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Figurenotes in kindergartens: Widening the range of possibilities in music teaching in ECEC

Metropolia University of Applied Sciences

Bachelor of Social Services

Degree Programme in Social Services

Bachelor's Thesis

9 November 2020

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Title	Figurenotes in Kindergartens: Widening the Range of Possibilities in Music Teaching in ECE
Number of Pages	36 pages + 5 appendices
Date	November 2020
Degree	Bachelor of Social Services
Degree Programme	Social Services
Specialization option	Early Childhood Education and Care
Instructors	Jyrki Konkka, Lecturer Jukka Törnroos, Lecturer

Figurenotes is a music notation developed by the music therapist Kaarlo Uusitalo. The method utilizes different shapes and colors so music can be easily taught to everyone regardless of their background or abilities.

The purpose of this Bachelor's thesis was to examine the possibility of using an unconventional approach, Figurenotes, to teach music in Early Childhood Education and Care (ECEC) in order to widen the range of possibilities in music teaching for early childhood professionals.

This work is a functional study that applies methods used in action research. The study was carried out in a private kindergarten in the Helsinki metropolitan area. The participants of this study consisted of 6 children between the ages of 3 to 5 and two kindergarten teachers. The empirical data was collected during six music sessions with the children at the kindergarten. The music sessions involved a wide range of musical activities with a digital Figurenotes application. The application is based on the original Figurenotes notation and was specifically developed for the project. Analysis of the empirical data emerged from discussions with the staff before and after the sessions, and feedback received both verbally and with feedback forms.

The results showed that the Figurenotes method corresponds well with the music education in ECEC and supports the learning and teaching guidelines of the Finnish National Core Curriculum. Moreover, the use of Figurenotes demonstrated great flexibility in developing music-oriented activities for the children. Finally, the interactive nature of the Figurenotes activities stimulated the learning process of the children, demonstrated by their active participation in the sessions.

The results lead to the conclusion that Figurenotes can be used as a tool for music education by kindergarten teachers and it motivates the children towards learning and musical activities. Training about the subject for early childhood education students and professionals could be further developed and provided.

Keywords	Figurenotes, early childhood education, music education

Tekijat Otsikko Sivumäärä Aika	Faustine Flores and Violeta Ivanova Figurenotes in Kindergartens: Widening the Range of Possibilities in Music Teaching in ECE 36 sivua + 5 liitettä Marraskuu 2020
Tutkinto	Sosionomi (AMK)
Tutkinto-ohjelma	Sosiaalialan koulutusohjelma
Suuntautumisvaihtoehto	Varhaiskasvatus ja päivähoito
Ohjaajat	Lehtori Jyrki Konkka Lehtori Jukka Törnroos

Kuvionuotit on musiikkiterapeutti Kaarlo Uusitalon kehittämä vaihtoehtoinen nuotinnusmenetelmä. Kuvionuottijärjestelmä käytetään erilaisia muotoja ja värejä, jotta kuka vain voi oppia soittamaan musikkia taustastaan tai kyvyistään riippumatta.

Työn tavoitteena oli tutkia kuinka kuvionuotteja voidaan soveltaa musiikkikasvatuksessa varhaiskasvatuksessa, jotta lastentarhanopettajien musiikkikasvatuksen mahdollisuudet laajentuvat. Tutkimus tehtiin yksityisessä päiväkodissa pääkaupunkiseudulla.

Tämä opinnäytetyö on toiminnallinen opinnäytetyö, jossa käytetään Action Research tutkimusmenetelmiä. Opinnäytetyöprojekti suoritettiin yksityisessä päiväkodissa pääkaupunkiseudulla. Projektissa osallistuivat kuusi 3-5 vuotiaita lasta sekä 2 lastentarhanopettajaa. Empiirinen oppinäyttöainesto kerättiin kuuden musiikkitoimintatuokioon aikana lasten kanssa päiväkodissa. Musiikkitoimintatuokioissa käytiin läpi musiikkikasvatuksen sisältöjä Kuvionuotit-sovelluksella. Sovellus kehitetiin erityisesti oppinäyttetyöprojektille ja perustuu alkuperäiseen Kuvionuotin nuotinnusmenetelmään. Oppinäyttöaineston analyysi muodostettiin keskusteluista lastentarhanopettajien kanssa ennen musiikki toimintatuokion ja sen jälkeen sekä suullisesti että palautelomakkeilla.

Tulokset osoittivat, että Kuvionuotit nuotinnusmenetelmä, vastaa hyvin varhaiskasvatuksen musiikkikasvatusta ja tukee Varhaiskasvatussuunnitelman perusteista. Lisäksi, lasten musiikkitoiminnan kehittäminen on erittäin joustavaa sekä luovaa Kuvionuotit avulla. Lopuksi, lasten aktiivinen osallistuminen musiikkituokioon osoitti että Kuvionuotin vuorovaikutteinen toiminta kannustaa lasten oppimisprosessia.

Oppinäytetyön perusteella voidaan todeta, että Kuvionuotit voidaan soveltaa lastentarhanopettajien musiikkikasvatuksen välineenä sekä motivoida lapsia oppimiseen ja musiikkitoimintaan. Varhaiskasvatuksen ammattilaisten ja alan opiskelijoiden koulutusta aiheen suhteen voitaisiin opinnäytetyön perusteella kehittää edelleen.

Avainsanat	Kuvionuotit, varhaiskasvatus, musiikkikasvatus

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1 Introduction

Music plays an important role in every culture, society, or community. Throughout their lives, people will use music to strengthen communities through playing a certain type of music, singing, dancing, and more generally to share moments that will become long-lasting memories. From birth and throughout their lives, children are accustomed to music. Over the past two decades, numerous studies have been conducted to examine the impact of music on children's development which resulted in a large body of literature that evidences the advantages of music learning in children's emotional, social, and cognitive development (Barrett, Flynn, Brown, and Welch, 2019, Barrett, 2009).

Evidence of the importance of music and the benefits of music education steered also the development of different methodologies for teaching music. In addition to the four traditional methods, Dalcroze, Kodály, Orff Schulwerk, and Suzuki method, new approaches were developed with a focus on equality, social inclusion, and creativity (Choksy, 2001). A notable music teaching approach was developed by the Finnish music therapist Kaarlo Uusitalo in the mid of the 90s called Figurenotes. Initially, the method was created to enable those with learning disabilities to play music. However, it has since developed into a tool, used around the world, to support anybody to learn music (Helsinkimissio.fi, 2019).

In Finland, music education is an essential part of early childhood education and is implemented in accordance with the National Core Curriculum for early childhood education and care (ECEC). In the curriculum, music education is defined as a development of musical expression skill which aims "to provide children with musical experiences and to strengthen children's interest in and relationship to music" (National Core Curriculum for Early Childhood Education and Care, 2018, p. 43). The learning process is organized through playful musical activities rather than a traditional music approaches and consists of exploratory listening to music and perceiving different music components duration, rhythm, tone, and power of sound, playing instruments, and making music together (National Core Curriculum for Early Childhood Education and Care, 2018). Though the curriculum provides guidelines and recommendations on the implementation of music education, the actual organization is left in the hands of the professionals in ECEC. This

gives freedom and creativity to the professionals to explore unconventional teaching technics.

Therefore, in this study, we examine the possibility of using the Figurenotes approach to teach music in early education in order to widen the range of possibilities for professionals. In order to pursue our goal, we collaborated with Rockhubs, an organization that focuses on community collaboration to build accessible and affordable music learning environments for everyone, which specializes in utilizing Figurenotes (rockhubs.com, 2019).

The study begins with the exploration of different pedagogical approaches towards music education. Then, Chapter 3 details children's stages of development. Chapter 4 introduces the Figurenotes method and the social scientific background of this study is described in Chapter 5. In Chapter 6, we focus on the aims and the methodology of our study. Chapter 7 provides a detailed description of the implementation phase and the study's evaluation and discussion are done in Chapters 8 and 9.

2 Pedagogy approaches towards music education

In this section, an overview of the organization and implementation of music education in Finland in accordance with the National Core Curriculum is presented. Furthermore, different pedagogies in early childhood education and care and their approaches towards music are discussed.

2.1 Music teaching expectation in the National Core Curriculum

The Finnish National Core Curriculum for ECEC strengthens the importance of teaching a diverse form of expression: "artistic experiences and expression promote children's learning potential, social skills, and positive self-image as well as their capacity to understand and structure the surrounding world" (National Core Curriculum for Early Childhood Education and Care, 2018). These diverse forms of expression include visual, musical, and physical expression. These kinds of expression provide the children with means to

experience and perceive the world in a way that speaks to and inspires them (National Core Curriculum for Early Childhood Education and Care, 2018).

The National Core Curriculum does not provide specific regulations for teaching music but gives basic recommendations and guidelines. Music education in ECEC aims to provide children with musical experiences to strengthen their interest and relationship with music (National Core Curriculum for Early Childhood Education and Care, 2018). Children should experiment with a different types of instruments, sing songs and nursery rhymes, and listen to music in general. Children should experiment with basic beats, rhythm, note duration, volume, and so on. The curriculum focuses more on teaching music as a way for children to express themselves and develop their imagination rather than a way to develop their musicianship.

Furthermore, music teaching requires the acquisition of instruments which often can be expensive to buy. One can argue that some basic instruments like maracas or musical egg shakers are not expensive and can also be made by the children, however, those cannot replace a piano or a guitar. When talking about teaching notes duration and tonalities, it is quite difficult to do so without any kind of physical instruments. Eventually, it is up to the teachers how much music they want to include into their pedagogical approach and how they want to include it.

2.2 Early childhood pedagogies and their approach to music

Before discussing the topic of different pedagogies in early childhood it is important to provide an understanding of the term pedagogy.

2.2.1 Definition of Pedagogy

As defined by Wall, Litjens, and Taguma, "*pedagogy relates to the "how", or practice of educating. It refers to, that set of instructional techniques and strategies which enable learning to take place and provide opportunities for the acquisition of knowledge, skills, attitudes, and dispositions within a particular social and material context. It refers to the*

interactive process between teacher and learner and the learning environment. It *concerns the "how" of adult and child interaction, whilst recognizing that how children learn and develop at this stage is not just subjected to what is intended to be taught, but it is also of particular importance how it is facilitated*". (Wall, Litjens, and Taguma, 2015).

2.2.2 The Finnish approach

In order to understand the Finnish pedagogical approach, it is important to get acquainted with the historic and traditional background of the country. Public kindergartens were established during the period of growing industrialism. Many families moved from the countryside to the city to seek work and there was a necessity of a safe place for the children while parents were working As a result, the beginnings of early childhood education focused on the provision of a learning environment to accommodate the basic needs of the children (Roos, 2019).

The first kindergarten was founded by Hanna Rothman in 1888 in Helsinki. Rothman received her training in Germany as well as many of the kindergarten teachers at the time and therefore, the Finnish early childhood education has roots in the Froebelian pedagogy (Peltonen, 2013).

The main Froebelian practices, encompassed in the present Finnish ECEC focus on child-centered constructive play with an emphasis on the interaction and relationship between children and professionals as well as a positive attitude towards learning (Bruce, 2012, Roos, 2019).

Music and musical experience take an important place within the Froebelian pedagogical practices. Friedrich Froebel is considered one of the pioneers in early childhood education to promote musical experience and singing as an educational activity and songs and finger rhymes as tools to enhance children's learning experiences (Powell, Goouch, and Werth, 2015).

2.2.3 Montessori approach

The Montessori curriculum gives a very important place to sensory educational materials (Faulmann, 1980) and as music has always been an inherent part of Montessori's teaching, alongside more traditional teachings like mathematics or science (Rajan, 2016), it is not surprising to find a lot of different types of instruments and music tools in a Montessori classroom. For Maria Montessori, "it was the classroom teacher's responsibility to lead and present musical opportunities in the classroom" (Rajan, 2016).

