

Aesthetic Learning Processes in Early Childhood and Early Years Education

Reflections on Educating for Sustainable Development and use of Visual Tools and Materials

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The article is based on art-based creative work in early years presented at the Make&Learn conference at the University of Gothenburg in September 2019. The article aims at presenting educating for sustainable development as an important part of early childhood and early years education, in line with the curricula in two of the Nordic countries. The aim of the article is further to exemplify project work with ecology and sustainability in preschool and primary school practice with children and parents, and the significance of use of visual and multimodal tools and materials. The empirics of the project work presented, is gathered between the years 2011–2020 at a combined preschool and primary school for early years in Finland and two preschools in Sweden, working with sustainability and aesthetic learning processes. The presentation of results is based on an analysis of visual material gathered at the preschools and the primary school, dialogues with the principals and educators, as well as presentations about their educational activities. In the article, the visual material is further presented through photographs of project work and of the learning environments in the educational units, focusing on the use of different kinds of visual, multimodal and optic materials.

Key words: aesthetic learning processes, ecology, materials, multimodality, sustainability, visual tools

Introduction

Nature and out-door pedagogics is a vital part of early years education in the Nordic countries, and questions on sustainability are now recognized in the knowledge aims in early childhood and early years education (Eriksen, 2013; Reunamo & Suomela, 2013). There has been a lack of research on sustainability, but research in the area is evolving, often with examples of participative methods (Wolff et al., 2017; Ärlemalm-Hagser, 2012). Educating for Sustainable Development (ESD) has been on the agenda since the Brundtland commission in 1987, and lately due to the presentation of the Sustainable Development Goals (SDGs) in *The 2030 Agenda for Sustainable development* (UN, 2015). These policies and regulations calls for development work claiming that questions on sustainability, equity and global citizenship needs to be highlighted on different educational levels and in different school forms. Matters concerning democracy and children's rights – also encompassing the right to sustainable education – is further emphasized due to the renewed focus on the *Convention of the Rights of the Child* (UN, 1989). The convention became law in Finland already in 1991 (Lasten suojeleu.info), in Norway in 2003 (Lurie & Tjelflaat, 2012) and in Sweden 2020 (Grahn-Farley, 2019). In work with child participation where educators collaborate with children concerning sustainability, the educators as role-models and their pre-understanding of sustainability is to be notified, as well as issues concerning ethics, selection of content and methods in relation to the educational activities (Borg, Winberg & Vinterek, 2017).

The goals of Finnish child care education were defined in a legislation 30 years ago, based on the work of the Parliamentary Committee for Educational Goals in Day Care (1980 p. 33). This legislation

emphasized a view of the child, society, and culture based on educational objectives of “physical, social, emotional, aesthetic, intellectual, ethical, and religious education, taking into consideration for each domain the care and educational environments, the quality of care and education, and the child’s own play activity” (Pulkkinen, 2012 p. 328). With the introduction of the *Finnish Early Childhood Education Act* (1st of January 2018, Finlex) and the *Core Curriculum for Early Childhood Education and Care* (VASU, 2016), educating for sustainable development is today evident in the curricula, both in early childhood and in early years education regulated in the *Core Curriculum for Pre-Primary Education* (2014). In the Finnish state development plan for education (*Utbildning och Forskning 2003–2008*) sustainability is to be included in all education and research, as well as in teacher education in Finland. According to Reunamo and Suomela (2013) children should have access to sustainable, meaningful and experimenting learning environments that advocates possibilities for participation and social education. Salonen and Tast (2013) claim that there is a common understanding among early childhood educators that ESD should start early in life.

Sustainability, but also diversity and internationalization, are highlighted in the new early childhood education (ECE) curriculum in Sweden (Lpfö19). The researchers Pramling Samuelsson and Park (2017) define Sweden as a leading nation in relation to sustainability policies and a country where equity is high in society. They emphasize the importance of access to sustainable education being part of lifelong learning according to Goal 4 of the SDG-objectives, as well as being one of the main means to create more inclusive and equitable early childhood education. They distinct ESD as part of education for all, pointing at a load of work left to be done with the SDG-objectives in early childhood education between years 2016–2030. Other factors are the competence of staff and parent cooperation. The World Organization for Early Childhood Education (OMEP) have published a report of research projects on ESD. In this Engdahl (2015) points at the fact that young children often have knowledge and concerns about the Earth and environmental issues, which calls for taking responsibility from a sustainability-perspective. Pramling Samuelsson (2011) claim that children form their values early in life, and that their – often holistic – worldview resonates with the SDGs. A directive from the Swedish government identified ESD as one of several areas to focus on in early childhood education, due to a quality review published by the School inspectorate in 2018, besides from diversity and language, healthy lifestyle, internationalization, play, group activities as well as education and teaching (Eidevald & Engdahl, 2018 p. 9).

