NATIONAL INSTITUTE FOR HEALTH AND WELFARE

Päivi Lindberg

In search of affordances and visual quality

Interpreting environments of children aged under three in seven Finnish day-care centres

RESEARCH

132

Research 132 • 2014

In search of affordances and visual quality

Interpreting environments of children aged under three in seven Finnish day-care centres

PÄIVI LINDBERG

University of Oulu
Faculty of Education

Academic dissertation to be presented with the assent of
the Faculty of Education of the University of Oulu,
for public defense in Kaljusensali (KTK 112),
Linnanmaa on August 8th 2014 at 12 noon.

TERVEYDEN JA
HYVINVOINNIN LAITOS

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Images:Päivi Lindberg
Layout: Seija Puro

ISBN 978-952-302-253-9 (printed)
ISSN 1798-0054 (printed)
ISBN 978-952-302-254-6 (online publication)
ISSN 1798-0062 (online publication)
http://urn.fi/URN:ISBN:978-952-302-254-6

Research 132

Juvenes Print – Finnish University Print Ltd
Tampere, Finland 2014

Supervised by
Professor *Riitta-Liisa Korkeamäki*

Revised by
Professor *Kirsti Karila*
Professor *Ellen Beate Hansen Sandseter*

Opponent
Emeritus Professor *Philip Gammage*

Abstract

Päivi Lindberg. In search of affordances and visual quality. Interpreting environments of children aged under three in seven Finnish day-care centres
Research 132. 266 pages. Helsinki Finland 2014. ISBN 978-952-302-253-9 (printed): ISBN 978-952-302-254-6 (online publication). Academic dissertation. University of Oulu, Faculty of Education, 2014

Visual environment has a fundamental role in early childhood education and care (ECEC). However, visual environment has been a neglected topic, especially in relation to research concerning children under the age of three.

The main theoretical concept in the research is affordance, developed by James J. Gibson. Affordances are potentials for activity that the environment offers for the perceiver. Perception only becomes meaningful when there is a person–environment fit. The meanings of affordances in ECEC can derive from children's interests or they can be tied to the cultural use of things. Other theoretical interests in the research are related to the visual quality of day-care centre environments. Visual quality of environments can be interpreted using certain informants that gradually reveal the meaning of the environment. These informants are referred to as cues.

The intention of this research was to interpret the visual quality and the number and type of potential affordances in centre-based early childhood environments. The context in which the interpretations were made is Finnish ECEC, the focus being on environments of children under three years of age. The research data is visual, formed of digital photographs with almost no people present.

A model for managing and interpreting the vast amount of information provided by the photographic data was created. It was connected to the viewpoints and the ethos of the Finnish ECEC as defined by the National Curriculum Guidelines on ECEC (VASU). The model comprises three levels, i.e. the categories, the affordances, and the cues supporting the affordances. The categories were formed in relation to VASU taking into consideration the affordances and the visual elements in the day-care centres. The affordances and the environmental cues in the model were formed during the process of initially interpreting the data.

The empirical results from the study showed that visual environment is an undervalued area in Finnish ECEC. Although VASU is a commonly used framework in Finnish ECEC, the contents and the other argued elements of VASU had not been translated into the visible environments in the study centres. Homeliness of the environments was a dominating perspective in most of the centres. Although play is an emphasised value in Finnish ECEC, toys and objects and their meaningful organisation had not been given much attention. Furthermore, a kind of emptiness was rather typical in the environments. An interesting result was the importance of documentation in revealing the number of affordances. Documentation proved especially relevant in the context of affordances based on the social aspects of the human environment interaction.

This study has been an important engagement in a dialogue looking at ways to develop ECEC environments of children under three years of age. It contributes to the discussion about the role of the visual environment in the overall well-being of children. By illustrating what kinds of cues are important, how they provide potential affordances for children, and what affects the visual quality in the environments, the study contributes also to the ECEC quality discourse. Further research needs are connected to the actualisation of affordances. For this, other research methods such as observation are needed.

Keywords
affordance, children, cue, curriculum, early childhood education, environment, visual quality

Tiivistelmä

Päivi Lindberg. In search of affordances and visual quality. Interpreting environments of children aged under three in seven Finnish day-care centres [Tarjoumia ja visuaalista laatua etsimässä. Tulkintoja alle kolmivuotiaiden lasten ympäristöistä seitsemässä suomalaisessa päiväkodissa]
Research 132. 266 sivua. Helsinki Suomi 2014. ISBN 978-952-302-253-9 (printed): ISBN 978-952-302-254-6 (online publication). Väitös. Oulun yliopisto, Kasvatustieteiden tiedekunta, 2014.

Visuaalisella ympäristöllä on suuri merkitys varhaiskasvatuksessa. Tästä huolimatta erityisesti alle kolmivuotiaisiin kohdentuvassa tutkimuksessa visuaalista ympäristöä on tutkittu hyvin vähän.

Tutkimuksen tärkein teoreettinen käsite on James J. Gibsonin tarjouma. Tarjoumat ovat ympäristön havainnoitsijalle tarjoamia toiminnan mahdollisuuksia. Havaitsemisen edellytyksenä on, että havaitsijan ominaisuudet sopivat ympäristön ominaisuuksiin. Tarjoumien merkitykset varhaiskasvatuksessa voivat olla lähtöisin lasten kiinnostuksesta tai ne voivat olla kytköksissä asioiden kulttuurisiin merkityksiin. Muut teoreettiset lähtökohdat tutkimuksessa liittyvät päiväkotiympäristöjen visuaaliseen laatuun. Ympäristöjen visuaalista laatua voidaan tulkita ympäristön merkityksiä avaavien tiedonvälittäjien kautta. Näitä tiedonvälittäjiä kutsutaan johtolangoiksi.

Tämän tutkimuksen tarkoituksena oli tulkita päiväkotien visuaalista laatua sekä potentiaalisten tarjoumien laatua ja määrää. Tulkintojen kontekstina on suomalainen varhaiskasvatus, erityisesti alle kolmivuotiaat lapset. Tutkimusaineisto on visuaalinen muodostuen digitaalisista valokuvista, joissa ei ole ihmisiä.

Valokuvat tuottivat suuren määrän tietoa, jonka tulkitsemiseen luotiin malli. Malli kytkettiin valtakunnallisiin Varhaiskasvatussuunnitelman perusteisiin (VASU), joissa on määritelty suomalaisen varhaiskasvatuksen näkökulmat ja eetos. Mallissa on kolme tasoa, eli kategoriat, tarjoumat sekä johtolangat, jotka tukevat tarjoumia. Kategoriat muodostettiin VASUn mukaisesti siten, että niissä otettiin huomioon tarjoumat ja päiväkotien visuaaliset elementit. Tarjoumat ja ympäristön johtolangat muodostettiin aineiston alustavan tulkinnan myötä.

Empiiristen tulosten mukaan visuaalinen ympäristö on suomalaisessa varhaiskasvatuksessa aliarvostettu voimavara. Vaikka VASU on laajalti käytetty toiminnan kehys suomalaisessa varhaiskasvatuksessa, VASUn sisällöt

tai muut näkökulmat eivät olleet siirtyneet tutkimuspäiväkotien visuaaliseen ympäristöön. Vallitseva näkökulma useimmissa ympäristöissä oli kodinomaisuus. Vaikka leikin arvoa korostetaan suomalaisessa varhaiskasvatuksessa, leluihin ja tavaroihin sekä niiden merkitykselliseen järjestelyyn ei oltu kiinnitetty kovin paljoa huomiota. Lisäksi ympäristöissä vallitsi melko yleisesti jonkinlainen tyhjyys. Kiinnostavana tuloksena nousi esiin dokumentoinnin merkitys tarjoumien näkyvyydessä. Dokumentointi osoittautui erityisen merkitykselliseksi silloin, kun kyseessä olivat ympäristön ja ihmisen vuorovaikutuksen sosiaaliset tekijät.