As stated before, music plays a central role in the Montessori pedagogy. A lot of different kinds of instruments specially designed by Maria Montessori to teach music skills to children can be found in the classrooms. The most iconic one is probably the Montessori bells. They were designed by Macheroni, Montessori's music consultant at the beginning of the 20th century (Rubin, 1983). The "instrument" consists of a series of 13 bells hung from a wooden frame which formed the octave from A to a' and includes chromatic tones (Faulmann, 1980). Children ring the bells with a small mallet and learn to recognize the notes of the corresponding bell by ear.

Figure 1. The Montessori bells

Montessori also developed tools and games to teach children how to read music notations in a playful way. For instance, children use a monochord or activities resembling a monochord:

> A green wooden board with a painted black staff was used as a puzzle. Each line and space had a hole in it with the number of the note painted inside. The student placed white discs labeled with the solfege names on the staff and then used the

bells to play the notes. After correctly identifying and playing the notes, the child moved to staff without the note names. (Faulmann, 1980)

Figure 2. The Monochord

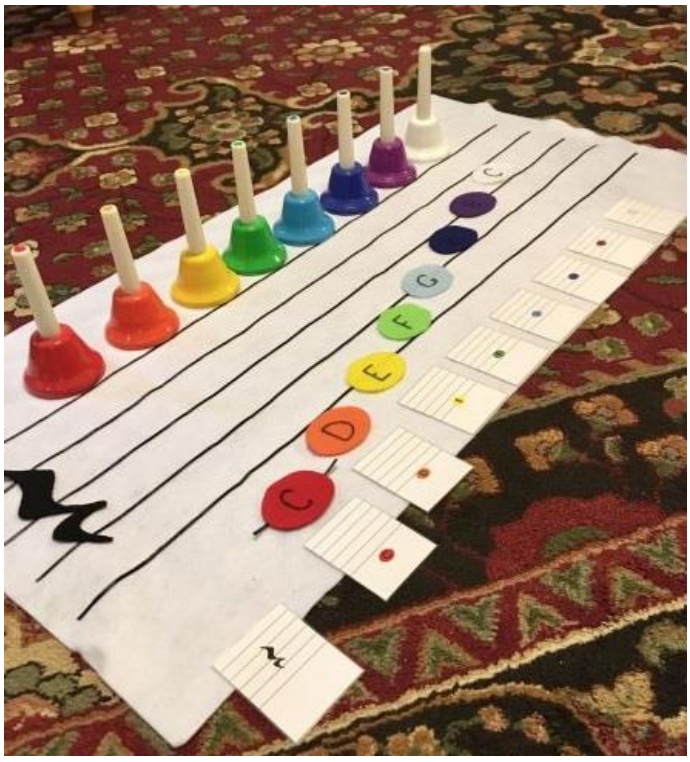

Figure 3. Montessori music reading activity

Eventually, in some newly discovered booklets written by Macheroni, Montessori's music consultant, a detailed description of how to teach music to children can be found (Rubin,

1983). One section addressed to the teachers included recommendations for musical activities, material, and appropriate age levels. The other section addressed to the students was intended to pique their curiosity and prod self- motivation.

2.2.4 Reggio-Emilia approach

The Reggio-Emilia pedagogy focuses more on visual art than music. In the ateliers, children can explore and interact with materials in an informal social setting (Wendell, 2013). The goal of those ateliers is not to teach children pre-professional artistic skills but rather to encourage them to experience art in a natural way using artistic materials (Wendell, 2013). As there are no guidelines or focus on music in the Reggio-Emilia pedagogy, it is up to the teachers to create music activities and to think about how to include music in a "Reggio-Emilia way".

Some of the educators took the idea of those visual art ateliers and transform them into musical ateliers: "music studio is based on the philosophical assumptions that children have a natural capacity to develop musical skills and abilities, therefore, those talents can be developed naturally while practicing and refining the art" (Reggio-music.com, 2017). During those ateliers, children learn about pitch matching, beat, and rhythm but these abilities are not the goal of the studio activities. The studio is where children build an artistic vocabulary, but not learn or develop their music skills and musicianship.

Like in the visual art studio, the music ateliers are led by an atelierista, the teacher, who proposes musical experiences and instructs children in the use of music and instruments but prompt the children to find their ways of exploring those musical materials (Wendell, 2013): "some of these ways include chanting, singing, movements, listening and performing on instruments, and playing musical games" (Wendell, 2013). The music atelierista initiates the activities but encourages the children to find their way and bring their contribution. Eventually, music in the Reggio-Emilia pedagogy is quite a new idea. An in-depth study of the music in Reggio-inspired schools has not yet taken place. The lack of documentation about music may be the cause for the apparent lack of musicking in Reggio-inspired education centers (Bond, 2015).

2.2.5 Waldorf-Steiner

Contrary to the Reggio-Emilia pedagogy, the Waldorf-Steiner pedagogy gives a central place to music teaching. It starts from early childhood and continues until the end of the student's school life. In early childhood, there are some conflicts on how to teach music to children. Some Steiner educators think that children under 7 should not be taught music formally and that no attempt should be made to teach them abstract concepts such as written notes, meters, and so on (Wight, 2012). Educators should focus on singing and playing simple instruments and should pay very little attention to teaching musical rhythm principles (Humes, n.d.). Other educators think that children should be exposed to as many tonalities as possible, for instance by singing songs without words so the children can solely focus on the musical elements of the song. (Wight, 2012). Furthermore, to understand better music rhythm, children should move to the beat of the music so they can learn to incorporate the beat into their physical bodies (Wight, 2012).

In Steiner education centers, traditional music teaching starts from grade 1 and continues until the end of the children's school life. Music education in the Steiner pedagogy is very detailed. In grade 1, children learn about 'tone color' using a variety of instrumental sounds. Children also learn to play the Choroi flute and the pentatonic flute.

Figure 4. Choroi pentatonic flute

In grade 2, children are introduced to pentatonic songs and they learn about polarities in music like high and low tones, loud and soft, and so on. In grade 3, children start learning the rudiments of musical notations and are introduced to beats. In grade 4, they start to play a stringed instrument and they learn about various keys. At this age, they are able to read simple melodies both vocally and instrumentally. From grade 5 and onward, the students keep on deepening their learning (waldorfmusic.org, 2019).

3 Children' stages of development

According to Piaget's stages of cognitive development (Beckett and Taylor, 2016), children between the age of 18 months and 7 years follow the pre-operational stage. They start to manipulate the meanings of objects and events. They tend to be egocentric, meaning that they have difficulties seeing things from another point of view, they are prone to centration as they fix their attention to one aspect of a situation and ignore other aspects and they are unable to mentally reverse a series of events or steps of reasoning.

3.1 Children's development at 3-year-old

According to Erikson's psychosocial stages (Beckett and Taylor, 2016), children between the age of 2 and 3 enter a stage called "autonomy vs shame and doubt" where children seek a sense of independence from their parents. The favorable outcome of this stage is that children will gain a sense of autonomy and improve their self-esteem. The unfavorable outcome is that children will have feelings of shame and doubt about their own capacity for self-control.

At 3-year-old, children should imitate adults and other children during any moment of the day and they also ask for help when needed (beststart.org, 2018). Those are the observable outcomes of a "normal" social development for 3-year-old children. If at this age, children agree to wait to have their needs satisfy, if they are able to express a variety of feelings and emotions and if they start describing themselves, their affective development is going a good way (beststart.org, 2018).

For their language development, at 3-year-old, children understand complex instructions. For instance, “pick up your hat and your shoes and tidy them up”. They understand and use descriptive adjectives and they understand questions starting with “who”, “why”, “what” and “when”. Children can recognize and name familiar objects and are able to name body parts. They also can speak about events from the past and become aware of the use of writings (beststart.org, 2018).

Eventually, for their cognitive development, children ask a lot of questions, they can associate an object in their hand or inside the room with the corresponding image and they can classify objects in two categories, for instance, according to their shapes and colors (beststart.org, 2018).

3.2 Children’s development at 4-year-old

According to Erikson’s psychosocial stages, children at 4 enter a phase of “initiative versus guilt”. Children explore their environment and plan new activities (Beckett and Taylor, 2016). If they go favorably through this stage, children develop their ability to initiate activities and are able to follow them through. Otherwise, children fear punishment and guilt about their personal feelings (Beckett and Taylor, 2016).

On the social level, 4-year-old children are interested in new experiences (beststart.org, 2018) and they want to explore (Tarkka, Komi, Nevanen, Tuominiemi-Lilja, 2013). They can wait for their turn, share with others, and begin to feel responsibility and guilt (beststart.org, 2018), (Tarkka, Komi, Nevanen, Tuominiemi-Lilja, 2013). Children want to please adults by showing more independence and by adopting social skills like following rules and noticing breaches of rules, especially by others (Tarkka, Komi, Nevanen, Tuominiemi-Lilja, 2013).

On the affective level, children are able to use words to communicate empathy (beststart.org, 2018) and they are able to share thoughts (Tarkka, Komi, Nevanen, Tuominiemi-Lilja, 2013). They can persevere for a longer time to accomplish harder activities (beststart.org, 2018). Children are capable of finding analogies, categorizing, and comparing (Tarkka, Komi, Nevanen, Tuominiemi-Lilja, 2013).

For their language development, children sing nursery rhymes (beststart.org, 2018), they become interested in wordplay and rhyming (Tarkka, Komi, Nevanen, Tuominiemi-Lilja, 2013). They ask a lot of questions and answer a lot too and they are able to discuss and listen to others and ask questions about what they heard. They can also recognize few visual signs (beststart.org, 2018) and they know the part of their body.

For their cognitive development, children should be able to name properly few colors and say properly few numbers (beststart.org, 2018). They understand instructions in three-part and longer sentences (beststart.org, 2018), for instance: 'tidy up your toys and wash your hands before dinner". Their memory also improves a lot. At 4 -year-old, they can remember part of nursery rhymes (beststart.org, 2018) and they are able to call back several things to minds (Tarkka, Komi, Nevanen, Tuominiemi-Lilja, 2013). Eventually, they learn from instructions and they understand and obey rules (Tarkka, Komi, Nevanen, Tuominiemi-Lilja, 2013).

3.3 Children's development at 5-year-old

At 5-year-old, children enter Erikson's psychosocial stage known as "industry versus inferiority" (Beckett and Taylor, 2016). Children acquire important knowledge and skills relating to their culture. If they master this stage, children develop a sense of competence and achievement and there are confident in their own abilities to make and do things. If children do not master this stage, unfavorable reactions from others may cause feelings of inadequacy and inferiority (Beckett and Taylor, 2016).

On the social level, 5-year-old children show more and more independence. They want to be like their friends, they know how to play in a group and accept rules more easily (beststart.org, 2018). For their effective development, children want to please their friends and are able to recognize when others need help and offer their help in return (beststart.org, 2018). They can also recognize their feelings toward a situation and talk about it.

On the linguistic level, children understand instructions starting with "if…" and they tell long stories about past experiences (beststart.org, 2018). Eventually, on the cognitive level, they are able to count out loud or on their fingers, they know the usual geometrical

forms and most of the alphabet letters and they understand the days of the week and daytime (beststart.org, 2018).