Aesthetics, materiality and new perspectives

Educating for sustainable development has thus become an important part of early childhood and early years education, and is today emphasized as one of the over-arching goals in the curriculum for preschool and for compulsory school in Finland as well as in Sweden (VASU, 2016; OPS, 2014; Lpfö19; Lgr11). In Sweden aesthetic practice is often connected to sustainability through work with art pedagogics, art-based practice and work in explorative and creative ways (Hansson, 2016; Häggström, 2020; Sørenstuen, 2016). Use of visual tools and multimodality is part of a discursive change in preschool practice (Elm Fristorp & Lindstrand, 2012; Sparrman & Lindgren, 2010; Karlsson Häikiö, 2018b; Kyrk Seger, 2020). Art, aesthetics and culture are ways to create border-crossing practices and promotion of participation for children. Although the preschool curricula encompasses goals for aesthetic activities, these are still marginalized in many ways, like in the education for preschool teachers where they have become a minor part of the studies. Ehrlin and Wallerstedt (2014) claim that cultural and aesthetic aspects in relation to small children’s learning processes has decreasing amounts of scheduled time and is more often optional in the preschool teacher programs in Sweden.

Access to aesthetic/artistic and cultural experiences affects what agency children and pupils receive in relation to the community and society, and is part of what preschool and school should offer (Palmer,

1998). Cultural diversity and sustainability can be identified both in the Finnish and Swedish curricula as aspects that are to be considered in the subject content of early childhood and early years education. In Sweden aesthetics and culture are suggested to be implemented as part of the pedagogical activities (Karlsson Häikiö, 2017b, 2018a, b). Working with children with matters of sustainability, ecology and equity indirectly include work with social and sustainable development from a future-perspective.

According to Rusanen (2007) the role of education in Finland is to enforce children's knowledge of the cultural heritage, and encounters with artworks, architecture or artefact design enrich the daily life of children. UNESCO (2015; 2018) consider cultural diversity and expression as a part of a common, global heritage. By noticing and giving respect to cultural diversity in the curriculum – and thus in the daily activities in early childhood and early years education – is a way of creating cultural sustainability according to Rusanen, Kuusela, Rintakorpi and Torkki (2018 p. 165).

Rautio (2013) claims that studies on everyday life in relation to aesthetics and education outside of institutional arts education are rare, and she argues for a broadening in the perception of learning through arts and culture. In her research aesthetics in education is supported by ideas from sociology and human geography, as well as environmental ethics. Rautio (2014a) expands the concept of learning, questioning the perspective of a single child building knowledge about the world, by instead pointing at a posthuman interpretation where knowledge is processed in an open, continuous state (Rautio, 2010, 2014a). New materialist perspectives based on studies of children's relationship to materials, spaces and environments (Hohti, 2016; Rautio, 2014b) have more lately contributed to new perspectives in Finnish, as well as Swedish, early childhood educational research. Lenz Taguchi (2012) have in a similar way described materials and other factors as environment, technology, artefacts, as actors in the knowledge-building of children, and has described the influence of new materialist perspectives as part of Swedish preschool practice. Materiality is according to her an active agent in the constitution of meaning, where things and materials intra-act or co-operate with our bodies (2012 p. 9–10).

Aim of the study

The over-arching aim of the study is to contribute to work with ecology and sustainability in preschools and primary school. In the article is presented how educating for sustainable development have become an important part of early childhood and early years education. The specified aim is to exemplify work with aesthetic learning processes related to educating for sustainable development through describing exploratory activities with different topics and materials in preschool and primary school. Nordic perspectives on aesthetic learning, educating for sustainable development and inclusion is used as a background to case studies from three educational units, one in Finland and two in Sweden.

Method

The main data of the study consists of examples on work with aesthetics, ecology, sustainability and project-based learning. The gathering of the empirical material was carried out between the years 2011–2020 on study visits at a combined preschool and primary school in northern Finland, and two preschools in the south of Sweden. The preschool/primary school in Finland is situated in a city centre of a town, has four preschool sections for children 1–5 years, one section for pre-primary education as well as school classes for years 1–3 (Finnish case, example 1). One of the preschools in Sweden is situated in a semirural commune and has six sections for children 1–5 years (Swedish case, example 2), and the other preschool is situated in a segregated suburb of a town, has five sections for children between 1–5 years (Swedish case, example 3). The presentation of the Finnish material is based on field notes from dialogues with the principal and visual material gathered from three study visits at the preschool/primary school in 2011, 2015 and 2018, as well as a seminar lecture made by the principal (principal A, 2019–10-03) at a university for preschool teacher students.