Tämä tutkimus avaa keskustelun löytää keinoja kehittää alle kolmivuotiaiden varhaiskasvatusympäristöjä. Tutkimus ottaa kantaa visuaalisen ympäristön merkitykseen lasten kokonaisvaltaiselle hyvinvoinnille. Osoittamalla millaiset ympäristön johtolangat ovat merkityksellisiä, miten ne tuottavat lapsille potentiaalisia tarjoumia, sekä mitkä asiat vaikuttavat ympäristöjen visuaaliseen laatuun, tutkimus osallistuu myös varhaiskasvatuksen laadusta käytävään keskusteluun. Jatkotutkimuksen tarpeet liittyvät tarjoumien toteutumiseen. Niiden tutkimiseksi tarvitaan toisenlaisia tutkimusmenetelmiä kuten havainnointia.

Avainsanat
tarjouma, lapset, johtolanka, opetussuunnitelma, varhaiskasvatus, ympäristö, visuaalinen laatu

Acknowledgements

Looking way back I can see a long and sometimes lonely journey. Given the hermeneutic nature of this research, I cannot say the journey has now ended, but definitely it has come to a halt. Over the years this journey has provided me with joy, anguish, inspiration and a good deal of new ideas and learning. All these I have had the privilege to share with a number of people I now want to acknowledge.

My greatest depth of gratitude goes to Riitta-Liisa Korkeamäki for her humane attitude and her tireless support. She has given me enough academic freedom and trusted my intuition for using photographs as research data and for focusing on the visual environment. I have enjoyed our discussions concerning the current state and the future prospects of Finnish early childhood education and care.

I want to thank my pre-examiners Kirsti Karila and Ellen Beate Hansen Sandseter for their valuable and exact comments that helped to significantly improve the quality of the work. My gratitude goes to the second supervisor, and the opponent of my work, Anna-Maija Puroila, whose perspective could always be trusted. I also want to thank Pauliina Rautio as the second opponent for her precise and critical, but very useful comments. I am grateful to Mark Phillips for his exact proofreading and valuable comments.

I especially want to thank Anna-Leena Välimäki for helping me to find my topic, and for her enduring interest towards my work throughout the years. As my immediate superior for many years she gave me the opportunity to participate in the national development of ECEC in Finland. She also encouraged and enabled my international perspective to evolve.

I am grateful to my friends and colleges for their belief in this work even when I did not. I am thankful for my current superior Anneli Pouta for her patience towards my everlasting PhD process. She made the thesis sound a natural and an ordinary step in one's professional path. I am also indebted to my colleges at the Unit of Child, Adolescent and Family Services at THL. Over a period of years they have remained interested in my research process.

I heartily thank my friend and my student fellow Hannakaarina Sarvela, who would share the umbrella with me. Her sense of humor helped me to carry on during the hardest phases. I also want to thank Tuula and Juha Niiniranta and Ulla Haltia for enjoying culture with me, and thus helping to keep my feet on the ground.

I want to thank my parents in-law for supporting me in spirit. I am forever grateful for my own mother and father for their unselfish love and trust in me, always.

My warmest thoughts are in my dear husband and best friend Jukka. His encouragement and full support were the best one could ever wish for. I dedicate this thesis to my four beloved girls, my daughters Mari and Anna, and my granddaughters Milja and Vera. They bring the sunshine!

Helsinki June 2nd, 2014

Päivi Lindberg

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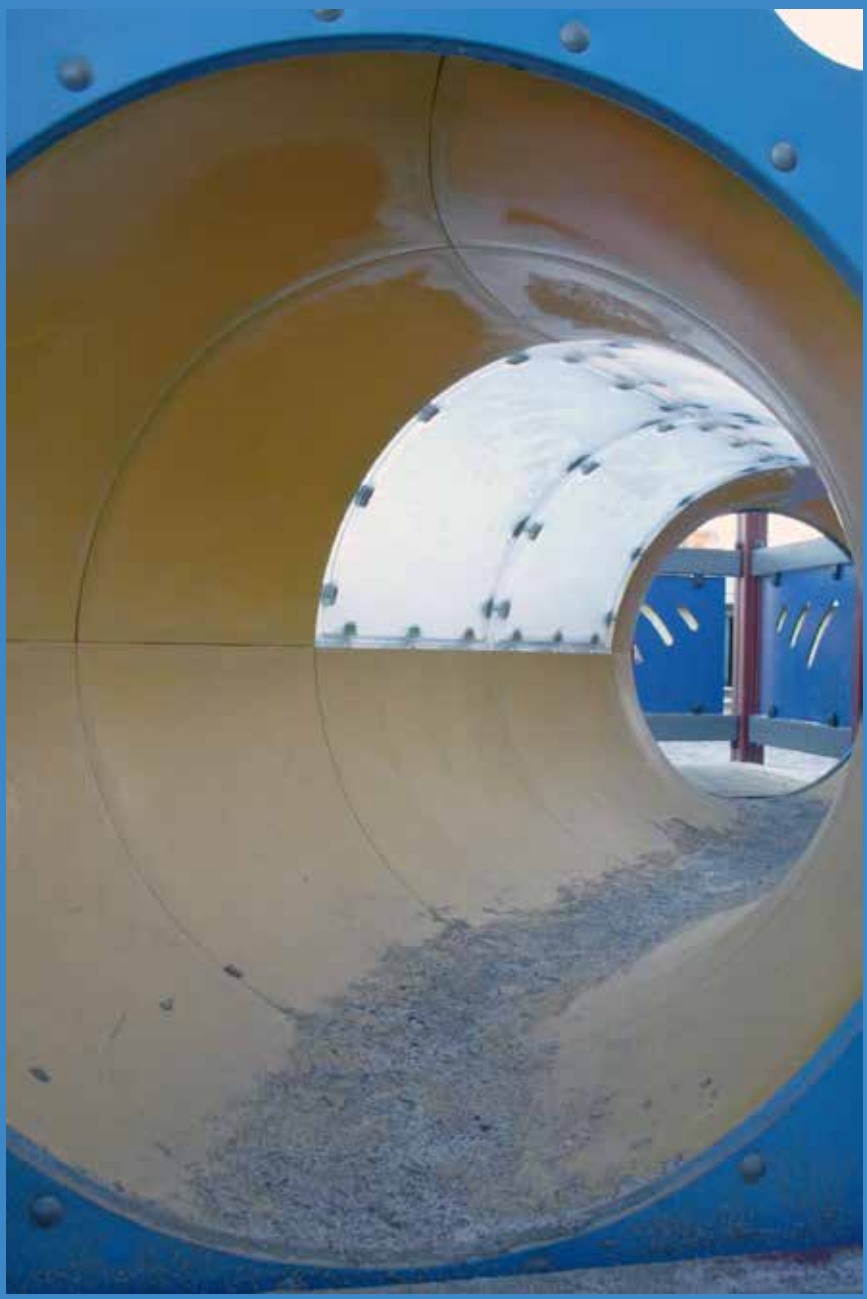


What begins as undifferentiated space becomes place as we get to know it better and endow it with value (Tuan 1977, 6).

1 THE ORIGINS OF INTEREST

Recalling my first practical period in a Finnish day-care centre with children aged under three years during my kindergarten-teacher studies in the 1980s brings back visions of an empty and boring space. The environment was unexciting and cleanliness overrode children's joy of learning and involvement. Both the environment and the activities signalled that the main task of the setting was childcare. At the time in Finland, the day-care centre environment of children under three years still reflected the thinking typical of an earlier societal childcare concept. This concept emerged from the crèche tradition during the early 19th century. The content of crèche activities focused on the child's physical care: nutrition, rest and outdoor activities. (Välimäki 1998.)

The adults in the centre assured us that a certain amount of emptiness was a necessity when working with young children. I noticed that toys and equipment with small parts and the arts and crafts materials were kept in cupboards, which made it easy for adults to control their use. With only a few easily washable large toys included in the environment, it could effortlessly be kept clean. It was also safer for having no small components for children to eat or swallow. A similar sense of control and restriction characterised the outdoor environment.