3.4 Children's musical development from 3 to 5-year-old

3-year-old children begin to create music with some accuracy without live or recorded support (primroseschools.com, 2020). At this age, children move spontaneously to music, they can maintain a steady beat and enjoy playing different types of instruments that will sometimes be in tempo to music as well as demonstrating rhythm with body movements that might also be in tempo to music (primroseschools.com, 2020). In terms of melodic learning, 3-year-old are able to distinguish between different voices and instruments, and they like exploring musical sounds with their voices or with instruments (Sarazzin, 2016). They are able to match pitches and can reproduce recognizable songs, but they still prefer to sing at their own pitch (Sarazzin, 2016).

From 4 to 5, children enter the manipulative phases. Their music-making is more affected by the instruments' physical structure and layout (Welch, 2005). They develop further on their ability to sing in tune, to move in time to music, and occasionally to consistently matching the beat of the music (primroseschools.com, 2020). They are able to memorize lengthy and complex lyrics, and in term of melodic learning, they can sing phrases or song with accurate pitch, they are able to identify by sight or sound common instruments and they can indicate when notes are performed correctly or incorrectly when listening to familiar songs or phrases (primroseschools.com, 2020).

More specifically, 4-year-old children have a higher awareness of beat, tempo, volume, pitch, and form. They have a better ability to step to beat and can repeat short movement sequences, simple rhythm, echo, or pitch (Sarazzin, 2016). They perform individualized musical exploration and play and sing a wide variety of songs and can perform some musical analysis such as hearing forms or distinguishing song phrases (Sarazzin, 2016). At 5-year-old, children show greater improvement in stepping to the beat. They are able to classify sounds as high/low, loud/soft, fast/slow, or smooth/disconnected (Sarazzin, 2016). In terms of melodic development, they can reproduce sounds and patterns vocally

and with an instrument and they are able to play simple, repeated instrumental accompaniments to songs and even to improvise on simple classroom instruments (Sarazzin, 2016).

4 Figurenotes

Figurenotes is a music notation developed by the music therapist and educator Kaarlo Uusitalo. The method utilizes different shapes and colors that correspond to the traditional music notation, i.e. each musical note is represented by a colored symbol (Uusitalo, 2005). A detailed and illustrated description of Figurenotes music notation is presented in Appendix 1. The figurenotes method, play what you see.

4.1 Why, how, and for whom

When creating the figurenotes method, Kaarlo Uusitalo's main goal was to include people with disabilities in mainstream music playing. Figurenotes allowed the diversification of the opportunities for participation for diverse learners, thus broadening education equality (Kaikkonen, 2009). Before figurenotes, music for disabled people was mostly done for therapeutic reasons and pedagogical goals were often left out (Kaikkonen and Laes, 2011): "people with disabilities do not necessarily need music as therapy but should have access to music studies and the opportunity to develop musicianship" (Kaikkonen and Laes, 2011). This method introduced goal-oriented tuition into special music education and made possible individualized music teaching in special music education (Ruokonen et al, 2012). Inclusion became a crucial concept in special music education: "when educating by the inclusive principle, each student is an equal member of the group regardless of the individual differences among the students" (Kaikkonen and Laes, 2011).

Figurenotes teaching also changed the way music is taught and the relationship between teachers and students. In special music education, teachers have to remember that "music, its value and production and hence its enjoyment are the primary objectives and value of music education" (Kaikkonen, 2009). With the figurenotes method, music teach-

ing became more challenging; teachers had to develop their professional skills by adapting their methodology to their pupils. With this method, teachers must find tasks corresponding to their students' skills and level; tasks that would also be musically important, meaningful, and goal-oriented (Kaikkonen, 2009). This method also brought a shift in the attitude of the teachers towards their students. Teachers should be encouraging and respectful of their pupils and the teacher's main task is to discover the student's learning capacities, strengths, and potential beyond any disabilities (Kaikkonen and Laes, 2011).

4.2 The Figurenotes method

"Kuvionuottien avulla kaikki oppivat soittamaan" (helsinkimissio.fi, 2019), "thanks to figurenotes, everyone can play". The strong wish of people with disabilities to play real music, not only singing, dancing, and maracas-playing, and to play for fun, not only for therapy, gave Kaarlo Uusitalo the idea of figurenotes in the late 1990s (helsinkimissio.fi, 2019). He invented a concrete music notation that would be easily understood by people with disabilities. Instead of using traditional staff notation, the figurenotes method uses shapes like crosses, squares, circles, triangles, and colors, red, yellow, brown, and so on, to transpose music. With this method and with the help of stickers on the instruments, musicians play what they see: "soita mitä näet" (helsinkimissio.fi, 2019), the motto of figurenotes.

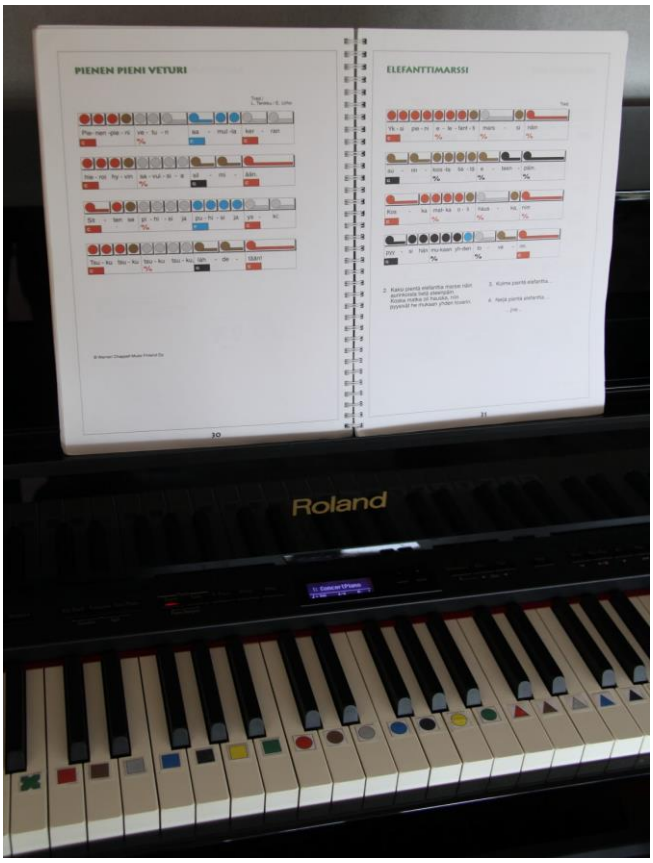

Figure 5. Figurenotes stickers on a piano: play what you see

In figurenotes, each shape represents an octave: crosses represent the lower octave, then squares, circles, and eventually triangles which represent the higher one as seen in Figure 6. Representation of figurenotes on a staff.

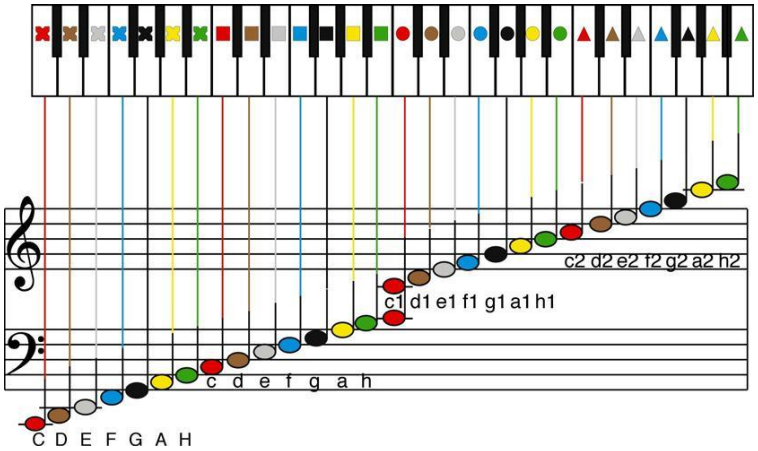

Figure 6. Representation of figurenotes on a staff

Then each color represents a note, red is a C, brown a D, grey an E, blue an F, black a G, yellow an A, and green an H as seen in Figure 7. Figurenotes' connection between notes and colors.

Figure 7. Figurenotes' connection between notes and colors

Eventually, extra notations can be added to transpose more complex musical elements, like sharp or flat notes, into figurenotes. Further explanations can be found in Appendix 1. The figurenotes method, play what you see.

Figurenotes widened the possibilities of music teaching and developed educational inclusion. Thanks to this method, music can be taught to everybody regardless of their background or abilities (Kivijärvi, 2013). Figurenotes help develop interactions between different members of society and increase the potential for equalization through music-making (Poutiainen, Kivijärvi, and Kaikkonen, 2013). People who are usually not included in mainstream music playing, like people with disabilities, elderly people, or children, now have the chance to show to the rest of the society that they are able and competent musicians.

5 Social scientific background

The Finnish National Core Curriculum for early childhood education and care outlines six main areas called transversal competencies, in consideration to children's development. These areas include thinking and learning, cultural competence, interaction, and self-expression taking care of oneself and managing daily life, multiliteracy and competence in information and communication technologies, and participation and involvement (National Core Curriculum for Early Childhood Education and Care, 2018). There is a large amount of research literature that demonstrates how each of these outlined areas can be supported through exposure to music and engaging in musical activities. For example, studies about children's executive function (Moreno et al., 2011; Zuk et al., 2014;

Bowmer et al., 2018), motor skills development (Derri et al., 2001), social-emotional development (Hallam, 2010; Barrett, 2011, 2016, 2017; Welch et al., 2014), development of early language literacy and numeracy skills (Anvari et al., 2002; Moritz et al., 2013; Williams et al., 2015; Cohrdes et al., 2016).

In ECEC, music teaching is usually offered through the service of a music teacher who comes once a week to the day-care. Their teaching is usually about singing nursery rhymes, playing maracas, claves, or woodblocks, and dancing. However, playing an instrument or doing rhythm exercises where the children have to follow a beat and keep following it for a certain amount of time is rarely done. The objectives of the so-called Muskari club are more about getting children together socially and allow them to enjoy themselves (Kaikkonen, 2009). Kaikkonen described here the objectives of traditional special music education, however those objectives, as being observed in the majority of Muskari clubs, are the same for ECEC music education. Moreover, the increasing demand for goal-oriented tuition in music and instrument in special music education (Kaikkonen, 2009) can also be applied in ECEC. As stated earlier, instrument playing like the piano has rarely been introduced in music education in ECEC and the benefit of learning such instrument for children under 5 years old has rarely been researched. Even if more studies are conducted regarding the role of music and advances in early childhood development, mainstream music education, learning how to read notes, playing an instrument, or following a rhythm, is mainly done in primary school, for children over 6 or 7 years old (Young, 2016). Mainstream music teaching is usually a commodity purchased by the parents through private music lessons (Young, 2016) but has not been yet introduced into music teaching in a kindergarten setting.

The use of Figurenotes has been studied since the development of the method in the 1990s. However, the early studies emphasized the use of figurenotes for adults and children with disabilities. For example, the method was presented for the rehabilitation of children with dysphagia (Laaksonen 1998), stroke patients (Laitinen & Pataila 2000), and teaching adults with intellectual disabilities (Auramo 1999; Ilanen 2016). Later studies conducted at the beginning of the 2000s focused more on the use of the method for general music education such as basic piano education (Vikman 2001; Ylä-Soininmäki 2002; Peuna 2015), guitar teaching (Henriksson 2014), and band work (Seppälä 2006).

Figurenotes have also been applied in storytelling. The method was developed by Hanna Hakomäki and was focused on the use of figurenotes with children. (Tarinasäveltäminen, 2015) Moreover, Hakomäki has written a doctoral dissertation on the subject “Storycomposing as a Path to a Child’s Inner World. A Collaborative Music Therapy Experiment with a Child Co-Researcher” (Tarinasävellys tienä lapsen sisäiseen maailmaan. Musiikkiterapiakokeilu kanssatutkija-lapsen kanssa) which provides guidelines on using Figurenotes in early childhood education. (Hakomäki, 2015)

There has been very little research on the use of figurenotes as part of early childhood education. There have been few studies about the use of figurenotes, namely a study, applying figurenotes in a music playschool (Huhtinen, 2002) and another about exploring figurenotes in music education in ECEC (Repo, 2017), but generally, figurenotes as part of early childhood education has not been studied yet.