The Swedish material consists of visual material gathered at study visits at the semirural preschool in 2016, 2019 and 2020 and field notes from presentations made by the principal (principal B, 2016-11-23) of the preschool practice at a network meeting for preschool educators working on the theme Sustainable future and a study visit (principal B, 2020-02-03). The Swedish material is also based on field notes and visual material gathered at several occasions at the other preschool in the suburb between the years 2013–2018. From this preschool the material consists of field notes from a network meeting led by the principal (principal C, 2017-10-23) and from a dialogue with the principal (principal C, 2018-12-10). I call the conversations with the principals for dialogues rather than interviews, since the excerpts presented is due to field notes. Visual material in the form of hundreds of photographs has been gathered at all three educational units. In the article ten of these photographs are presented, taken by the author and principal A.

The analysis of the material has its origin in the concept aesthetic learning processes and Helene Illeris (2006) definitions of these processes operating on three levels: recognition theory level, didactic level and performative level (2006 p. 92). This, in my interpretation of how the children's bodily, visual and sensual contact with the inner and outer world is transformed in the learning processes through 1) personal relevance (experience of meaning), 2) relational aspects (communication and collaboration), and 3) the didactic setting of learning situations (learning environment).

Ethnography and visual ethnography

Ethnography has its origin in anthropology and ethnology, and has come to “refer to an integration of both first-hand empirical investigation and the theoretical and comparative interpretation of social organization and culture” (Hammersley & Atkinson, 2007 p. 1). Use of participative observation, field notes, case studies and interviews are all methods used in ethnographic research, but are part of many other scientific stances to collect data. Since I as a researcher have been in contact with the institutions, but not for coherent periods, the material has been gathered in unstructured ways over time (Gobo, 2008). In ethnographic research, different kind of material can be collected, reflected on and analyzed, and the analysis is due to a shift between being in a close relationship to the field/practice, while retaining distance to perform the analysis (Hammersley & Atkinson, 2007). The empirical material can in this way be gathered, but also interpreted, in a more flexible way where the researcher is forming and processing the material during the research process. Visual material and photographs are commonly used in ethnographic research, but in the analysis there is need to consider a photograph as a ‘shot’ taken in a certain circumstance and thus being a kind of interpretation (Hammersley & Atkinson, 2007 p. 148–149). The analysis of the photographs in this study is inspired by visual ethnography (Pink, 2001) where the visual information is used as a source of knowledge. The visual as well as the written material has been checked, proof-read and accepted for publication by consent from the principals of the preschools, following the research ethics according to the Swedish Research Ethics Committee (Sw. Vetenskapsrådet, 2011).

Finnish example, case 1 – project work as part of education for sustainability

The work at a preschool and primary school up to 3rd grade in Finland uses exploratory working methods and aesthetic learning processes in the educational activities. The preschool/primary school has a cultural profile where music, drama and visual arts are commonly used as means to engage the children and pupils in their own learning. In a presentation of the work at the preschool and primary school in 2019, the principal emphasizes equity, equality, cultural diversity besides a healthy and sustainable way of living as core values that are guiding lines in the educational work at the preschool/primary school:

Early childhood education and care promotes the democratic values, such as equity, equality, and diversity. Children must have an opportunity to develop their skills and make choices independently of reasons associated with, for instance, gender, origin, cultural background or other reasons related to the person. The personnel are responsible for creating an atmosphere that respects diversity. Early childhood education and care is built on a diverse cultural heritage, which continues to be formed in interaction between the children, their guardians, and the personnel.

The task of early childhood education and care is to guide children towards ways of living that promote health and well-being. Children are provided with opportunities to develop their emotional skills and aesthetic thinking. The principles of a sustainable way of living are followed in early childhood education and care, taking its social, cultural, economic and ecological dimensions into account. Early childhood education and care lays a foundation for ecosocial knowledge and ability, allowing people to understand ecological sustainability as the precondition for social sustainability and the realisation of human rights (Presentation, principal A, 2019-10-30).

A relational, dialogue-based and listening approach (Rinaldi, 2006) inspired by Reggio Emilia philosophy is used by the preschool educators and primary school teachers.

The work in small groups is essential in growing an ability to collaborate, listen, and learn to argue with the peers. Empathy, tolerance and conviviality is learnt besides acquiring knowledge in different subjects through project-based methods, where the children/pupils are working with a topic or a project over time, individually and in smaller groups, being able to make in-depth realisations that later on can be shared with the whole group/class (principal A, 2018-09-12).

In child-centered pedagogy in Finland, the significance of group size is emphasized in the curriculum (VASU, 2016), especially in the early phases of formation of the group.

The preschool educator or early years teacher should have plenty of time to discuss and talk openly with the children/pupils in the group or class. If the size of the group grows unreasonably, there will always be children that are less likely to partake in a conversation, which in turn makes the educational situation more superficial. This kind of procedure hinders children's collaboration, equality and sense of identity (principal A, 2018-09-12).