The situation in the spaces for older children in the centre was slightly different. The spaces were not as empty in the sense of materials or equipment, and as such it also provided educative activities,[1] although adult orientation overruled children's initiatives also in the spaces for children over three years. The aesthetics in the setting seemed to have been defined by adults only. In their design the adults had tried to achieve a resemblance to home. One of the most characteristic definitions concerning Finnish day-care centres was, and largely remains, the demand for "homeliness" (see Brotherus, Hytönen & Krokfors 2002; Nummenmaa & Karila 2005; Puroila 2002).

1 The Finnish day-care system as it is today was formulated a few years before the Act on Children's Day-care (36/1973) came into force. Prior to that Finland had a split system with crèches for children under three and kindergartens for children over three. The orientation in kindergartens was educative, being based on the pedagogical ideas of Friedrich Fröbel. Although the act joined crèche and kindergarten into a day-care centre, the idea of a split day-care prevailed long after the merger (Välimäki 1998).

Later, as part of our studies, we saw a film from the City of Reggio Emilia in Northern Italy, where the environment is considered as the important "third educator" (see Rinaldi 2006), the teacher and the child being the first and the second. In the film we saw how children in a pre-school were encouraged to explore the environment in every possible way. The space did not resemble home, but reflected the world outside the centre. According to Ceppi and Zini (1998), a day-care centre in a Reggio Emilian context should be recognisable – maintaining its own specific identity. This does not mean simulating a home or representing a school in a traditional sense, but finding a new identity with its own recognisable elements. The film also presented a variety of activities children can do with each other and together with adults in a creative and inspiring way. Child participation was not only allowed, but encouraged by the teachers and the other adults involved. Especially the physical environment of the centre was extraordinary. It had transformability and flexibility to ensure continuous re-design as a result of the experimentation of children and adults. It was like a workshop equipped with materials fostering exploration and experimentation. Children were active participants in the centre in many ways, which was visible fundamentally through documentation. It had a large piazza, a central area like a town square in the middle, as a meeting place. This layout has a pedagogical connotation enabling group interaction, social relations, i.e. symbolising the "*pedagogy of relationships*" (Ceppi & Zini 1998, 36). At the time, being young and idealistic students, we found the view in the film refreshing and motivating.

Much has changed in Finnish early childhood education and care (ECEC) since my first contact with day-care centres in the early 1980s. Many research and development projects in the 1990s aimed to promote change in pedagogy. In these the focus was largely on child initiatives (Lahikainen & Rusanen 1991; Riihelä 1996; Strandell 1995). This trend has continued in the new millennium (Kyhälä, Reunamo & Ruismäki 2012; Kalliala 2008; Kokljuschkin 2001; Karlsson 2000). In addition to research, reformative work in ECEC has been boosted by the national curricular initiatives concerning pre-school education for six-year-old children (National Board of Education 2000) and early childhood education and care for all children under school age (STAKES 2005). These frameworks have also paid attention to aspects concerning children's early childhood environments. Moreover, there have been some research and development projects that have paid attention to improving the physical environment as part of the functional or pedagogical perspectives (Helenius, Karila, Munter, Mäntynen & Siren-Tiusanen 2001; Kalliala 2008; 1999; Kyhälä et al. 2012; Mäntynen 1997).

It is useful to consider whether these development initiatives have affected the Finnish day-care centres' environments. It seems that only minor changes have been made, while the basic pattern of architectural and interior design has remained untouched. Yet, it is known that environment has significant importance in the process

of pedagogical change. Changes in pedagogy are much easier if the physical environment is changed simultaneously, because environmental changes affect also the social and functional factors (Aura, Horelli & Korpela 1997). It seems that the many pedagogical initiatives over the years have not significantly affected the architecture and the fixed features in the interior design of centres.

Another aspect concerning changes in the day-care centre environments is related to the physical environment, often referred to as the learning environment, designed by the professional staff. Although knowledge of the importance of environment in children's well-being, development and learning has grown along with the increased research in the area, the staff in Finnish ECEC have not been sufficiently made aware of this knowledge. For instance Krokfors (2003) discovered that many pre-primary teachers did not consider the learning environment as an important factor in pedagogy. Horne-Martin (2002) argued that if the teachers do not recognise the role of the environment in the learning process, they are unlikely to make an effort towards changes. Kalliala (2008, 60) claimed that even if talk about the importance of the environment in young children's learning has increased, there still is a long way to go to establish the necessary cultural change. In this process the educators need skills to *"read the environment"* so as to identify the deficits and the elements needing change. Research in Norway has shown that all staff members of a centre need to be involved in pedagogical development with lots of opportunities for reflection in order to fully understand the importance that environment has in the pedagogical work (Eggesbø 2012).

Day-care centres are extremely important in a child's life. Many children spend years filled with long days in these institutional early-childhood settings. It is, therefore, fundamental to question these environments and their ability to support children's well-being, and to support their development and learning. Moreover, children absorb experiences within these environments, and thus the environments are vital also for their later expectations and images of places in general (see Bachelard 1994).

2 ABOUT THE RESEARCH

The intention of this research is to interpret the visual quality and the number and type of potential affordances in centre-based early childhood environments. The context in which these interpretations are made is Finnish ECEC, the focus being on children aged under three years. The research data are visual, as they take the form of digital photographs with no people present. This data is supported by some basic information concerning the centres and natural data gathered while photographing day-care centres for the research.

2.1 Environment in the present study

The specific targets of the present study are the environments of children under three years in seven Finnish day-care centres. The focus is on the indoor and outdoor spaces of the centres. Due to feasibility, the larger environment of the surrounding community and the nearby natural environments are excluded from this research, even though they form a significant part of the Finnish day-care centres' outdoor environment.

According to Kyttä (2003), whose frame of reference in the study of environments is in environmental psychology, the role of children's physical environment has not been at the core of explorative studies looking at child–environmental relationships. Environment has remained in the background as part of the social and cultural context, and has been thought of as unrelated to the child's activities and experiences. In educational research the physical environment has received a lot of attention, especially in the discourse around the *learning environment*. The impact of the environment on pedagogy has been largely recognised in research (e.g. Harms, Cryer & Clifford 2006; Maxwell 2007) and in pedagogical orientations, such as the Montessori approach (e.g. Montessori 1988) or especially in the Reggio Emilian approach (Rinaldi 2006). However, the focus in many of these has been the learning of children, which has resulted in a rather mechanical process of designing environments. An example of such design is the ITERS-R / ECERS-R (Harms, Cryer & Clifford 2006) assessment

tool, which pays attention to the quality of the physical environment, e.g. organising space or material for certain types of activities. Often these approaches ignore the associational and affective elements in the environments, or the interaction between the child and the environment. As Langston and Abbott (2005) argued, the ethos and the environment do not intertwine. Hence, Kyttä's (2003) discoveries about the environment's role seem to apply to other fields of research as well.

In the present study the term environment means the *visually assessable material environment* in ECEC centres. Environment is observed from a transactional perspective that notices the interaction between children and their physical/material environments. The physical elements are observed while taking into consideration also the psychological and socio-cultural contexts of the person and of the environment. The interest in the present research is both on the cognitive and the affective components of environments. This means that the environment needs to give a child some knowledge of what a flower is, but at the same time the child should experience the flower with all her/his senses, and gain both affective and bodily experiences of it. Although environment is observed from the transactional perspective, focusing on the observable material environment puts the emphasis on the importance of the *visual* features in the environment. This is an important perspective not much discussed in earlier research literature.

2.2 Affordance and visual quality as the core theoretical concepts of the research

This research is about environment and children, which makes the question of conceptualising the relationship between environment and the person important. *Affordance*, as the most important theoretical concept in this research, arises at the intersection of the perceiver and the environment (Gibson 1986; Heft 2001). Affordance also has a strong social and cultural connection (e.g. Hodges & Baron 1992), which is an important aspect in the present study. The main interest in this research is based on the environment's functional aspects related to children's behaviour, well-being, learning and development. The functional elements are tied to the environmental context and to the processes of perception and mobility (Gibson 1986; Kyttä 2004), which are the core concepts of the affordance theory.