Based on the previously presented studies, different approaches, and current organization of music education in early childhood, it can be said that there is a need to explore the use of unconventional methods and approaches in music education such as Figurenotes. By doing this, it may be possible to explore and adopt new pedagogical approaches in accordance with the Finnish National Core Curriculum to support the professionals in teaching music and widen the music education. Moreover, it can demonstrate new ways to support and improve the learning experience of the children.

6 Research aims and methodology

The main goal of this study is to examine the use of figurenotes methodology, an unconventional approach, to teach music within the pedagogical context in early childhood education and care. We want to explore the compatibility of the approach with the music education guidelines of the National core curriculum and the possibility of widening the teaching possibilities for professionals in ECEC.

In addition to the main goals of this work, we have personal goals that we would like to develop. Mainly, we would like to practice and expand our knowledge as future professionals on planning and implementing activities to support the children's learning process and well-being. Also, we would like to acquire more knowledge about music education.

The main task of this goal is to implement a set of pedagogical activities based on the figurenotes method in music education. The activities will focus on teaching music and music elements – rhythm, duration, beat, melody, etc. through play. All of the activities will encompass the transversal competencies outlined in the National core curriculum. Moreover, we will focus on the implementation of activities in an interactive setting by developing a mobile application. The application will consist of three modules – Lessons part with a description of the activities, Figurenotes piano keyboard, and Music player with nursery rhymes in French and English and other songs needed for the activities. The main idea of the application is to serve as a support tool during the implementation of the activities. Throughout the realization of the main aims of this study, we plan to accomplish our personal goals as well.

6.1 Methodology

This work is implemented as a functional study in which elements of an action research (AR) methodology have been applied.

The action research, as described by Willis and Edwards (2014), is a continuous spiral that has four phases – reflect, plan, act and observe. AR begins with reflection and an understanding of an issue of interest or a problem. The next phase focuses on exploring ways to address the problem by creating an action plan. This is followed by an acting step, where the proposed action plan is implemented, i.e. offering a solution to the problem. Then the results of the action plan are observed and evaluated (Dahlberg and McCaig, 2010).

Throughout the initial planning of this study, we found out that the conceptual framework of action research is very suitable for the project. However, we utilize some elements within the framework of the AR thus not implementing comprehensive action research.

Based on the action research framework, this research started with a broad overview of the topics of music education in early childhood education within the Finnish context and Figurenotes in order to get a better understanding of the subjects. We investigated the organization and implementation of music education in ECEC and different pedagogy approaches in relation to the subject. Moreover, we studied overall child development between the ages of 3-5 and respectively music development. Later, we focused on the roots of Figurenotes and its methodology as well as previous studies on both subjects. Next, we planned activities that incorporate the figurenotes approach and subsequently developed a mobile application to support the activities. Following the model, we proceed with the implementation part where we collected empirical data from different methods of observations, face-to-face discussions, and verbal and written feedback. (Denscombe, 2017)

6.2 Assessment methods

The empirical data for this study was collected through qualitative methods such as discussions in the field, focus group, researchers and participants observation, photos, learning diaries, and verbal and written feedback from participants and observers.

6.2.1 Preliminary discussions

The research on the use of Figurenotes began in the autumn of 2019 when we met and discussed the project idea with our work partners from Rockhubs. The focus of the discussion was to create an application to support learning music with Figurenotes. Following the discussion, we were able to narrow the scope of our research. Next, we had a meeting with Markku Kaikkonen, the director of Resonaari. He provided us with useful guidance and resources related to music education and figurenotes.

6.2.2 Focus group

For this research, we have decided on a focus group, which consists of 6 children between the ages of 3 to 5 from a private French-Finnish kindergarten in the capital area.

The children do not have any formal music training nor experience with musical instruments. All the children are fluent in both, French and Finnish. Before participating in the study, children's parents and legal guardians were provided with information and asked to sign a consent form. The form is presented in Appendix 5. Parental Consent Form.

6.2.3 Feedback

Two kindergarten teachers in this study participated and preliminary discussions were held with both teachers. None of them specializes in music education nor have a previous experience with figurenotes. However, the subject was familiar. During the sessions, one of them was always present. The teachers observed the sessions and at the end of each session, they were asked to provide written feedback. A sample of the feedback is presented in Appendix 4. Feedback form. In addition, after each session, we had a discussion with the present teacher and received recommendations and verbal feedback. The summary of the feedback is discussed later on in the study.

Throughout the sessions, we carried out a controlled observation of the participating children, took notes and photographs. The method of the observation is defined as controlled because the participants were informed when and where the sessions will be carried out, each session had a structured set of activities and objectives and teachers were present, so the children did not act freely (Ryan et al. 1995).

7 Implementation

The implementation of this work consisted of 6 music sessions with a group of 6 children age 3 to 5-year-old and were conducted in a private kindergarten as mentioned in the previous chapter Research aims and methodology. During the implementation, activities in the sessions were subjected to adjustments according to the kindergarten teacher's feedback and observation of the children's learning experience during sessions.

The music sessions were structured to accommodate and support the learning process of the children. The sessions had a fixed duration of 30 minutes, consisted of various activities with different objectives, and utilized the developed mobile application. The

Figurenotes application was installed on the kindergarten's tablets before the beginning of the implementation of the project. The sessions were held in French and Finnish was used as a second language. Every session started with a welcoming song, a routine to mark the beginning of the session. The main objective of this activity was to help children focus and prepare them for the session. After the starting routine, we proceeded with music-oriented physical activities. The objectives of these activities varied throughout the sessions but were mainly focused on supporting the children to get music experience, pay attention to the music as well as express themselves with movement. After that, we proceeded with rhythm activities, where we focus on understanding music, its components, and creativity. The children were able to create their own rhythms and melodies as well as practiced familiar ones. During the last sessions, children played songs, learned during the sessions on the digital piano keyboard. The last activity in the sessions was the closing routine, where children were lying on the floor and listened to relaxing music. The objective was to help children calm down. A detailed description of the activities in each session is presented in Appendix 2. Sessions.

A description of the implementation of each session with our personal reflection is presented in separate sub-categories below. In the description, the term facilitator is used to refer to both of us, since we carried out the sessions together. The term teacher refers to one of the two kindergarten teachers participating in the sessions. Lastly, the developed application is discussed.

7.1 First session

7.1.1 Description of the session

The first session was held on the 1st of October and lasted for 30min. Participants of the session were 5 children from the focus group ages 3 to 5 and their kindergarten teacher to observe the session. The teacher was presented with a feedback form and asked to fill in and return the form after the session. Firstly, we explained to them what we were going to do together as they were not used to have this kind of session in the afternoon. We then started by singing a welcoming song and greeting the children one by one. After greeting each other, we did the first moving activity. The children had to walk around the room while music was playing and had to stop when the music stopped. After this, they

had to keep on walking around the room but instead of freezing when the music stopped, they had to copy a movement or a position the facilitator was doing first and then what one of their friends was doing.

After those moving exercises, we sat down and started doing rhythm exercises. At first, the facilitator clapped on her tights and the children had to try keeping up the same rhythm. Then she clapped in different ways and the children would try doing the same rhythm. We then added hand-clapping and did the same thing. After clapping, we looked for a song together to sing. The facilitators sang the song first alone and then with the children and finally, we added hand clapping. The children had to try first to clap to the rhythm of the song and then sing at the same time. Finally, as there is a piano in the kindergarten, we all try playing together to become familiar with the sound of this instrument. To close the session, the children sat or laid down while listening to some relaxing music and doing some stretches to calm down. More detailed information about the different activities of this session is presented in Appendix 2. Sessions.

Following the end of the session, we had a discussion with the kindergarten teacher about the session and its contents. Based on her observation, the teacher gave us oral as well as written feedback.

7.1.2 Reflection

The session went well. The children's teacher had explained that they were going to do some music with somebody else and they were quite exciting. The moving exercises went well even if some had some issues focusing on what to do. The rhythm exercise went as expected. The children really tried to follow the rhythm of the song and clap hands while singing. After some time, few children managed to clap the rhythm of the song and we think that with some more practice they will be able to follow the beat. The rhythm exercise was also a good way for them to calm down and be more focused as they were really enthusiastic after the dancing and movement exercise. We had a plan to make them create their own rhythm but while observing them, we realized that it was still a bit complicated for them at this point. Moreover, the rhythm exercise required them to focus a lot and they were a bit tired after doing it, so we decided to remove it from the session. We had also promised them, at the beginning of the session, to try and play the

piano as there is one in the kindergarten and they really wanted to try so we let them experiment with the instrument. After the session, they went back to their teacher and started talking about what we had done and asked when we will meet again.

7.2 Second session

7.2.1 Description of the session

The second session was held on the 9th of October and lasted 30min. This time, there were 6 children present ages 3 to 5, and a kindergarten teacher for observation. We first sang together the welcoming song to introduce each other. Similar to the previous session, we first walked around the room while music was playing, and we stopped when the music stopped. Then, instead of stopping, we copied the movement of one of the children when the music stopped. We then started rhythm exercises. At first, the facilitator clapped on her tights and the children had to try following the same rhythm. Then, we did the same exercise, but we added hand-clapping too and did again the same exercise. After, we associated a shape with a different clap: cross for hand-clapping, circle for tights clapping, and a hyphen for silence. At first, the facilitator created a short rhythmic melody that the children had to reproduce, and then they created their own rhythmic melody that we clapped together. For the last part of the session, we introduced them to the Figurenotes application we created. We put the children into pairs and gave them a tablet. They first tried the virtual piano and were then assigned one color and a shape; one child had to play the red triangle and the other the red circle so all the children could play even if we only had 3 tablets available. We created a melody using the rhythmic model done previously and played it. We finished the session by doing some breathing exercises while listening to relaxing music. At the end of the session, we had a discussion with the observing teacher.

7.2.2 Reflection

The second session went well. As the application we created was ready, we decided to make some changes and adjustments to the session. We decided not to do the 5th activity- dividing the children into a small group and have them find a red object, as they already knew the colors and shapes in French. Furthermore, instead of having them try

and play different instruments, we paired the children and gave each pair a tablet, and have them tried the virtual piano from our application. This was the most exciting part of the session for the children because when playing the keyboard every piano key lighted up in a different color when pressed and the piano sounds were the same as the ones of the physical piano they played with during the previous session. The children spend some time playing with the Figurenotes keyboard mostly because of the different colors on the keyboard. Instead of playing the rhythm, we assigned one child from each pair to play the red circle and the other one the red triangle. This allowed us to test the usability of the application and to see if adjustments are required to ease the use. For instance, we noticed that some kids were not playing the red circle or triangle because they wanted to play the green one as it was brighter. Based on this we decided to make all the colors brighter for future sessions.