Child-centred dialogue is an important part of building an educational situation and culture, and is highlighted in the Reggio Emilia philosophy (Rinaldi, 2006). The psychological learning environment that maintains a conversational culture supports children's agency and encourages acceptance of each child giving voice. It is important to support each individual voice in the group, since it is through this that the child's own knowledge and ideas are brought into the group to enrich the group community (Vygotsky, 1978; Pass, 2004).

Such an approach supports a child view so there are no comments or answers that are wrong. Rather, all ideas are valued as part of the learning community. In this way, the understanding of variety is expanded and a multifaceted learning environment where the children learn to accept and affirm each other positively is created, even when there is a difference of opinion. In this way, children learn to accept diversity (principal A, 2018-09-12).

The preschool and primary school has been working with sustainability for 20 years and has a Green-flag certification concerning littering, waste, re-use, re-cycling, consumption, energy and climate, transport, public right, and health and work environment. All of these aspects are notified in one form or another in the work between the educators, or with the children/pupils. The certification concerns more than ecological sustainability and has to do with education for sustainable development concerning matters of content, educational philosophy, children's rights and so on. The work at the educational unit is to be reported, to be able to maintain the certification-label, which requires that the schoolwork and preschool projects are presented at a yearly Green-flag summit. Also out-door pedagogics, physical as well as mental well-being and relaxation, are part of the educational activities encompassing matters of nutrition, exercise, and how to live together. The children/pupils are partaking in the activities in the kitchen; the preparation of food, recycling of food, paper and other materials, as well as through thinking about saving energy during the school-days; use of light, heating and so forth. Below two examples describe how the work in the preschool unit and the primary school is connected to each other through use of over-arching thematics and project work in smaller groups.

Project work with seasons and weather through aesthetical learning processes

Project-oriented and functional learning contributes to motivating the children and pupils. Below is described how the education, the cultural profile and the learning environments are linked more closely to sustainability and ecology, for instance in the work with weather observations and the different seasons of the year (learning environment). At the preschool/primary school the project work is commonly used at different levels of complexity and starting in environmental questions. Special days are notified, like the *Earth Day* (2020), to put light on questions about ecology, re-cycling and sustainability. Analogue techniques as drawing, painting, use of mixed media, as well as digital tools as the computer, internet and video films, are commonly used as tools to elaborate and explore varying topics and knowledge foci with use of creative materials in different learning situations (communication and collaboration).

Explorations of the seasons and the weather is part of the daily work both in the preschool as well as in the school classes (Images 1-2).

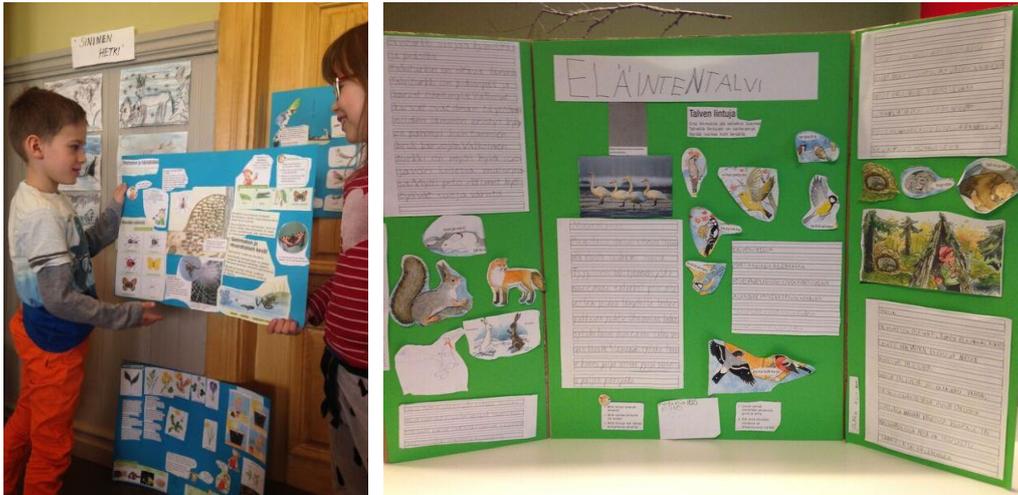


Images 1-2 In the photograph 1 the children have painted images with inspiration from photographs, where they have continued drawing a surrounding environment starting from the photograph. The photograph 2 shows different kind of weather conditions presented in graphic form in a drawing. Photographs: Tarja Karlsson Häikiö

The weather conditions and natural phenomena is highlighted, like rain, rainbows, clouds, storms or the sun. The seasons of the year are elaborated through play, dance, dramatization, music play and singing, and through different kinds of visual tools like use of light projections, internet searches and so forth. The method to use the drawing and painting of seasons starting from cut-out photographs from magazines, and develop them further, are akin to making paraphrases of art works. In the exploration of weather phenomena different meteorological graphic representations are studied, which in turn affects the representations of weather drawn by the children/pupils. The use of aesthetic tools and learning processes is a natural part of the education and enriches the learning, giving the children/pupils many different choices of expressing their ponderings, questions, thoughts and reasonings in gaining knowledge over time. Aesthetic learning processes are thus used as tools to make more in-deep investigations of phenomena and the surrounding world (experience of meaning).

