-Chen: Okay, great.

Sarah: A question from Jennifer about the -- what were the ages of children involved in your music study.

Tal-Chen: Okay. In the music study, there were elementary school kids, specifically then in that study, we had kids going from eight to 11. But, actually now, we're running a study with much younger children, mostly in the K1 area. But we don't have results yet. It's an ongoing project in Seattle at the moment.

Sarah: That's a stay tuned, right?

Tal-Chen: Exactly.

Sarah: Yes. A question about access certificates. So you are going -- you will get an e-mail with a link to an evaluation survey after the webinar. And if you complete the -- when you complete the evaluation survey, you will be able to print out a certificate of attendance.

Tal-Chen: Mm-hmm.

Sarah: Oh, and we've just posted the link to the evaluation here as well. So feel free to fill that out. Just one additional comment that I saw about using music for transitions. So Mallory says that it allows children to have a cue as to what's about to happen. They're not as abruptly interrupted during an activity. So that's -- I think that's an interesting idea as far as, you know, using music for transitions.

Tal-Chen: Right, right. Yeah, definitely.

Sarah: Yeah. So a question from Marcela about what the study in Seattle -- what type of facilities or schools are you using? Are they Head Start or others?

Tal-Chen: Not Head Start specifically. We're doing it in different sites, public schools, private schools. We're running some sessions here in I-LABS. So just trying to utilize as wide -- the wider range of kids with different backgrounds and cultures we can possibly find. So that's what we wanted to do.

Sarah: Great. Okay. Any final questions from anyone while we've got Tal on the line? So Marcela's asking are the kids of a particular socio-economic status?

Tal-Chen: Exactly. So that's what I meant. So we have very differences of socio-economic status between the kids that we are currently working with. That wasn't the case in the study that I had reported before, which mainly had -- it was in Britain. But this one has a very wide range of kids coming from different socio-economic backgrounds and cultures. So, yeah, it's a very wide range.

Sarah: All right, well, thank you, Tal.

It is 1:00 here in the Pacific Time Zone and 4:00 on the East Coast. So we are out of time. Thank you all so much for attending. Please, again, look out for the evaluation link that you will receive via e-mail, and once you complete the evaluation survey, then you will be able to download a certificate of participation. So thank you, Tal, for joining us, and thank you, everyone, for attending our Front Porch series. And we hope you'll join us for the next Front Porch.