7.3 Third

7.3.1 Description of the session

The third session was held on Friday 23rd of October and lasted for about 30min. This time, there were 5 children present ages 3 to 5, and a teacher for observation. We started as usual by singing the welcome song and saying hello to each other. As it was the third session, we asked the children if they remembered what type of exercise was coming after. They all remembered that we had to walk while listening to music and stopped when the music stopped. Then, we only had to say somebody's name and they understood that they had to copy what this kid was doing when the music stopped. We continued the session by doing a rhythm exercise. The children first followed the facilitator's clapping and then they created their own rhythmic line that we played: cross for hand-clapping, circle for thighs clapping and hyphen for silence. After that, the children were given a tablet and we started playing on the application's virtual piano. As we only had 3 tablets for 5 children, some of the kids had to play the circle keys and the other the triangle keys on the virtual piano. We asked the children to pick up one color and we played it together. The children then created a melodic line that we wrote on a board and they played it on the piano. Eventually, we explained to them that we would try to play a

whole song during the next session. We closed this session with some relaxation exercises while listening to soft music. As usual, we had a discussion with the teacher after the session.

7.3.2 Reflection

During this session, we noticed an improvement in the children's ability to follow a rhythm properly without mistakes. They also remembered all the exercises that we have been doing for the past weeks and were able to anticipate what was coming. As observed during the previous sessions, the most anticipated and entertaining part of the session for the children was playing the virtual piano and they were eager to start playing a song. The children were active throughout the whole session.

At this point of the project, we, as facilitators felt more relaxed and confident in carrying out the activities. When we started the sessions, we were wondering how the sessions would go and how the children would respond to the activities and especially to the Figurenotes application. One of the main factors to contribute to our confidence was that we observed a great deal of excitement from the children, the sessions were filled with a positive atmosphere and a lot of smiles.

7.4 Fourth

7.4.1 Description of the session

The third session was held on Thursday 30th of October and lasted for about 30min. This time, there were 7 children present ages 3 to 5, and an observing teacher. We had one extra child this time as one girl wanted to stay with us and listen to what we were doing. We started as usual by singing the welcome song and saying hello to each other. We then did the walking exercise as usual and then we proceeded with the rhythm play. This time, the children created longer rhythmic lines and played them by themselves without the help of the facilitators. After this, we then did the same exercise but with the virtual piano. The children were very active and proposed colors they wanted to play with. As a result, the children created unique melodic lines that they played on the piano. Finally,

we listened to the song “Petit escargot” and started playing it together. At first, the facilitators wrote the melody with the colors on a board and told the children which note to play, then we let them play by themselves. We closed the session by listening to relaxing music.

Following the end of the session, we had a discussion with the kindergarten teacher about the session and its content. Based on her observation, the teacher gave us oral as well as written feedback.

7.4.2 Reflection

This fourth session went well even though the kids were quite restless. We have observed an improvement in the children’s abilities to play rhythms together and they really enjoyed creating their own rhythmic and melodic lines. Initially, playing the song was a bit difficult. As we only had 3 tablets but six children, they all wanted to play together divided into pairs. This led to some struggle with focusing on playing the melody of the song. We had to ask half of them to stop playing for a while so the other half could hear the facilitators saying the colors to play. But overall, they enjoyed the session. The facilitators and the teacher then discussed together the session and based on the facilitator's observation and teacher’s feedback, it was decided to only take 3 children for the next session so the children will have one tablet each and would be able to play the song.

7.5 Fifth

7.5.1 Description of the session

The fifth session was held on Thursday 5th of November and lasted for about 30min. This time, there were 3 children present age 4, and one teacher. As we only have three tablets, we decided after the previous session, to do this one with only three children so they could better focus on playing the song. For this session, we proceeded with routine activities but did not carry out all of them due to the small number of participants. We began with the welcoming song and after this, we had a moving exercise. The moving activity was shortened compared to previous activities. Because of this, the facilitators also actively participated in the activity. Then we listened to the song “Petit escargot” and

sang it together. Then each child was given a piece of paper with the Figurenotes music notation, i.e. shapes and colors corresponding to the melody of the song and they played it on the virtual piano. The facilitators first played the melody themselves, then they were saying the colors out loud for the children to play, and finally, we let the children play the song by themselves. Figure 8. Song practice presents one of the participants playing the song. We concluded the session with relaxation music. As usual, we had a discussion with the teacher after the session and decided to proceed with only 3 children for the final session.

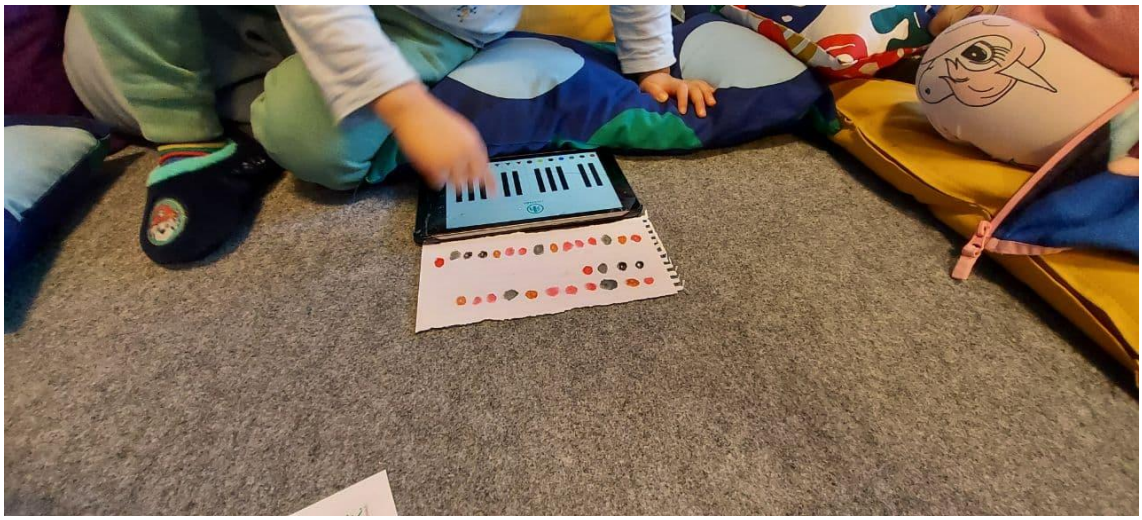

Figure 8. Song practice

7.5.2 Reflection

In general, the 5th session went well. The children had some difficulties understanding that the colors they had to play corresponding to the melody of the song, so we decided as facilitators to also play the song on the piano and sing it at the same time. This session allowed us to think about how to improve the application. For instance, the virtual piano is made of two octaves- from red circle to green triangle as presented in Figure 6. Representation of figurenotes on a staff (Chapter4, p.16). We thought that it would be easier for the children and improve playing the piano if there was only the circle octave. In that way, the piano keys will be bigger and it would be easier to hit. In addition, this will allow us to implement different levels of playing skills – beginners, intermediate, and advanced. Dividing the children's skills and experience with the piano keyboard will support more adequately their learning process. Furthermore, we thought about adding the melody of

the song directly above the virtual piano to replace the partner's logo. In this way it would be easier for the children to follow and for professionals to implement the activity. Otherwise, the session went well, and the children were really surprised and happy to discover that the colors corresponded to a melody of a song they well know.

7.6 Sixth

7.6.1 Description of the session

The sixth session and final session was held on Friday the 6th of November and lasted for about 30min. The participants included 3 children ages 4 to 5 and a kindergarten teacher as an observer. For this session, we chose the three other children that did not participate in the previous session. In that way, they could also play a song on the virtual piano and practice. Similarly, to the previous session, we proceeded with routine activities but did not carry out all of them due to the small number of participants. We started with the welcoming song and after we had a moving exercise. After this, we listened to the song we would play- "Pomme de reinette et pomme d'api"- and this time we properly explained that the colors on the paper they were given corresponded to the melody of the song. The facilitator started playing the song on the virtual piano and sing it at the same time so the children could make the connection between the colors and the melody. Then they played the song first with the facilitators saying the colors out loud and then by themselves. In the end, we all played together. Figure 9. Playing a song on the virtual piano below was taken during the final session. We concluded the session without the last relaxation activity as we said our goodbyes. After this, we had a discussion with the teacher.

Figure 9. Playing a song on the virtual piano

7.6.2 Reflection

This session went better than the previous one. We adjusted it according to our observations from the previous session, the children's reactions, as well as the teacher's feedback. We took more time to explain the correspondence between the colors and the melody so the children could better understand what they were playing. The final discussion with the teacher was longer as we discussed not only the final session but all sessions in general. We concluded on a very positive note. Based on our experience and observations made during the sessions and feedback from both of the teachers, we came up with a variety of ideas which will be discussed in the following chapters.

7.7 Figurenotes application

A mobile android-based application, called Figurenotes, was specially developed to support the implementation of the project. The application consisted of three modules as planned – Lessons, Figurenotes piano keyboard, and Music player. The Lessons module included an introduction part to help users get acquainted with the purpose and structure of the application and 6 lessons – descriptions of the activities for each session. The next module was the interactive piano keyboard based on the figurenotes notation. When pressed, every piano key lights up in the color of its notation as presented in Figure 8. Figurenotes piano keyboard below.

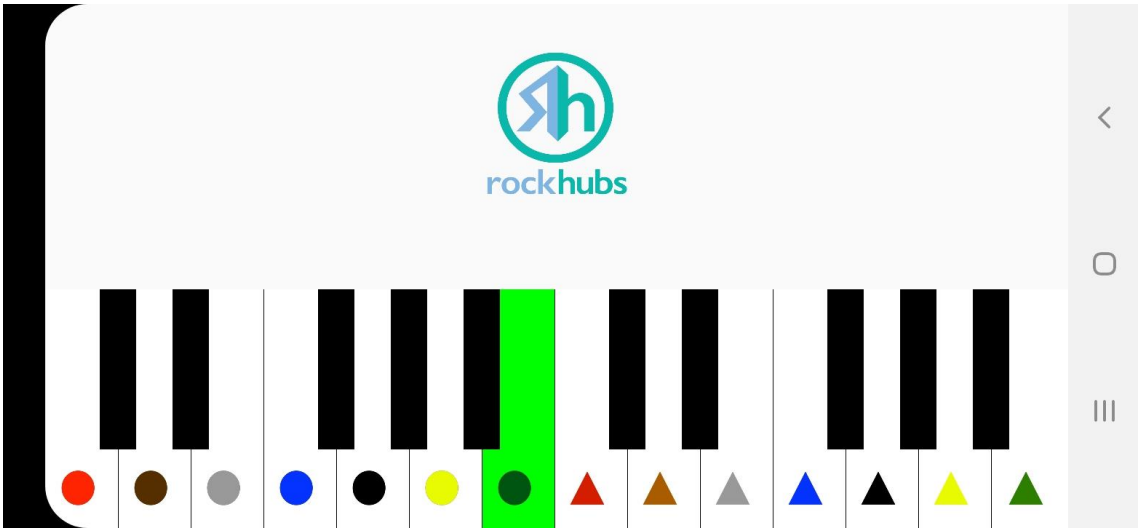

Figure 10. Figurenotes piano keyboard.

The last module of the application was a Music player. The music player database included popular nursery rhymes in French and English used during the activities. In addition, instrumental accompaniment for the moving activities and relaxing songs for the closing routine were included. A detailed description of the application with illustrated materials is presented in Appendix 3. Figurenotes application.

8 Evaluation

In this section, we evaluate this study from three different perspectives. First, we present a summary of received feedback during the sessions, and then we evaluate the realization of the main goals in the study. In the second sub-part, we discuss ethical issues. Lastly, we consider the validity and the reliability.