In the project Winter of animals (Fi. *Eläinten talvi*) (Images 3-4) the pupils have made investigations of how the seasons and climate affect animals living in nature. Caring for and acquiring knowledge about animals and nature are part of growing empathy and understanding of other species and treasuring the life of the planet, connected to the value-base of the preschool/primary school (experience of meaning). The pupils have made investigations through drawing, reading, writing and sharing information between each other in groups (communication and collaboration). The projects and schoolwork is connected to work with sustainability through notifying different events like the *Global Earth Day*, or by engaging the children's families in re-cycling, saving energy or studying special conditions for endangered

animals. The educational work affects in this way more than the children/pupils and is used as means to create participation of families (communication and collaboration).



Images 3-4. In photograph 3 two children are presenting schoolwork with “The winter of animals”. In the photograph 4 work with collages of drawings of animals are used as illustration to texts written by the pupils. Photographs: principal A

Swedish case, example 1 - Nature, ecology and collaboration

In a semirural commune in the south of Sweden a preschool with an ecological profile is situated, where ecology permeates the entire organisation and operationalisation of the educational activities. The aim is to use natural and ecological food, ideas, materials, to create a non-toxic environment, and to re-use as much as possible of the rest-material produced in food preparation, construction activities, aesthetic activities and so forth. Five years earlier the preschool was situated in an old building that had to be replaced. The new preschool building was designed in collaboration between architects and the staff to follow ecological criteria. The outside of the building is inspired by nature resembling bird nests and has an outlook that merges with the natural environment in a forest-dominated part of the commune. The design and construction project was made in collaboration between architects, the principal and the educators. The principal describe how the educators collaborated with the children in the process of changing from the old preschool building to the new one:

Throughout the preschool, children and educators were involved in the construction process. This is because the child groups and educators planned, fantasized, sketched, dreamed with different aesthetic languages and constructed a mini version of the desired preschool. The mini version was created through visits to the building site where the outdoor and indoor environments were tried out and tested through making relationships, in dialogues and in connection with the workplace. The preschool also planned for a close interaction with nature and saw this as a significant value. Parts of the facade facing the outdoor courtyard were designed as bird holes. This joint journey was observed and documented using educational documentation as a tool. Through this tool and over time, the educators’ in-deep reflection and view of children’s abilities evolved in terms of exploration, participation and empathy (principal B, 2018-11-02).

Participation and collaboration – a relational approach

The preschool’s daily practice starts from a socio-cultural approach to learning, of which child and parent participation, as well as the interactive learning environments bear testimony. According to Vygotskij (1978) the learning takes place through social interactions and in dialogue with others, the group and the collective. Learning is created in dialogue with others, for instance through physical meetings, interaction through literature and cultural activities, information shared through social media and so forth. According to the principal, Vygotsky’s thoughts as well as the Reggio Emilia philosophy

have been an inspiration for the preschool educators in their work with children and families, and in the relational pedagogical methods (Aspelin & Persson, 2011; Malaguzzi, 1993). The educators believe that the preschool develops through the parents' involvement. This comes forth in the daily conversations about the children's development, listening to needs and wishes to offer transparency into the educational work. By giving parents information, a sense of security is created, that makes them dare to ask questions, express opinions and that feel that they have an opportunity to influence the preschool practice. An attitude of listening (Rinaldi, 2006), confirming each other, trying to understand each other's thoughts, experiences and feelings aims at building an open climate.

Building trust between the preschool and the families is emphasized since the parents should feel trust in turning to the preschool for support and assistance when needed. The parents should be able to tell when they are satisfied or not with the preschool service and trust that the educators always acts from a position that is the best for each child. Showing respect to the parents and families are to treat, take care of and protect information in a respectful and correct way and by giving correct information, which is looked-upon as a way to knowing each other's roles and being confident in them (principal B, 2018-03-27).

The idea of the preschool educators is that with communication between educators and parents, they together create the best conditions for learning and play for the children. Thus, it is important to be interested in, and responsive to, the parents' thoughts. Through this communication everyone's skills and opinions can be taken care of in the best possible way.