The main focus in the research relating to affordances is on their *potentials*. This choice helped to limit the research perspective. Moreover, because the nature of affordances is subjective, the choice of data in the research also focused the analysis on the potential level. The reason for this is explained in the following paragraphs.

Affordances are specified as relative to an individual perceiver (Gibson 1986). They are *invariants* in the environment, and thus independent of the perceiver. How-

ever, perceiving and actualising affordances is tied to the individual perceiver's actions, and as such, affordances are always relational properties (Heft 2001). From the point of view of the current study it means that I, as a researcher, can define affordances only from my own perspective. Thus, a feature in the environment may provide certain affordances for me but not necessarily for someone else. And vice-versa, I would not necessarily see potential affordances where someone else would. The perceived properties in the environment depend on many factors, such as the size, the earlier experiences or the intention of the perceiver, which makes an objective definition of affordances difficult. This subjective nature of affordances leads to some questions in the present study. If the definition of affordances is always subjective, how can I find affordances meaningful for children? Doesn't the analysis only reveal those affordances that are meaningful for me?

The answer lies within the fact that affordances have also social and cultural dimensions. All observers are surrounded by the same environment (Gibson 1986). The meanings of affordances are not only subjective but can also be tied to the cultural use of things. Thus, to discover affordances children may need other children and adults (Kyttä 2003, 78). One can to a certain extent perceive affordances that are available for another person, as well as perceive which of her/his own affordances are available for the other (Kyttä 2003, 64). This means that through their own perception of affordances, adults can actively guide children's perception and actualisation of affordances. By having knowledge of children and the setting they work in, adults can increase the number of potential affordances in the environment, since the closer the designers of the environment (in this case the adults working in ECEC centres) are to the user's daily routines, the better they can create and design potential affordances for them (Kyttä 2003, 106). Moreover, as Kyttä (2003, 99) reflected, children's environmental preferences have remained rather consistent over the decades. Especially children's corporality and physical actions have not changed. All this helps adults in their task of developing affordances for children.

Accordingly, having both theoretical and contextual expertise in ECEC and children it was possible for me as a researcher to observe what kind of potential affordances the day-care centres have. Moreover, being an outsider without having to pay attention to the daily routines or other disturbing elements also enabled an accurate and a more critical observation to inform the research.

Defining potential affordances in an environment is always more or less hypothetical, since the number of affordances is limitless. This means that children can find potential affordances in aspects unimaginable for an adult (Heft 1989). The solution to observe potential affordances in the research day-care centres was to create a model that helps to focus on a limited selection of potential affordances. The present study is conducted in the Finnish ECEC context in which a key element in the definition of content is the *National Curriculum Guidelines on ECEC in Finland*, abbre-

viated as "VASU" (STAKES 2005). In accordance with the knowledge of researchers who have paid attention to the interconnection between pedagogy and environment (e.g. Harms et al. 2006; Langston & Abbott 2005; Rinaldi 2006), the VASU framework should be visible in the environment. Although it is important to imagine what kinds of potential affordances children would see in the environments, I also needed a feasible and assessable taxonomy to restrict my own observation of the affordances. The key to the created VASU-model was to provide a way to focus my own observation of potential affordances in the research environments. Potentially the model can later provide a means for those working with children to observe and to understand the ECEC environments they share with children. It is important to understand that the number of potential affordances in an environment cannot be restricted. However, the perspectives of observation can be restricted, as has been done in the present research.

In addition to looking for potential affordances, the research pays attention to the importance of the environment in centre-based ECEC of young children in general. Besides the number and quality of potential affordances, the *visual quality* of the environments is the other important theoretical element in the research. Visual quality emphasises the different meanings of the environment, and as such connects the research interest into a larger context of evaluating environments from the point of view of children's overall well-being, both on the physical and on the psychosocial level. Although the term is visual quality, the theoretical concept is about more than just something to be seen. It has a strong associational element that is connected to a person's previous experiences (Lang 1988).

A central concept in the visual quality of environments is *cue* (Rapoport 1982). Cues help in interpreting environments by breaking the visual elements into assessable components. In the present study, cues are the qualities in the environment supporting affordances. Thus, cue is the concept that forms a concrete link between the two theoretical approaches – affordance and visual quality – in the research.

Visual quality is strongly concerned with *affections*. In the present study affect is seen as a component of environmental meaning, mainly as defined in environmental psychology. Russel (1988) used the concept affective appraisal to describe the individual's psychological reactions towards places. However, affect is also seen as a concept with no stable definition, as seen for instance by Thrift (2008), whose research stems from human geography and social sciences. Although affect is often associated with emotion and feeling, Thrift dismissed approaches defining affect as individualised emotions. Instead he saw affect "*[...] as means of thinking and as thought in action*" (Thrift 2008, 175). His ideas are based on non-representational theory that sees the world as jam-packed with entities (Thrift 2008, 17). He used the terms "inhuman" or "transhuman" to describe the ways individuals are effects of events in which they participate. Like affordance theorists, Thrift saw the human body as a tool-being.

> I do not want to count the body as separate from the thing world. Indeed, I think it could be argued that the human body is what it is because of its unparalleled ability to co-evolve with things, taking them in and adding them to different parts of the biological body to produce something which, if we could but see it, would resemble a constantly evolving distribution of different hybrids with different reaches. (Thrift 2008, 10.)

An orthodox interpretation of affect is not necessary in the present study. Affect, whether seen as individual reactions as emotions, or as mere contextual features coming from somewhere outside the body, and which cannot always be named, are important in the interpretation of the environments' visual quality. As Thrift (2008, 172) argued, for instance identity and belonging quiver with affective energy. Although it is not always possible to interpret affects, it is important to understand that they are meaningful in the definition of environmental preferences.

2.3 The research tasks and the research questions

The research task is twofold, with the first part corresponding to the content and the second part to the methodology of the research. Thus, the first task was to interpret the visual environment of ECEC centres, especially from the point of view of visual quality and affordances. The second task of the research was to create a model for managing and interpreting the vast amount of information provided by the photographic data, and to connect it to the perspectives of the Finnish ECEC content as defined by the National Curriculum Guidelines on ECEC (STAKES 2005).

There were four main research questions to answer.

1) What kind of visual quality in the day-care centres is revealed in the photographs? What kind of meanings can be interpreted?

2) In the light of VASU what kind of potential affordances do the day-care centres provide for children under the age of three years?

3) What kind of cues in the day-care centre environments emerged in the process of creating the VASU-model?

4) In which ways do the environments reflect the ethos defined in VASU?

2.4 The structure and the components of the research

Figure 1 illustrates the interrelated nature of the different components in the research. It especially presents how the two important theoretical aspects, i.e. affordance and cue, are glued together by the other components.

The central binding term of the research is *visual perception*. Although the definitive term is visual, it is important to understand that it does not only refer to something to be seen. People see visual cues around them that cause non-visual inferences. The visual image an observer gets is connected to meanings that may take a denotative or connotative form (Nasar 2000). The visual quality one observes is never free of affective elements. Instead, everything we observe is connected to our thoughts and experiences, and the meanings we produce personally.

Thus, visual perception is closely connected to *meaning*, which is central both in the *theory of affordances* (Gibson 1986; Heft 1989), and in the evaluation of *visual quality* (Nasar 2000; Rapoport 1982). Meaning is also vital in the hermeneutic perspective selected for the methodology, both in the *data* collection and in the interpretation of the photographs. The meaning I see relevant as a researcher has been formulated against my own *context*, background and experiences. Likewise, the context of the centres in the research is fundamental both in the data collection and in the interpretation.