8.1 Feedback summary

In general, we have received positive feedback from both participating teachers. They commented on the content of the sessions, the activities, and their objectives as clearly defined and constructive. We received positive notes on introducing new topics through play. During the first session both teachers stated that the children reacted positively to

the activities, they were interested and participated actively. The activities were well executed and easy to follow. However, they suggested to be more relaxed and confident when facilitating the activities. From the second session, we received similar feedback in relation to activities execution and participation of the children. This time the teachers pointed out that the subject of rhythm and following it was a relatively new concept for the children. However, they tried their best to follow the instructions and enjoyed creating their own rhythms. The children were fascinated by the figurenotes applications and showed a great level of excitement while playing on the digital keyboard. Feedback from the third session was similar in content. The teachers mentioned that children adapted relatively fast to the Figurenotes application and how to play the piano. Also, they commented on the popularity of the sessions and especially the virtual piano among other children in the kindergarten. For example, one child joined the session even though she was not part of the focus group. From the fourth session, few issues were addressed – lack of enough tablets for every child. For six children we had only 3 tables available, so the children were divided into pairs. In their excitement of playing the children struggled with playing together because everyone wanted to play so they did not properly follow the facilitator's instructions. Because of this, it was decided with the teachers to reduce the group to 3 participants, i.e. a tablet for every child. The feedback from the last two sessions was focused on how fast children learned to play songs and the creative approach of the application. The teachers expressed interest in utilizing the Figurenotes application in the future as it provided clear instructions for each session and was very easy to use.

8.2 Main goals of the study

For this study, we have set two main goals. The first goal was to examine the use of figurenotes methodology to teach music within the pedagogical context in early childhood education and care. Additionally, we set personal goals that we wanted to develop.

We wanted to explore the compatibility of the unconventional approach with the music education guidelines of the National core curriculum and the possibility of widening the teaching possibilities for professionals in ECEC.

8.2.1 Figurenotes in ECE

The use of Figurenotes in early childhood music education is acceptable if they can be applied to the contents of music education, i.e. rhythm, tempo, melody, duration of a sound, tonal color, dynamics, harmony, and form of music. As we implemented the session and the activities, we discovered that all those components are covered. After the session implementation, we feel that Figurenotes bring the most content to the assessment of rhythm and duration of the sound.

When considering the suitability of Figurenotes for early childhood education, one must consider whether they can be used to bring something new to the music in ECEC. In our implementation, we tried playing melodies with children as well as the possibility of playing together. According to the feedback we received from the staff, a playing melody as well as practicing song playing, in general, were new experiences for children. Through our experience, we find these methods workable and possible to incorporate into early childhood music education.

We feel that Figurenotes allow for a particularly small-scale group play, where the children can explore music and free play. Studies state that Figurenotes are creating new opportunities for children to express themselves, for example through composition (Vikman, 97, 115). Figurenotes have also been used to develop an application of the storytelling method, storytelling, which provides an early childhood educator with the opportunity to explore and discuss new topics.

8.2.2 Personal goals

As stated previously, we have set our personal goals for the improvement of professional skills as future educators. In particular, we wanted to practice and expand our knowledge on planning and implementing activities to support the children's learning process and well-being. Additionally, we wanted to expand our knowledge of music and music education. We consider that we have accomplished these goals. Throughout the initial stages of the study, we have overviewed the topics of music education in early childhood education within the Finnish context and different pedagogy approaches in relation to the subject. This supported us in building a significant knowledge on these topics. In

relation to planning and facilitating new activities we also feel more confident. Based on the positive feedback from the teachers and our experience this goal has also been accomplished.

8.3 Ethical Discussion

During the implementation of this study, there were several ethical issues regarding participation, confidentiality, and anonymity to be addressed. In the initial stages, when discussing our idea with the kindergarten teachers, it became apparent that apart from the directly involved participants, there was a third party involved indirectly – children's parents and legal guardians. In order to receive official permission from the parents and legal guardians regarding children's participation in the study, we had to make initial preparations. First, we had to provide sufficient information about ourselves, the idea, the purpose and implementation of the study as well as when it will take place. We wanted to keep parents informed and involved as much as possible. The prepared information was distributed among the parents and the legal guardians of the children. We also provided our contact information so that if there were any questions or issues they can get in touch with us.

Another important issue we had to address was the confidentiality and anonymity of the children. We have decided to keep personal information confidential for the children and staff members participating in the study in order to protect their privacy. Also, during the implementation of the sessions, photographs of the children were taken as we wanted to document our work as much as possible. In relation to privacy and confidentiality, we have decided to edit the faces of the children and the staff members in all the photographs. Parents and legal guardians were fully informed on why and how the photographs will be used and asked to sign a consent form. Lastly, as participant's personal information was kept private this led to the question of the use of name and location of the kindergarten. It was decided to keep this information private to protect not only the participants but also other children and personnel in the kindergarten. Therefore, there was certain information that was omitted and only used in a general descriptive manner throughout the study.

8.4 Validity and Reliability

It is important to discuss the subject of this study due to the fact that the evaluation process relied on different views, understandings, observations, and experiences of the participants, the working partners, and the researchers. According to Noble and Smith (2015), there are several strategies that researchers need to take into consideration to ensure the validity and reliability of a functional study. The main approaches include utilizing different methodologies in data collection, a detailed description of the study process, and a clear presentation of the findings (Noble and Smith, 2015). Based on the prosed strategies, for this study, we used various approaches towards observation, discussion with participants, working partners, and professionals in the fields of music and ECEC as well as verbal and written feedback. Also, we tried to describe the implementation process of the study in detail in order to ensure transparency.

9 Discussion

As we discussed at the beginning of this study, there is a substantial amount of research showing that music in ECEC is beneficial for children on many levels so we will not discuss this here. However, we found that actual music teaching as a way to develop musicianship and develop musical abilities for kindergarten-aged children has yet not been explored. Our research showed that children as young as three-year-old are able to become a musician and can learn actual music playing especially playing instruments. The figurenotes method proved to be a useful tool for kids to learn music skills such as playing in rhythm and understanding the concept of notes. Its interactive set of tools that associates concepts such as colors and shapes that are familiar with children with musical concepts such as notes and different tones showed to be a more approachable way to teach music to young children. The app we developed showed that learning music skills can be done inside an early childhood setting without having to ask or pay for exterior facilitators. Furthermore, it allows children to become familiar with an instrument without having to buy any which can be quite an expense for a kindergarten. The app can also allow teachers without previous music teaching experience to broaden and expand their teaching by incorporating more music into their pedagogy and thus developing their set

of skills. Moreover, the app can help children develop their competence in using technologies as advised in the national core curriculum through the goal-oriented, meaningful, and interactive activities it proposes. At the moment, the app is a prototype that needs to be upgraded in order to improve the user's experience but even at this early stage of development, the app proved to be useful.

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Appendix 1. The figurenotes method, play what you see

The figurenotes music notation associates one color with one note. Then different shapes represent different octaves. For instance, a red triangle will be played higher than a red circle. As seen in Figure 1. Figurenotes stickers on a piano below, the lower notes would be the crosses and the higher ones would be the triangles.

Figure 1. Figurenotes stickers on a piano

Those stickers allow the musicians to play the white key. In order to play the black ones, a little arrow pointed right, or left is added on the notes. For instance, an arrow pointing right added on a blue circle means that the musician needs to play the black key upright of the blue note as presented in Figure 2. How to play an F or blue sharp note. Moreover, an arrow pointing left added on a green circle means that the note to play is the black key left of the green sticker key as presented in Figure 3. How to play a B/H or green flat note.

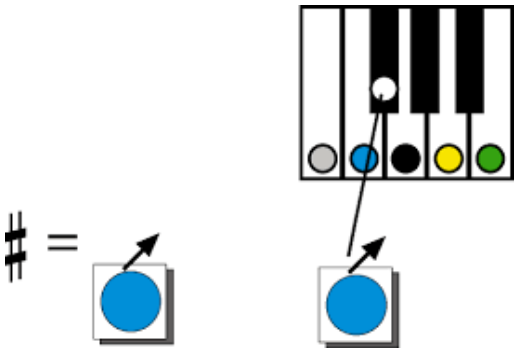

Figure 2. How to play an F or blue sharp note

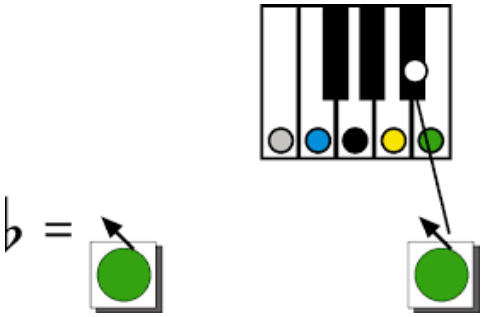

Figure 3. How to play a B/H or green flat note

Figure 4. Transcription of rhythms describes the figurenotes transcriptions for rhythms, from top to bottom: a whole note (four times), half note (two times), quarter notes (one time), and eight notes (half time).

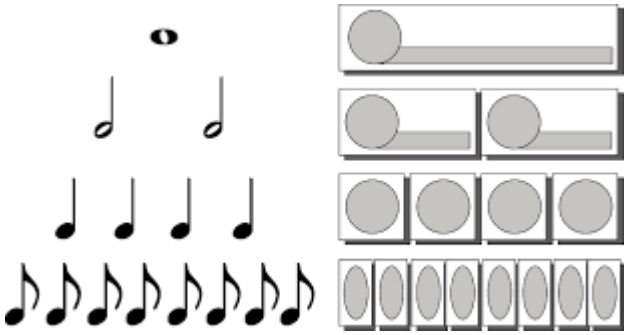

Figure 4. Transcription of rhythms

Knowing this, anyone can play melodies on a piano. In order to play chords, for instance a C or red chord, the musician needs to place her thumb on the red note as seen in Figure 5. Playing a C or red chord: step 1. Then, she takes a friend with her index but not the neighbor meaning not the note right after the C as seen in Figure 6. Playing a C or red chord: step 2. Eventually, take another friend but not your neighbor as seen in Figure 7. How to play a C or red chord: step 3. So, to play a C chord, the musician will play the C or red key, then the E or grey key, and then the G or black key. This method can be applied to any other chords even with a black key as seen in Figure 8. How to play a D or blue major chord on a piano.

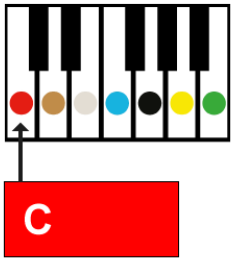

Figure 5. Playing a C or red chord: step 1

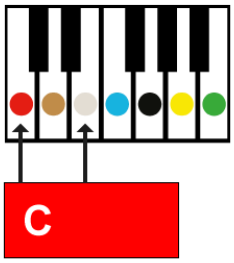

Figure 6. Playing a C or red chord: step 2

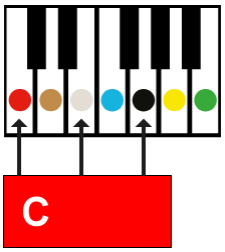

Figure 7. How to play a C or red chord: step 3

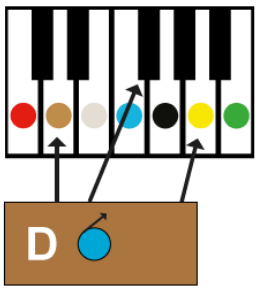

Figure 8. How to play a D or blue major chord on a piano

On figurenotes music scores, melodies are usually written on the top, and under it, chords will be added in small colored rectangles as seen in Figure 9. Hey Jude from the Beatles transposed into figurenotes. Usually, one piano player will play the melody and another one will play the chords but playing both is also a possibility.