Project work in the atelier and visual exploration

The project work at the preschool starts from the exploration of the children and is based on what they are interested in, related to the curriculum for preschool in Sweden, Lpfö19. Fantasy, imagination, hypothesis-making and reasoning is seen as parts of the learning process. The use of multiple expressive languages are creating an environment where relationships are shaped (Palmer, 2012).

By using I-messages to make it clear who it is trying to contact whom, is a way to be clear about what is expressed and have the opportunity to give voice and stand for an opinion. This is practiced in the morning assemblies as well as in the project work. To start from assuming that every child does the right thing if they can, is part of building trust in the ability of the children and their willingness to explore, learn and create relationships (principal B, 2018-03-27).

In order for the children to feel that they are an important part of the group and the entire preschool activities, the role of the educator is to listen actively, show interest in the children and involve them in the activities.

The educators offer the children many opportunities listening to the children's thoughts and opinions. Therefore, all educators should be involved in different processes in the educational work through having different areas of responsibility. The educators are responsible for the content of the activities, being professionals and raising children's curiosity and formulating projects. To offer children the opportunity to put their thoughts into a further context gives the opportunity to be seen, but also an opportunity to be challenged to think one-step further from a broader perspective (principal B, 2018-03-27).

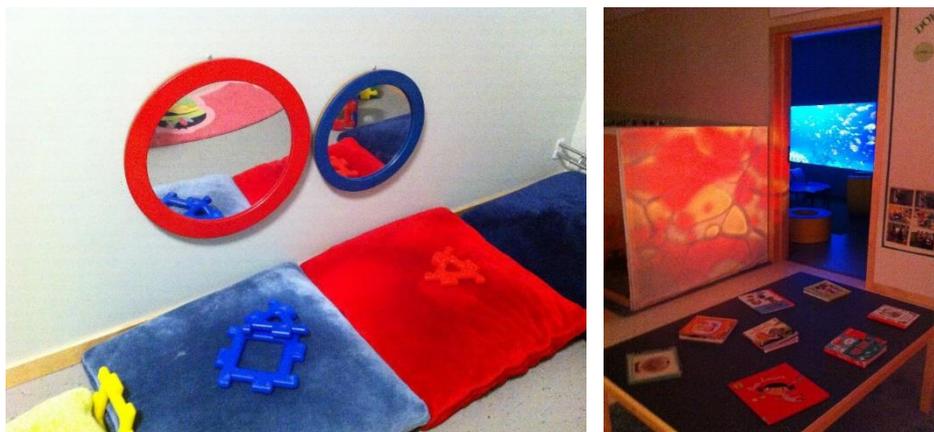
The atelier at the preschool is offered as a working space for all the sections and consists of different activity zones (Häikiö, 2007), or different didactic settings for painting, drawing, work with textile, clay or wood and other 2- and 3-dimensional materials. One of the projects at the preschool is about exploring

he the five senses through material for producing sensations, and where visual material is part of the work in the atelier used as sources of information (learning environment) (Images 5-6).



Images 5-6. In the photograph 5 we can see the atelier and artistic images and photographs of human faces used as inspirational material in project work. In photograph 6 a mirror is used as optical material for studies of the sense organs. A collage of photographs of ears, eyes, noses and mouths is set up as inspirational material. Photographs: Tarja Karlsson Häikiö

The photographs in the atelier gives testimony of the work with cultural diversity showing portraits of people of different ages, gender and skin colour and artworks from different times and styles (learning environment). The visual material is used as inspiration in the project work and as a background material in image conversations. In these conversations the children's assumptions, reflections, ponderings and questions are discussed collectively (communication and collaboration). Use of visual and optical material is part of creating environments that stimulate activities and relationships between the children themselves and between the children and the materials (learning environment). Light tables and artefacts, over-head projectors and film projections are used to create an atmosphere stimulating the different senses, inspiring the children to creative play, interaction, construction and in this way challenging the children's visual capacity and competence (experience of meaning). Mirrors and projections are used to create the activity zones where the children can explore, sort and elaborate with natural and creative materials (learning environment) (Images 7-8).



Images 7-8: The photograph 7 show mirrors put up on the wall to create an activity zone for optical exploration. In the photograph 8 an activity zone is shown created by use of multimodal tools in the form of light and video projections, that creates landscapes that visualizes worlds under the sea or produces transforming patterns on the ceiling. Photographs: Tarja Karlsson Häikiö

Film projections of the sea inspires to see new kind of and different natural environments as well as to explorations of natural phenomena (learning environment). In this way, the visual is giving shape in creating an understanding of the world from different perspectives for the children and learning skills to use of different tools and materials to express themselves (experience of meaning).