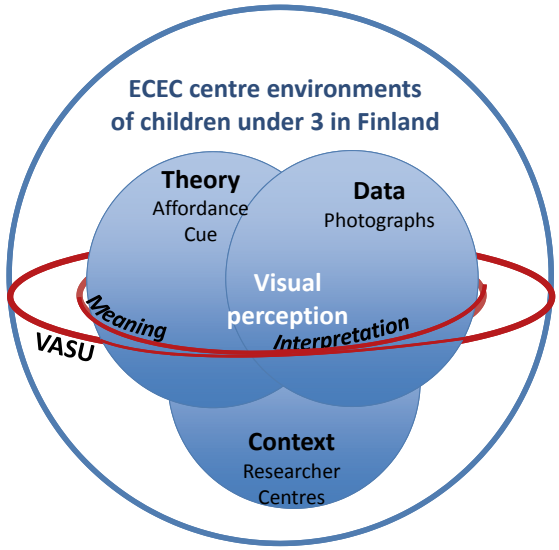


FIGURE 1 The interrelated nature of the research components

Meaning is an important part of the *interpretation*. I do not try to provide any objective or truthful accounts of the environments' situation. Instead, I want to present my subjective experiences and understanding of reality. Both affordances and how a person analyses visual quality are related to values and meanings and, hence, they are subjective (Gibson 1986; Rapoport 1982; Razvi 2006). The subjective nature of interpretation is fundamental in this research. The VASU framework formulated the basis for the model used in the interpretation of the environments. The model comprises three levels: categories (based on VASU) as the unifying components; affordances; and cues supporting the affordances as the most concrete elements.

Having still photographs of the visual environments as data in the research was an important methodological choice. Since I wanted to focus on potential and not on actualised affordances, rather than for example observing children's activities and behaviour in the centres or interviewing the staff, I decided to rely solely on "empty" photographs. Looking at the visual environments without people enabled a more neutral observation and also comparison between the different centres. It also helped to find regularities (see Seppänen 2005) and allowed an observation of the cumulation of cues in and between the different centres. This brought the *meaning and value of the visual* in the environments to the forefront (see Nasar 2000). However, by looking at empty photographs one can also make interpretations of what happens in the environments. According to Kyttä (2003) an important question is "*To what extent do the physical qualities of places give either subtle or direct hints about the promoted use of them*" (Kyttä 2003, 107). Discussing this question was an important part of the interpretation.

Chapter 3 goes rather deep into the definitions concerning *centre-based ECEC of children aged less than three years,* and to children's needs in that context. Chapter 4 opens the ECEC environments and provides a typology of Finnish day-care centres. All this is relevant to understand the challenges of developing and also of interpreting the ECEC environments of children younger than three years.

2.5 On a hermeneutic circle

From early on, one of my main interests in the early childhood environments has been in their visual and aesthetic aspects. Starting from my first experiences of day-care centres I started to ask questions. What do these environments look like? Why do they look like they do? What are these places for? How do children see and feel these environments? Are these environments motivating and encouraging for children? Why are my own affective appraisals (Russell 1988) of these environments so strong? In the course of these thoughts I realised that my understanding of the visual environments was deficient. What I saw and knew created demands for knowing and understanding more and being able to see more clearly. According to Tuan (1977), the way people

feel about space and place is tied to the different modes of experience (senso-motor, tactile, visual, and conceptual). Unfortunately, the interpretation of space and place is often left to images of ambivalent and complex feelings. This is exactly how I felt, and these somehow very diffuse feelings and impressions guided my thinking towards issues beyond pedagogy, into physical environment, or learning environment, as seen in the traditional sense.

I chose a qualitative orientation to find out more about the ECEC centre environments. To understand environment, interpretation is needed to unravel the ambivalent complex feelings. According to Kinsella (2006), the nature of qualitative research can be found in hermeneutic interpretation. Hermeneutics is always about interpretation, the relevance being in the researcher's own understanding (Forster 2008). Knowledge and experiences reveal the world and its phenomena to us differently, and are thus important in the hermeneutic process.

Hermeneutic inquiry is about understanding – understanding that also brings our presuppositions into visibility (Jardine 1992). In this process the full multifaceted picture is in dialogue with its details, because both single elements and larger entities are needed in the interpretation. Interpretation proceeds on a hermeneutic circle, which, according to Gadamer (1996), is not a closed circle but a spirally proceeding ontological description of interpretation. This hermeneutic circle has no end, nor a proper beginning. Therefore, the more I explored children's environments, and the more I understood, the more I had questions. Moreover, the aim in studying the environments was not to provide a right answer or a model for a good environment, but to offer one perspective to continue the discussion (see Koro-Ljungberg 2005).

To understand more about the feelings I had in the settings, I needed details on which to focus, i.e. something definable. This led me to the definition of *cues* to help in the interpretation. And, my interest having been in the visual and observable, I chose photographs as research data. Although observing environments is possible through a variety of methods, to have visual data was important. Photographs worked like containers in the research, holding the visual images and the affective experiences of the observed day-care centres.

The definition and formulation of the VASU-model and the interpretation of data in this research formed a hermeneutic process. In the hermeneutic research tradition the pre-understanding, empirical data and theory are in constant dialogue (see Annells 1996). Pre-understanding is the meanings and organisation of the culture we are in without even noticing it, and thus has become part of us (Laverty 2003). According to McManus Holroyd (2007) there can never be a presupposition-less stance in interpretation. One of the ideas in hermeneutics is to understand more than the most obvious, to see behind the scene. In this research it meant interpretation on many levels: first I had to know what to look for and what to photograph, and then I had to understand what elements in the images are important to look for, and how to formu-

late a feasible and concrete enough model for defining the assessable elements to help in the interpretation. Finally, in accordance with my pre-understanding and theoretical knowledge, I had to present my interpretations of the different meanings in the images.

Hermeneutic process is intentional, the intentionality starting already before the actual interpretation (Patterson & Williams 2002). The intentionality of this research process started with the planning of photographic sessions, where my pre-understanding played a major role. That was also leading the interpretation process. Through my knowledge and understanding of ECEC centres as a context for each of the photographs that formed the research data, I discovered the cues, i.e. the cues supporting the affordances used in the VASU-model to aid the interpretation. During the procedure, a number of changes were made in the VASU-model in the definition of categories, affordances, and the cues supporting the affordances. At the same time also my understanding of the model itself and of its use changed. The final VASU-model was formed at the end of the interpretation process. To illustrate the process of forming the model, some of the changes made will be explained during the description of the model and during the interpretation process.

Both single elements and larger entities were needed in the interpretation. This perspective applies both to the interpretation of the research data, the photographs, and to the interpretation of the actual environments. I used ideas of analysis adapted from Collier (2001) and Collier & Collier (1986), where the process of interpreting images moves back and forth between holistic viewing of the photographs and structured, detailed examination of particular images. The results of this interpretation are described in two different chapters, with Chapter 13 tackling the details by opening the cues visible in the photographs, and Chapter 14 depicting the environments from a more holistic perspective, taking into account both the potential affordances and the other aspects of visual quality.

2.6 The researcher's context

My researcher context in the present study is that of a long-term early childhood education developer, pedagogue, policy maker, mother and grandmother. I began my career in the Finnish ECEC during the early 1980s as a day-care centre assistant. My first day-care centre was a 24/7 centre for children whose parents worked in shifts. The orientation in this centre was very much the care of children in a very relaxed and cosy atmosphere. In addition to that, the idea of kindergarten pedagogy was very strong in the centre, partly due to good professional resources. This experience encouraged me to think of early childhood education as a career, and I completed my kindergarten teacher studies in 1988.

During the period 1993–1995 I lived in England. I had a good opportunity to see activities organised for children in a variety of environments in playgroups,[2] in Montessori pre-primary schools, and in primary education. The way of organising the environment in each of these settings was rather different from what I had been used to in Finland. Playgroups were often organised in community halls or in church halls, which posed many challenges with the activities and the arrangement of space. It was difficult to build continuity, for instance in children's play, when everything had to be cleared away after the session. On the other hand, these large halls provided flexibility when needed. While in England I also completed a Montessori Diploma at the London Montessori Centre to work in a pre-primary context. These studies especially opened my eyes to the importance of environment in building meaningful experiences for children. I understood the important roles of exploration, manipulation of materials and objects, and independent mobility in children's learning.