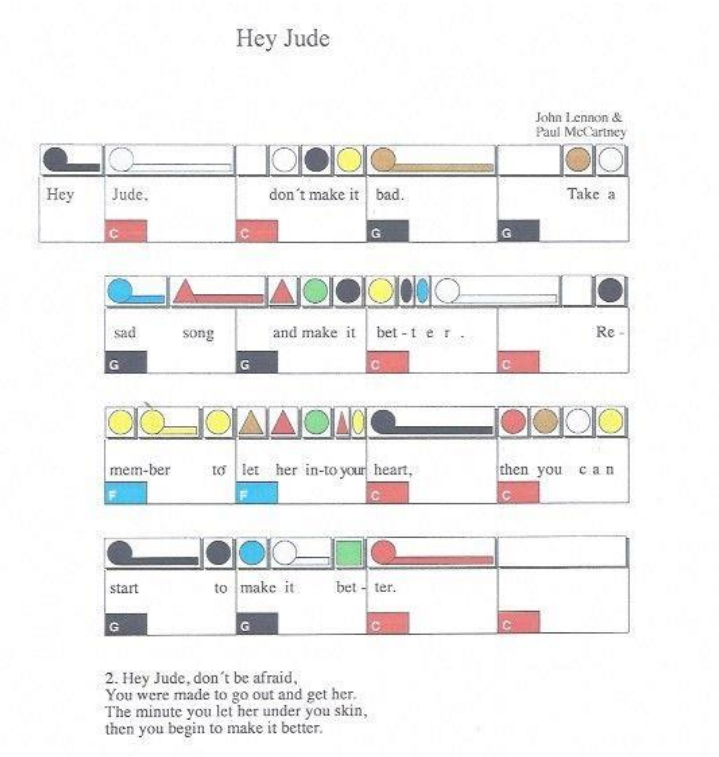

Figure 9. *Hey Jude* from the Beatles transposed into figurenotes

Appendix 2. Sessions

1 First session: Introduction / following instructions and understanding rhythm

Song/activity	Implementation	Objectives
Introduction song	Singing a song to start the session	Getting children to focus and ready for the music session
Moving exercise	Walking while the music play and stopping when the music stops	Paying attention to the music
Moving exercise 2	Moving in the room and copying teacher's movement: jumping, walking slowly, on one leg, and still stopping when the music stops	Reaction exercise, starting and stopping an action
Body percussion	Clapping on thighs with the teacher stopping when clapping stops and starting when it starts	Understanding duration of sounds
Singing a song	Singing a song while clapping on thighs Nursery song about body part maybe	Following a beat, if too hard to sing and clap remove clapping
Rhythm game	Circle=one clap. Cross=silence Having the children create a rhythmic melody and play it together.	Understanding rhythm and following a rhythmic melody. Understanding the duration of a bar
Closing session	Some stretching on soft music. Laying on the floor breathing	Listening to music, paying attention to it

Table 1. First session

2 Second session: Introducing Figurenotes

Song/activity	Implementation	Objectives
Introduction song	Singing a song to start the session	Getting children to focus and ready for the music session
Moving exercise	Walking while the music play and stopping when the music stops	Paying attention to the music
Moving exercise 2	Moving in the room and copying teacher's movement: jumping, walking slowly, on one leg, and still stopping when the music stops	Reaction exercise, starting and stopping an action
Body percussion	Clapping on thighs with the teacher stopping when clapping stops and starting when it starts	Understanding duration of sounds
Introducing the figure-notes colors	Making small groups. Assign one color to each group and have them found objects in the room according to the color	Be sure that the children know the colors in French
Introducing the instruments	Each child will try every instrument	Learning names of instruments and recognizing their sounds
Introducing the instruments	Having each child played one note/color on an instrument following the same rhythm	Playing together
Playing together	Learning a rhythm as done in the previous session first with body percussion then playing one note on their instrument	Playing together
Closing session	Some stretching on soft music. Laying on the floor breathing	Listening to music, paying attention to it

Table 2. Second session

3 Third session: Introducing the first song, Petit escargot

Song/activity	Implementation	Objectives
Introduction song	Singing a song to start the session	Getting children to focus and ready for the music session
Moving exercise	Walking while the music play and stopping when the music stops	Paying attention to the music
Moving exercise 2	Moving in the room and copying teacher's movement: jumping, walking slowly, on one leg, and still stopping when the music stops	Reaction exercise, starting and stopping an action
Body percussion	Clapping on thighs with the teacher stopping when clapping stops and starting when it starts	Understanding duration of sounds
Introducing the instruments	Each child is given a different type of instrument (virtual piano, xylophone, and rhythmic instruments) and can try it	Getting familiar with different instruments
Listening to the song	Play the song, the children are going to learn	Getting the children to know the song
Body percussion	Playing the rhythm of the song altogether	Understanding the rhythm of the song
Body percussion and singing	Clapping the rhythm of the song and singing at the same time	Trying to sing and follow a rhythm at the same time
Closing session	Some stretching on soft music. Laying on the floor breathing	Listening to music, paying attention to it

Table 3. Third session

4 Fourth session: Playing the song Petit escargot

Song/activity	Implementation	Objectives
Introduction song	Singing a song to start the session	Getting children to focus and ready for the music session
Moving exercise	Walking while the music play and stopping when the music stops	Paying attention to the music
Moving exercise 2	Moving in the room and copying teacher's movement: jumping, walking slowly, on one leg, and still stopping when the music stops	Reaction exercise, starting and stopping an action
Body percussion	Clapping on thighs with the teacher stopping when clapping stops and starting when it starts	Understanding duration of sounds
Introducing the instruments	Each child is given a different type of instrument (virtual piano, xylophone, and rhythmic instruments) and can try it	Getting familiar with different instruments
Listening to the song	Play the song, the children are going to learn	Getting the children to know the song
Rhythmic playing with the instruments	Playing the rhythm of the song all together on one or two notes while listening to it. The teacher will show on a board when to play the notes	Understanding the rhythm of the song and getting familiar with the notes
Playing the song	Playing the song on one or two notes altogether while trying to keep the rhythm.	Playing together
Playing the song and singing	Playing the song on one or two notes altogether while trying to keep the rhythm and singing	Playing together
Closing session	Some stretching and relaxation on soft music	Listening to music, paying attention to it

Table 4. Fourth session

5 Fifth session: Playing the song Petit escargot – part 2

Song/activity	Implementation	Objectives
Introduction song	Singing a song to start the session	Getting children to focus and ready for the music session
Moving exercise	Moving in the room and copying teacher's movement: jumping, walking slowly, on one leg, and still stopping when the music stops	Reaction exercise, starting and stopping an action
Body percussion	Clapping on thighs with the teacher stopping when clapping stops and starting when it starts	Understanding duration of sounds
Rhythm game	Circle=one clap. Cross=silence Having the children create a rhythmic melody and play it together.	Understanding rhythm and following a rhythmic melody. Understanding the duration of a bar
Playing the song	Playing the song on one or two notes altogether while trying to keep the rhythm.	Playing together
Playing the song and singing	Playing the song on one or two notes altogether while trying to keep the rhythm and singing	Playing together
Closing session	Some stretching and relaxation on soft music	Listening to music, paying attention to it

Table 5. Fifth session

6 Sixth session: Closing session

Song/activity	Implementation	Objectives
Introduction song	Singing a song to start the session	Getting children to focus and ready for the music session
Moving exercise	Walking while the music play and stopping when the music stops	Paying attention to the music
Moving exercise 2	Moving in the room and copying teacher's movement: jumping, walking slowly, on one leg, and still stopping when the music stops	Reaction exercise, starting and stopping an action
Body percussion	Clapping on thighs with the teacher stopping when clapping stops and starting when it starts	Understanding duration of sounds
Introducing the instruments	Each child is given a different type of instrument (virtual piano, xylophone, and rhythmic instruments) and can try it	Getting familiar with different instruments
Listening to the song	Play the song, the children are going to learn	Getting the children to know the song
Rhythmic playing with the instruments	Playing the rhythm of the song all together on one or two notes while listening to it. The teacher will show on a board when to play the notes	Understanding the rhythm of the song and getting familiar with the notes
Playing the song	Playing the song on one or two notes altogether while trying to keep the rhythm.	Playing together
Playing the song and singing	Playing the song on one or two notes altogether while trying to keep the rhythm and singing	Playing together
Closing session	Some stretching and relaxation on soft music	Listening to music, paying attention to it

Table 6. Sixth session

Appendix 3. Figurenotes application

The Figurenotes application was created in Android Studio 4.0.1 and written in Java programming language. The application is suitable for all Android devices such as smartphones and tablets.

The Thumbnail of the application is presented in Figure 1. Figurenotes.

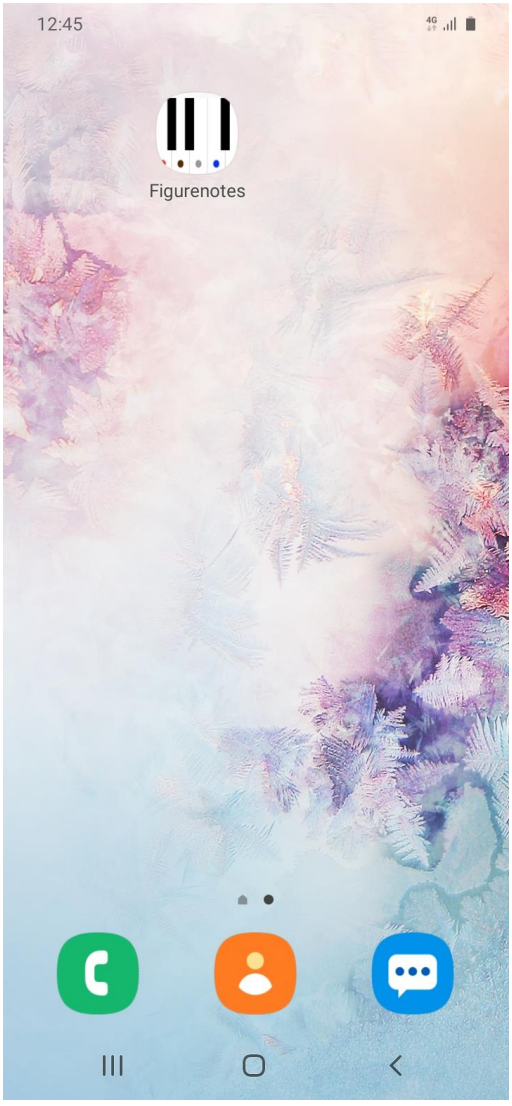

Figure 1. Figurenotes

When the application is opened the main page is displayed as presented in Figure 2. Main screen. The main page contains a simple navigation menu.

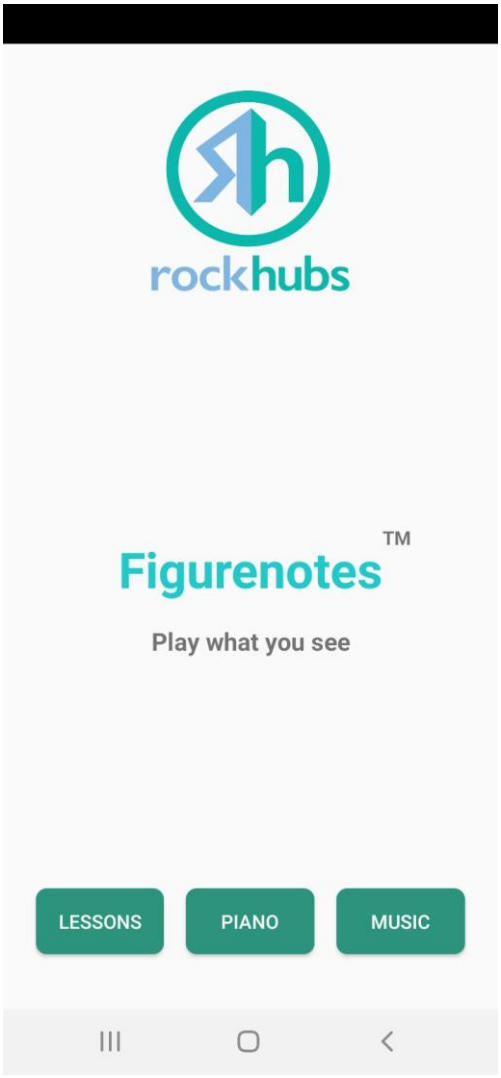

Figure 2. Main page

The application consists of three general modules – Lessons, Piano keyboard, and Music player.