Swedish case, example 2 – Aesthetics, inclusion and cultural diversity

In a preschool in a segregated, sub-urban town area in the southern of Sweden the educators at the preschool have specialized professional knowledge of working in multicultural areas. The educators need to speak several languages in order to be able to work in the dominantly multilingual preschool with children and families. Many of the families come from cultures where Swedish society, with its curriculum based on western core values, is foreign. The majority language at the preschool is Swedish, but the educators use code-exchange in their communication with the children (Sandvik & Spurkland, 2015 p. 54–57), where a hybridization of multiple languages is a tool for communication to strengthen, clarify and simplify the daily work and preschool activities (Hyltenstam & Milani, 2012 p. 21).

According to the Swedish curriculum inclusion and collaboration with parents is part of creating an equitable and democratic preschool, which is also written in the school law (Prop. 2009/10:165). The preschool is supposed to educate the children in democratic values, cultural diversity and empathy for others:

The increasing internationalization of Swedish society places high demands on people's ability to live with and understand the values embedded in a cultural diversity. Preschool is a social and cultural meeting place that shall promote children's understanding of the value of diversity. Knowledge of different living conditions and cultures can help to develop an ability to understand and empathize with other people's conditions and values (Lpfö19, 2018 p. 5–6, author's translation).

At the preschool visual images with symbolic content, referring to different kinds of situations in life, are used as a method in the contact with the families. Many of the parents do not speak Swedish, or speak Swedish poorly, and there is a need of using interpreters, especially in the introductory conversations with the families when the children are to start their education. The visual images functions as an aid in the dialogues and makes it easier for the parents to tell about their background, the family history, and the expectations that they have on the preschool. The visual material open for dialogues and is helpful for the educators in creating an understanding of the family situation, in asking questions and collecting the information needed for planning the welcoming of the new child at the preschool. At a network meeting concerning the work with the parents, the principal and the educators discuss the use of the visual material as a help in the introductory conversation.

It is important to convey that you do not use the visual images only with the parents from other countries. The material is aimed for all parents, not just parents with foreign backgrounds. In the situation the visual material should be presented as a support for getting to know the families and facilitating the work of the educators and preschool teachers with the children, for the benefit of the child (principal C, 2017-10-23).

At a later occasion, the principal explains how the visual material is used as a method and a basis in the interaction with the families to facilitate the work of the educators. She describe how the material is helpful in explaining to the parents why the educators work with the material, aiming at creating a best possible situation for the child at the preschool:

We decided that the educators should follow the child, which means that the child has an educator who is responsible for each child all the way, from the first introductory conversation with the parents, because then you can talk about the content issues. We also decided that we should document that conversation to know what we learned and not have to repeat the questions to the parents. This is also good if the educators are replaced, because then the conversations are documented. For me it was important that we used a proper

method, and so – in dialogue with the commune – we became one of three pilot units that would develop this way of working in developing a method. /... / We have now selected pictures that we can use with the parents [in the introductory conversation], and there is a huge need. Now we can come up with questions when families start at the preschool. Then we can use these conversations with visual aids, and explain that we work with this material and why, so that the child does not end up between two cultures, in order for them to feel safe and that we need to work with this method together with the parents (principal C, 2018-12-10).

Ateliers and activity zones for creative work

In the project work aesthetic learning processes are used, where dance, dramatization, movement and music as well as visual arts create possibilities for communication besides the spoken word (Liberg, 2007). The educators work with various types of audiovisual tools with the children and in the mutual reflection with them, viewing images and having conversations based on images, using video recordings and interactive smartboards as pedagogical tools, especially with the children for whom Swedish is not their first language (experience of meaning). In the work with children who cannot speak Swedish, multilingual children or newly arrived children, the focus is on the physical experiences as well as on work with aesthetics and sensuality, but also sustainable development. The educators emphasize the importance of the children being given the opportunity to express themselves with different expressive languages and use of different materials (communication and collaboration). The significance of choice of materials is emphasized by the educators in the educational situations and the creative activities, as well as in the setting of the learning environments at the preschool (learning environment).

The work with aesthetic learning processes and creation with recycled materials takes place in the sections and in the preschool's various mini-ateliers (Häikiö, 2007; Karlsson Häikiö, 2018a, b; Vecchi 2014). In the aesthetic learning processes the affordances consists of a variety of materials for combination with different aesthetic tools – analogue and digital – used multimodally (Karlsson Häikiö, 2018b). In aesthetic and creative work the materials have a quality and character where different kinds of colours, plaster, clay, light have transformative dimensions (Häikiö, 2007 p. 74, 97, 138). The creative process reinforces and deepens learning through the processing of various materials and techniques, according to Vecchi (2014). Materials, the environment and artefacts are active agents (Lenz Taguchi, 2012) responding to the child's actions. By meeting and exploring the material on the terms of the material, children inspire each other and learn together, find the character of the material, find solutions on how the material can be used (communication and collaboration) (Images 9-10).