Perhaps one of the most striking differences between children's environments in Finland and in England at that time was that the typical Finnish care aspect seemed to be lacking in England. English environments were built for activities for some hours per day, while in Finland environments for the youngest children were basically for day-care, mainly on a whole day basis. Likewise, a common feature in the English environments was that children's activities were guided by arranged corners, and much time was allocated to adult-organised activities, games and pedagogical play, like building blocks. The typical Finnish free play e.g. in home corners or outdoors was missing. In these various settings in the two countries I saw that the organisation of space had an effect on activities, and vice versa, the diverse pedagogical ideas resulted in different practices.

The experiences in England gave an inspiration to continue my early childhood studies, and I completed my Master's degree in early education in 1997 at the University of Oulu. A slight disappointment was that the role of environment was an almost entirely missing topic in the studies. However, I did my Master's thesis in a day-care centre with a Reggio Emilian approach to pedagogy, which again brought into focus the importance of the visual environment in children's opportunities for exploration and participation.

To conclude, I have over 25 years of experience in the field of early childhood education and child and family services, of which the last 15 years has been in different research and development positions at a central governmental level, with 10 years of practical working experience in various children's day-care centres. I have also worked in a number of international ECEC projects especially in Europe and in the context of the OECD countries.

2 Playgroups are usually organised in communities to provide a place for group activities for children before they start school. They usually operate 2–3 hours at a time. Children attend one or more times a week.

These experiences have increased my knowledge and understanding of early childhood services and the pedagogical contexts. Working in 20 different Finnish centres and visiting centres as a mother and grandmother have intensified my understanding of what happens at the practical level. Moreover, the numerous visits to ECEC centres around the world have opened my eyes not only to observe environments, but to interpret them, their meaning, and most of all, their importance to pedagogy and to children's well-being. These experiences work as a reflection tool to understand and to interpret the data of the present study.

Enlightening the context

3 THE POSITION OF CHILDREN AGED UNDER THREE YEARS IN ECEC

Building goal-oriented pedagogy for children aged under three years within the ECEC services by making use of children's initiatives seems a challenging task worldwide (e.g. Laere, Peeters & Vanderbroeck 2012). Also, looking carefully at the various ECEC systems, and the position of the under 3-year-olds in them, yields an image of fragmentation (e.g. OECD 2012; 2006; 2001).

3.1 Split and integrated ECEC systems

Roughly all ECEC systems can be placed either in a split or in an integrated framework (Bennett 2004; OECD 2006; 2001). The watershed seems to be around the age of three years. In most countries the main target group of regulated and publicly subsidised early childhood services is children over three years (OECD 2006, UNICEF 2008). Among the European countries, Estonia and Hungary have an entitlement for children less than three years but insufficient supply nullifies the legal right (Moss 2012). Figure 2 illustrates the basic elements and differences in the split and in the integrated ECEC systems.

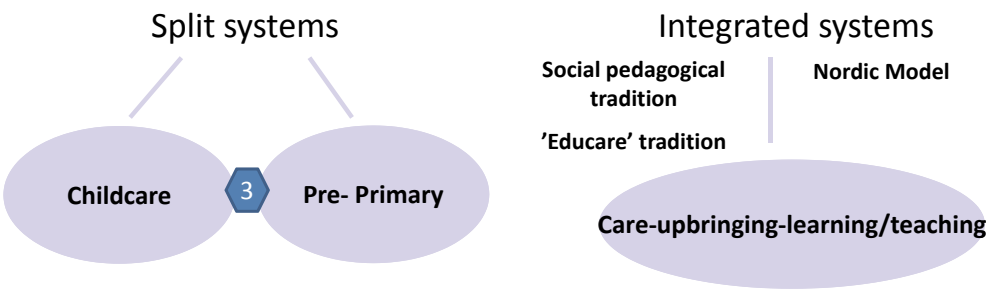


FIGURE 2 Different ECEC systems

Split systems

Childcare and early education (pre-primary education) in many countries form separate provisions. In most countries with the split system it means a division between childcare and education, most commonly at the age of three years. This division occurs in auspices, curriculum and content, and quality - mainly staff qualification, adult-to-child ratio, resources, and accessibility and availability of the services. Services for children younger than three years focus on providing childcare. This means, for instance, that there is no clear education policy for children between zero and three years. (OECD 2006; Garriga 2000.)

Childcare usually refers to a variety of services that enable parents' labour participation. A majority of childcare services for children in the countries with split provision are taken care of by informal, usually family-based services. The OECD reviews (2006; 2001) revealed that in most countries with a split system, the staff in the licensed centre-based provision for children under three years are less educated than staff for children older than three years, the former having usually a caring or health profile. Some of these countries do not have any training requirements. (See also Laere, Peeters & Vanderbroeck 2012; Lindberg 2007; Oberhuemer, Shreyer & Neuman 2010.) Basically, early childhood education and care systems tend to be rather fragmented in countries that do not see care as a public responsibility (Bennett 2004; Day-care Trust 2005; OECD 2006; 2001; UNICEF 2008).

Countries that have a split system generally acknowledge governmental responsibility for pre-primary education, usually from the age of three or four years, but not for younger children. These services work under the education ministries and are often free for parents. The members of staff are usually trained teachers, either primary school teachers or specialised in early childhood education. These services often lack care staff. (OECD 2006; 2001.) An important target for these services is to prepare children for school (Laere, Peeters & Vanderbroeck 2012). The focus is on learning and skill acquisition, and the content is often regulated by a rather well-specified curriculum that sets clear goals for child outcomes. This is the case especially in the UK, USA, Australia, Canada (except Quebec), Ireland, France, Belgium (OECD 2006; 2001), and many of the newer European Union countries (Lindberg 2007).

Integrated systems

In Europe only five countries have an entitlement to ECEC services for the whole age group from zero[1] to school age. These are the four Nordic countries (Denmark, Fin-

1 The age when the entitlement starts varies between countries, but basically there is no gap between the end of parental leave and the start of the entitlement (Moss 2012). In Finland the unconditional right to day-care starts after the parental leave period (Act 1973/36, §11a). At that time the child is at youngest about 10 months old.

land, Norway and Sweden) and Slovenia (Moss 2012; see also Hiilamo 2008; Skolverket 2009). These countries also provide an integrated system, in which care and education are brought together in a holistic way. The provision covers both the day-care arrangements offered to families and the goal-oriented early childhood education open to children. Basically this means that the services are either on a full-time or part-time basis, according to the need of parents and children.

In these systems the regulation of the content and of the quality of services is the same for all children under school age. The Norwegian Framework Plan for the Content and Tasks of Kindergartens (Ministry of Education and Research 2006) provides guidelines on the values, content and tasks of kindergartens, which are for children from zero to five years. Usually common regulation means that the whole provision is administered under one ministry and that there are curriculum guidelines that cover all children under school age (e.g. Skolverket 2010). In the curricula the goals are set for the educators, the teams, and for the environment, not for the child's learning or development (Skolverket 2010; STAKES 2005). The adult-to-child ratios are low, around 1:5.4 in Sweden,[2] or from 1:4–1:7 in Finland depending on the age of the children (OECD 2006). The structure of staff working with children under and over three years is the same.

3.2 Day-care and education of children under three

The division between day-care and education is a noteworthy issue especially in the split systems but also in ECEC of children under three years by and large. The meaning of and need for services for children under three years seems to be that of day-care, while pedagogy or the learning context of the youngest children has not been much discussed (OECD 2006). Although it is largely accepted that the first years in a child's life are developmentally the most important, the child's educational needs have not been recognised in the different services. In many countries an attempt to start the discussion about the services for under three's has been drowned under the argumentation of the child's right to be with her mother or parents (e.g. OECD 2009), often backed up by child psychologists and child's rights activists (UNICEF 2008).