The Lessons module includes an introductory part to help users get acquainted with the purpose and structure of the application. In addition, there are 6 lessons that contain descriptions of the activities for each session as seen in Figure 3 Lessons module.

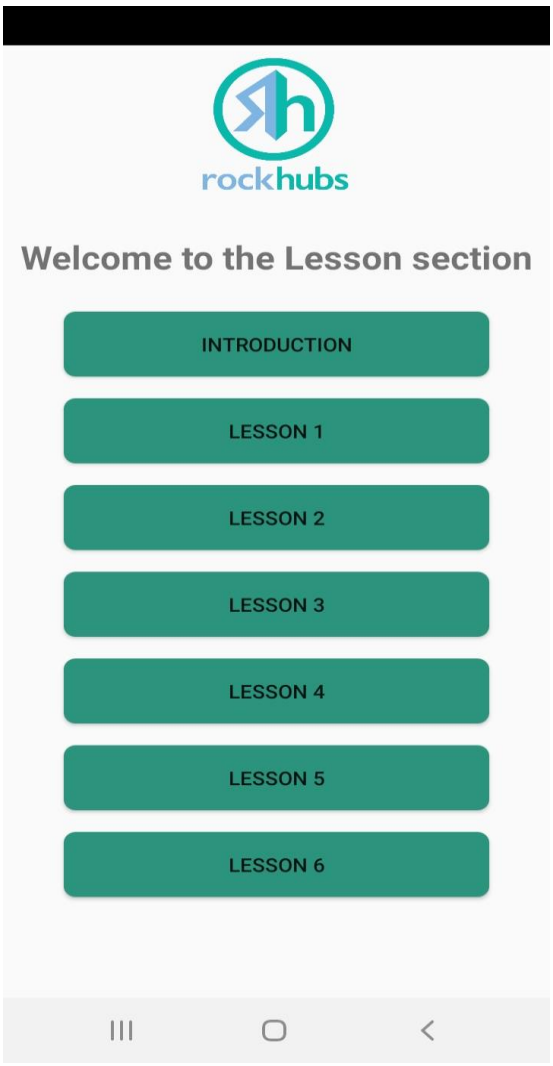

Figure 3. Lessons module

The next module is the interactive piano keyboard based on the Figurenotes notation. When pressed, every piano key lights up in the color of its notation as presented in Figure 4. Figurenotes piano keyboard and Figure 5. Pressed key bellow.

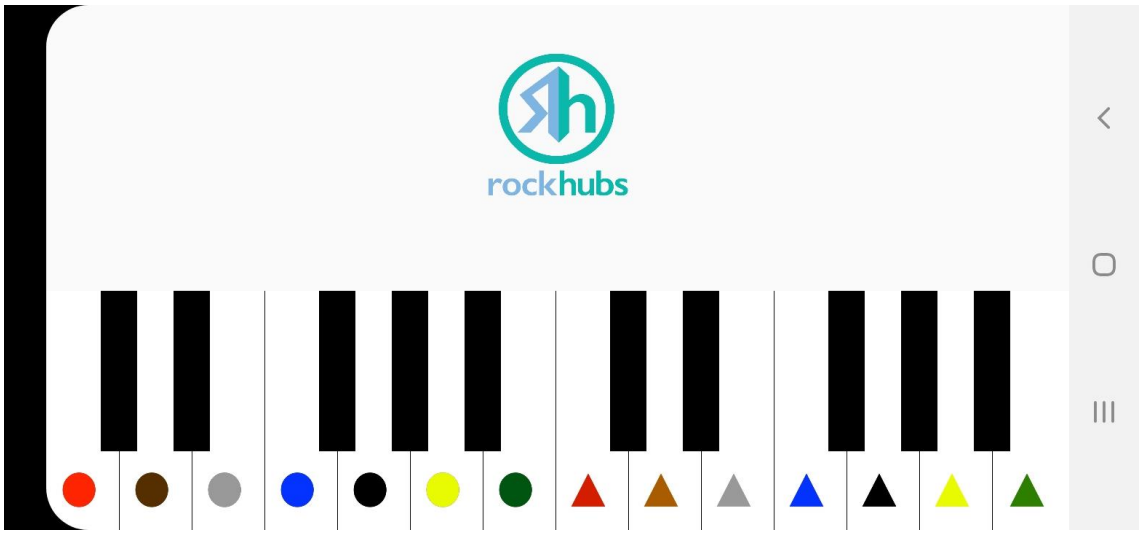

Figure 4. Figurenotes piano keyboard

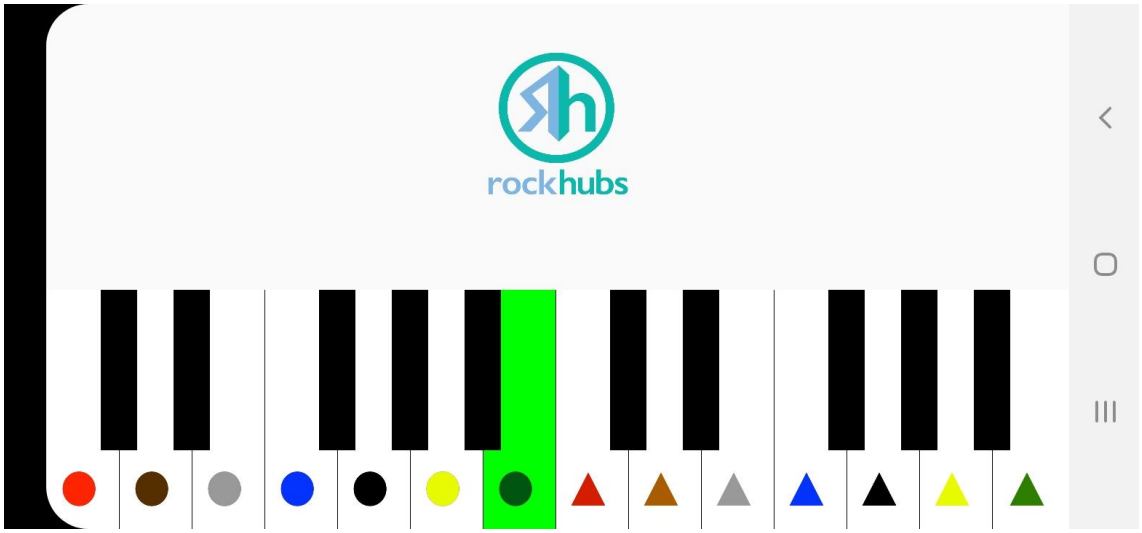

Figure 5. Figure 5. Pressed key bellow.

The last module of the application is a Music player, presented in Figure 6. Music player. The music player database includes popular nursery rhymes in French and English used during the activities. In addition, instrumental accompaniment for the moving activities and relaxing songs for the closing routine were included.

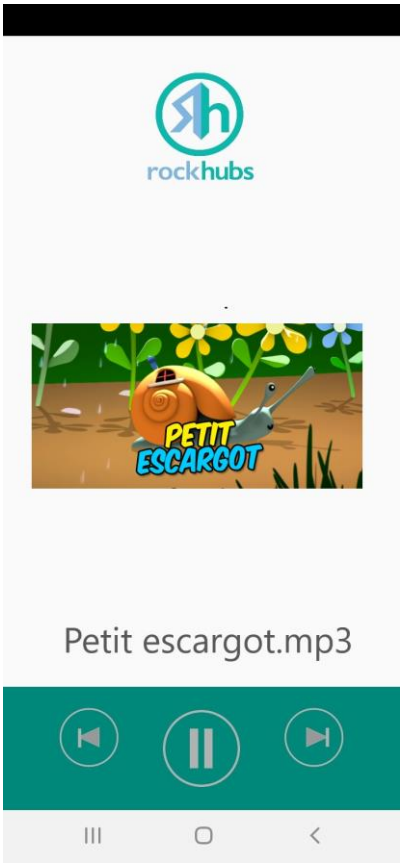

Figure 6. Music player

When a song is played, the name of the song is displayed for the older users, and a picture, related to the song for the younger users.

The music player is fully functional, i.e. the songs can be paused, stopped, move to the next song, or the previous song. Figure 7. Paused song function presents the pause functionality of the music player.

Figure 7. Paused song function

Appendix 4. Feedback Form

Teacher's Feedback Form

Please, fill out the form and return it to one of the instructors after the session.

1. The children were interested in the activities during the session. Please, circle one answer.

YES NO

If yes, please specify in what in particular (e.g. activity, song, playing together).

2. How the children react to Figurenotes?

3. Was there something new for the children? What?

4. How did the children follow the instructions?

5. What was easy for the children? (e.g. shapes, colors, playing, following instructions, fine motor skills)

6. What was difficult for the children (e.g. shapes, colors, following instructions, fine motor skills)

7. Suggestions to improve the session.

Appendix 5. Parental Consent Form

Dear Parents / Guardians,

our names are Faustine and Violeta and we are 3rd-year students in Early Childhood Education at Metropolia University of Applied Sciences. As a part of our formal training, we are required to complete a final thesis that is focused on music education in Early childhood education and care (ECEC).

Purpose

In our final thesis, we will organize music sessions for children between the ages 3-6 using a method called Figurenotes. The method was developed by Kaarlo Uusitalo in which music sheets are introduced through shapes and colors and thus making it possible for everyone to learn and play. The main goals of our thesis are to test Figurenotes suitability for music education in ECEC, to give the children musical experiences as well as to increase children's musical skills. The sessions do not replace weekly music education sessions (muscari) but are organized as part of the other activities of the kindergarten.

Sessions Description

The implementation of our thesis is in September and October of this year. We will organize two sessions per week for three weeks, so there will be a total of six sessions. The sessions will cover all the key contents of music education (rhythm, tempo, melody, duration of a sound, harmony, form of music, dynamics as well as almost all modes of activity (listening, singing, playing, and movement). Sessions will be child-centered and inclusive so that children are able to enjoy them. During the sessions, we will observe the children and their musical skills and development. In the end, we will write a final thesis report which will be published in Theseus, the Finnish polytechnic thesis database.

Confidentiality

Children’s names and other identifiers will not be used in the final thesis report to protect children’s privacy and personal information. Furthermore, all the activities and observations during the activities will be strictly related to the topic of our final thesis. The name

of the kindergarten or its location will not be mentioned. However, the children's ages participating in the activities will be included in the final thesis report.

We kindly ask you to sign a Parental Consent Form if you allow your child to participate in the sessions for this final thesis.

If you have any questions related to the final thesis, please do not hesitate and contact us at faustine.flores@metropolia.fi or violeta.ivanova@metropolia.fi.

Best regards,
Faustine and Violeta

Parental Consent Form

I, _____, [Name] the parent or legal guardian of _____ [Child's Name] grant my permission to organize sessions, observe, take and use photographs of my child as part of the final thesis of Faustine Flores and Violeta Ivanova.

The sessions will be carried out at the kindergarten during September and October of this year. All the sessions, observation of the activities, and the use of the photographs will be strictly related and limited to the topic of the final thesis. Children's names and other identifiers will not be used in the final thesis report as well as children's faces will be pixelated or blurred out in all the photographs to protect children's privacy and personal information.

I have received enough information about the final thesis and Faustine's and Violeta's contact information so I can contact them if needed.

Parent/Guardian's Signature: _____

Date: _____