Images 9-10: The images show a child using recycled materials in constructing a three-dimensional space in the form of a model of a house for a self-made paper figure. Photographs: Tarja Karlsson Häikiö

Use of these tools are common in zones for work with different materials, for transforming light and working with light projections, light tables, interactive smartboards and other audiovisual media. The

sections has several zones for work with 2- and 3-dimensional and re-cycled materials (learning environment). Through educating for sustainable development and use of visual and multimodal tools in daily pedagogical and aesthetic practice, as well as activities in environments in and outside of the preschool, participation and cultural inclusion can be created. Education for sustainable development is linked to the use of the multiple modalities to create thoughts about sustainability, living in the world and cultural diversity from a widened context (experience of meaning). In this way, the work stays open to changes, transformations and allow the work to start in the children's own hypotheses and thoughts, where the task of the educators is to discover, explore and reflect on events before the children meet final answers and well-established theories (Dahlberg, Moss & Pence, 1999).

Discussion

Salonen and Tast (2013) have made research about the attitudes of Finnish preschool educators and their opinions on work with sustainability. According to them the most important elements of sustainability is "(a) supporting of communality (including intergenerational link and trust); (b) social responsibility of the consumer; and (c) recycling, composting and taking care of hazardous waste" (2013 p. 70). A contemporary movement consists of children who point out the lack of responsibility from adults and worry about their future based on planetary exploitation and "stepping over planetary boundaries" and the extinction of animals and plants (Rockström et al., 2009). In this case the preschool/primary school in the Finnish example manifests a holistic approach, where early childhood and early years education can be part of a larger global context in creating a better future for all living things on earth (Ott, 2003) through educating for sustainable development and use of aesthetic tools.

In the second case, with the ecological preschool in Sweden, the key values comes forth in the theoretical basis that the preschool relies on, which is relational (Aspelin & Persson, 2011), as well as in the daily practice and the organisation of the learning environments. In the educational planning and performance of the activities ecology, the global SDGs, as well as participation and work with child-oriented practices through aesthetic learning processes is emphasized. The educators needs to pay attention to the children and create opportunities for learning to arise in the activities. In a shared space of relations (Palmer, 2012) the child has the opportunity to create his or her understanding of the world. "We become in relation to the world and in relation to each other. No other knowledge exists than in the one designed together" (Lenz Taguchi, 1999 p. 85). A way of achieving this is to see the needs of the children and to collaborate with the families.

At the preschool in case three in Sweden one of the principles of the preschool is to enhance self-esteem through an expanded language concept (Liberg, 2007) through the use of multilingual strategies as well as different expressive and communicative forms that is offered through multiple modalities (Vygotskij, 1978). The meaning-making is created through mediation with a variation of modes of expression with multimodal and visual tools as part of the settings of learning situations (Jewitt, 2011). Project work with aesthetical learning processes, inclusion of families and work with cultural diversity are methodologically used as didactic strategies to attain the goals in the curriculum. Malaguzzi (1993) pointed out the importance of knowledge of materials for children's learning, which in turn is related to each child's image of him-/herself as competent. Through observing phenomena and using different kinds of materials, a repertoire of experiences is created. The materials offer a framework for what further can be developed in an activity.

Conclusions

In the case studies from preschool and early years activities the sustainability perspectives are highlighted from a widened perspective, not only encompassing ecological perspectives, but are also connected to children's learning processes with aesthetic means. The case studies show that the children's work with aesthetic learning processes and sustainability create multiple perspectives of

thinking and acting, that grows a variety of possibilities to participate, communicate, collaborate and learn between the children/pupils and educators/teachers, but also involves the parents. The collaboration with parents is noticed in all case studies as a crucial part of the project work and work with the SDGs. Case study 1 in Finland show how educating for sustainable development is didactically set through project work with aesthetic learning processes in preschool and primary school. The preschool example in case study 2 in Sweden gives testimony of how ecological perspectives is implemented in the daily pedagogical work on a profound level in collaboration between educators and children. This, through combining use of visual and optic materials and multimodal tools in the sections and in the atelier. In case study 3 in Sweden an inclusive approach towards children and families encompasses dialogic processes aiming at creating empathy and understanding. Here the use of visual and multimodal tools contribute to creating a sustainable and diverse preschool culture. Thus, the case studies exemplify that work with art and aesthetics in early childhood and early years education can be useful in dealing with issues that are complex and create conditions for experiencing meaning (personal relevance), ability to communication and collaboration (relational aspects), and creating a potent learning environment (didactic setting of learning situations) in educating for sustainable development. In this way, work with art-based methods and aesthetics can add widened perspectives in exploration of multifaceted questions related to global, ecological, ethical or existential issues and challenges.

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