Even in the integrated systems that provide ECEC for all children under school age it seems that there are different opinions about the needs of the youngest children. For instance in Finland, where the unconditional right to day-care services starts after the parental leave period, the public discussion still partly circulates around the question whether children under three should stay home with their mother or another primary caregiver. There are concerns of the possible negative effects of day-care for

2 Sweden has no regulation for an adult-to-child ratio, so this is an estimation provided for the OECD review, whereas in Finland the ratio is norm-based.

children under three (see e.g. Keltikangas-Järvinen 2012; Rusanen 2011). The same discussion takes place in Norway (Haavind 2011), although all children have the right to a day-care place. On the other hand, the concern about the potential risks of day-care for the youngest children has also inspired the development of models that take into account the vulnerable situation of children when entering day-care (e.g. Ebbeck & Yim 2009; Page & Elfer 2013; Tuliharju 2004).

One of the incentives for the discussion concerning home care vs. day-care in Finland is the right for a home care leave and the attached allowance for families with children under three.[3] Families have defended this right passionately, and a large number of families (mothers basically) use this opportunity at least for part of the period before their youngest child turns three years (Hiilamo 2008). Nordic research has provided insight into this issue. It seems that the question of home versus day-care is political and from children's and families perspectives problematic and to some extent discriminating (Ellingsæter 2012; Haavind 2011; Sipilä, Rantalaiho, Repo & Rissanen 2012; see also OECD 2006). In Finland, home care allowance is not only for the benefit of families, but is a strongly political and economic measure. Since providing child day-care places is expensive for the municipalities, many of them control the use of services and provide incentives for parents' to stay home with their children by offering municipal supplements to the allowance. Hence, many municipalities do not take ECEC as an investment and as a child's right but as a legal obligation causing additional costs for taxpayers (Sipilä & Österbacka 2013).

Instead of continuing the debate on whether home care or day-care is more suitable for the youngest children, one should question what kinds of services, and what kind of content and quality do children under three years need (see Alila 2013). One should consider the different factors defining the services, such as quality, timing, and quantity of care, and the different family, community, societal, and cultural contexts (Belsky 2009). Extensive research has shown that instead of concentrating on the child's *age*, attention should be paid to the quality of services. For instance, the EPPE study (Sylva, Melhuish, Sammons, Siraj-Blathchford & Taggart 2004) revealed that even the youngest children had better long-term outcomes in centres that had a well-balanced curriculum, that integrated care and education, that had highly educated staff, a social mix of children, and where work was based around small groups. Bennett (2004) argued that by providing appropriate pedagogical activities for the youngest children, it is possible to broaden the traditional health care approach into a holistic approach with comprehensive goals.

One of the proposed disadvantages in the discussion concerning the education of the youngest children is the risk of "schoolifying" them too young (see e.g. Korkeamäki 1996). In countries with split orientation, pedagogy in pre-primary services

3 Parents' can apply for a child home care allowance before the youngest child in the family turns three if the child is not in municipal day-care.

for children over three is often rather "school oriented". The content focuses on learning standards, especially in areas useful for school readiness. Child outcomes in numeracy and literacy are important. (Bennett 2004; Walsh & Gardner 2005.) Instead of seeing *caring and learning* as different sides of one integrated perspective, they are separated. This kind of pedagogy has not been considered suitable for children under three, and thus, the critique seems logical. However, when pedagogy is seen from a holistic perspective aiming at the overall well-being and development of children, it can be seen as well-suited also for the youngest children, as is the case in the Nordic countries. Dahlberg and Moss (2005) have defined holistic pedagogy in the Swedish context, but the definition is applicable to a larger Nordic context (see also Jensen, Broström & Hansen 2010).

> [Pedagogy] combines a particular concept of learning (foregrounding relations, dialogue and construction of meaning rather than the transmission of predetermined knowledge) with a broad idea of care that goes well beyond physical caretaking to a concern for and engagement with all aspects of life (social, physical, aesthetic, ethical, cultural, etc.) (Dahlberg & Moss 2005, 33).

In the Nordic integrated pedagogy, the dichotomic approach to care and education is integrated into a whole, and the term *ethics of care* is introduced (Broström 2003; Dahlberg & Moss 2006). In the ethics of care, one of the central elements in children's well-being is related to the intertwining perspectives of care and education. When care is seen as an ethic, it becomes a choice. "*It is a dimension which is absent or present to a greater or lesser extent*" (Dahlberg & Moss 2005, 91). In the traditional dualistic definition, care has been associated with childcare, i.e. a secure place for children when parents work. Another dimension concerning care has been associated with a "nostalgic" longing of care as a cosy place like home with an ever-present mother (Dahlberg & Moss 2005; see also Penn 2005). According to Dahlberg and Moss, these definitions do not help in conceptualising the relationship between care and education. It is usually acceptable that childcare settings should be educational, but should educational settings be caring? "*If care and education are inseparable for young children, why not older children too?*" (Dahlberg & Moss 2005, 91). In fact, the approach Dahlberg & Moss talked about widens the perspective concerning children under three, and helps to beget a fuller definition for the pedagogical discussion. Considering this, neither a goal-oriented skill-based learning perspective nor the idea of a substitute home are sufficient perspectives to design environments for children under three.

3.3 Research on children under three years in ECEC

Research on ECEC for children from zero to three years is still in its early stages. The interests and needs for research are wide, including policy and economic aspects, the importance of quality as a contribution to lifelong learning, the social and economic aspects in families, and children's participation. Knowledge is especially needed on the nature of experiences children have in ECEC, the features of well-working programs, and long-term outcomes for those children who have had extensive experience in ECEC since very young. (Berthelsen 2010.)

There is a growing interest in cost-benefit analyses of ECEC for the youngest children. Investing early, provided that services are of high quality, seems to be beneficial especially for children from disadvantaged backgrounds. Contrary to the common starting age of three years in the majority of the early childhood programmes, studies have bolstered the argument that an even earlier start would be more beneficial (e.g. Doyle, Harmon, Heckman & Tremblay 2009). A significant share of the research concerning children younger than three years has been about the long-term effects of non-maternal care (see Owen 2011). In the European context the largest and best known is the EPPE[4] study (Sylva, Melhuish, Sammons, Siraj-Blatchford & Taggart 2004). Interest in longitudinal studies on the effects of ECEC has been raised also in the Nordic countries. The Swedish National Institute of Public Health (2009) made a systematic literature review on the effects of high quality day-care on children's cognitive and socio-emotional development. However, only studies reported in English were accepted to the database. Four studies fulfilled the final criteria of the review, as one of them, the above-mentioned EPPE-study, along with the NICHD[5]-study, and the Broberg and Wessels studies that were conducted in the 1980s. For instance, a longitudinal study concerning the Swedish children's early start in day-care by Andersson (1989) was excluded mainly due to methodological concerns. According to this literature review, children's cognitive and language development improve in centre-based care with the amount of time in such care, but the effect of day-care on children's socio-emotional development is not interpretable in the review.

Much of the research has focused on the support children need in their transition from home to day-care (Ebbeck & Yim 2009; Elfer 2012; Page & Elfer 2013; see also some of the NICHD studies) and on the emotional aspects of care and the well-being of children (Estola, Farquhar & Puroila 2013; Kalliala 2011; Puroila, Estola & Syrjälä 2012; Roberts 2011). However, recent studies have also shown interest in devel-

4 Effective Provision of Pre-School Education: A longitudinal study in 1997–2004, see http://www.education.gov.uk

5 NICHD Study of Early Child Care and Youth Development (SECCYD), see http://www.nichd.nih.gov/research/supported/Pages/seccyd.aspx

oping general guidelines (e.g. curricula) and pedagogy for children aged under three years (e.g. Pirard 2011). Although the study of Kalliala (2011; 2008) focused on children's well-being, it also provided valuable information about children's opportunities for play and about material environments. Play, care and learning have also been the focus of a number of Norwegian studies (see Greve & Solheim 2010). Especially some Swedish studies have focused on children's learning and the pedagogical perspectives of settings, as well as the daily life of children (e.g. Sheridan 2009; Alvestad 2009). There has also been interest in adult–child interactions, children's peer interactions, and the formulation of peer-cultures in ECEC (e.g. Pramling-Samuelsson & Sheridan 2003; Shin 2010). In her doctoral dissertation, Emilson (2008) described three studies related to power relations in adult–child interaction.

The European Early Childhood Education Research Journal (Vol 19, No 2 in June 2011) dedicated a special issue a "Monograph on Birth to 3" with research findings from seven countries. These studies include a range of topics, the most interesting ones from the point of view of the present study being those focusing on the child's views, on children's well-being, and on children's activities and behaviour in ECEC centres (Kalliala 2011; Pirard 2011; Trewarthen 2011).

The presented review is brief, but roughly shows the emphasis concerning the research literature of young children's ECEC. Although a thorough systematic literature view would be needed in order to reveal all the current research interests, this summary identifies the lack of studies concerning the visual environments of children under three. Studies concerning the ECEC centre environments will be discussed in Chapter 4.

3.4 Defining the paradigm

With this research I want to turn the presented debate about our youngest children's needs in a new direction: towards the importance of developing the environment for children under three years as part of developing content and pedagogy. Environment will be presented as a broad concept with relevance to the child's overall well-being and hence extending the traditional learning environment perspective to cover all the functional and aesthetic factors in ECEC centres. Understanding what young children need, and what motivates them, is relevant when designing spaces for and with children. It is crucially important to expand the concept of ECEC environment into a definition that takes into account the child as a psycho-physic whole, and as a full participant in the communities. Hence, the present study is not interested in why children are in the day-care centres. Instead, it emphasises that the service offered to families, and the experiences children have in the centres daily are of importance.

Whether children are seen as participants in their communities is connected to the values and meaning of childhood in general. The key question is whether childhood is an era with importance as such, or if it should only be seen as preparation for adulthood and future participation (e.g. Mayall 2002; Penn 2005; Bardy 1996). The same question can be rephrased: are children seen as beings or as becomings. Especially the sociology of children is interested in the present tense of childhood (e.g. Mayall 2002; Qvortrup 2009). Bardy (2009, 29) argued, "*talking about children as future adults is old fashioned, and has been strongly criticised in the so-called new childhood study that emphasises children's active agency*". [Translated from Finnish by the Author.]

The perspective of childhood sociology confronts the future-oriented perspectives of developmental psychology, which Dahlberg and Moss (2005) very critically called the dominant discourses that are looking for the best practice. In the dominant perspectives of the Western ECEC tradition, especially children under three years are often seen as developmentally incapable. Instead of highlighting the competencies children have, they are seen as vulnerable, some kind of "*half people*" (Alderson 2005, 131; see also Dahlberg, Moss & Pence 2013). Soto and Swadener (2002) argued that most of the published research on early childhood education falls into the paradigm based on the domination of psychological and child development perspectives in the early childhood field.

Although children's needs and interests have been emphasised both in the paradigm of childhood sociology and in that of developmental psychology, the basic values behind them are different. In education the difference culminates into whether a *child* perspective or a *child's* perspective is emphasised. Emilson and Folkesson (2006) argued that the concepts of participation and child's perspective are interdependent. When the child's perspective is adopted, the child can actively contribute to the information concerning her/himself, the situations she/he is involved in, and her/his interests and opinions, whereas in the child perspective the adults alone decide what is best for children (see also Puroila et al. 2012). Basically, then the activities are focused on the improvement of child outcomes, not meaningful context-bound activities. Theories stressing the child's perspective are based on the principles of communicative philosophy, according to which different participants can act equally both as learners and as teachers.

Kalliala (2008) criticised the "new" view of the child as competent.

> How is a child competent? How is competency dependent on age? Is it no more the adult's task to transform knowledge, skills, cultural capital, and manners to the next generation? What about moral education? Is it really the child's task to make her/ his ethical choices without adult guidance. (Kalliala 2008, 15–16.) [Translated from Finnish by the Author.]

According to Kalliala (2008) by expecting our children to be competent and also responsible for their own choices, we in fact deny their right to be children who must be able to rely on adult care and responsibility. Kalliala claimed that by declaring children competent and rich we actually exclude children who are not competent. By respecting children as "beings" and not as "becomings", we negotiate with children about everything, and at the same time we have growing expectations of their competencies. This can lead to a situation where adults lose their power position to children. Children are expected to take too much responsibility, while adults become children's companions instead of responsible grown-ups.

Admittedly the postmodern perspective argued by Dahlberg, Moss and Pence (2013, 60) of children's responsibility for making difficult moral decisions draw the competency of children into an ideological and very abstract level. As Kalliala (2008) stated, this is probably the most extreme interpretation of children's competency. However, children's competency has been a perspective discussed on a much broader level, mostly related to children's rights perspective. It is, therefore, difficult to see how a needing vulnerable child could not be competent as well. The child's perspective, i.e. having competency, refers to an interest in children's subjective experiences (Johansson & Emilson 2010). Emphasising the competency of the child does not mean that he/she should be expected to take adult responsibilities, or could not be needy at the same time. Respecting children's competencies as rights bearing citizens never relinquishes or dismisses the adults' responsibility. Children are both vulnerable and competent. (Johansson & Emilson 2010; Woodhead 2005.)

Therefore, from a pedagogical point of view one of the central questions in this discussion is the role of the adult, because what adults do defines the frames and limits for children's participation (Pramling Samuelsson & Asplund Carlsson 2003). Good pedagogy and environment are all about our attitudes towards children, their needs, and their competencies. If we think children are able, we also trust them more, and not only allow them to explore and participate but encourage them to do so (Rinaldi 2006). This kind of pedagogy does not diminish the educator's professionalism. On the contrary, the educator must reflect on the content of education in order to strongly contribute to children's learning (Broström 2003; Johansson & Emilson 2010).

In the present study the guiding paradigm emphasises the child's perspective. This is, however seen from a value-based perspective as forming attitudes that respect children's views and recognising the different competencies people have. As Uprichard (2008) argued, interpretation of competency is not tied to a person's age. "*This interpretation of 'competency' is not only troublesome to children, who seemingly cannot be competent at anything, but it is also troublesome to adults who are seemingly competent at everything!*" (Uprichard 2008, 305).

Therefore, children are both beings and becomings. An important part of being a child is also looking forward to what the child becomes (Uprichard 2008). The same conclusion has been reached by Kalliala, who suggested combining the contrasting views of the child, and seeing the child as both competent and vulnerable instead of either–or (Kalliala 2011).

The theory of affordances provides a framework for looking at young children's environment from an empowering point of view that expresses trust in the child. In environmental design it means opportunities for independent mobility, a good number of potential affordances, and argued visual quality. An allowing attitude does not diminish the adults' responsibilities to provide a safe and appropriate environment. Instead, this kind of perspective emphasises the adult's role as a collaborative creator and moderator in the design of the environment. As is later discussed in more detail, the socio-cultural learning theories (e.g. Rogoff 2003) and the views that ecological psychology has about the environment and learning go hand in hand.

Environmental psychology provides a good view to the importance of places in learning. What places afford is not merely important for the child's motivation or interest here-and-now. Environment also has a fundamental value in children's long-term personal development (e.g. Fjørtoft 2001; Spencer & Blades 2006; Stephenson 2010). Environment is as crucial as the teacher/educator and the child in the pedagogical process (Brotherus, Hytönen & Krokfors 2002).

4 ECEC CENTRE ENVIRONMENTS

There have been many pedagogical trends acknowledging the importance of the physical space into children's behaviour, action, and learning, e.g. the High-Scope model, Montessori pedagogy, and Steiner pedagogy (Epstein, Schweinhart & McAdoo 1996; Montessori 1988; Ulrich 2000). Environment has been found to be a fundamental part of pedagogy – the third educator as stated in the Reggio Emilian approach (Rinaldi 2006). In Finland the most dominant approach to date has been the pedagogy based on children's play and work as developed by Friedrich Fröbel (1782–1852). By providing safe environments where children could play and learn through "Fröbel's gifts" (Berger 2000), Fröbel's Kindergarten could be called the "*invention of the century*" (Välimäki 1998, 79). In the Fröbel approach, materials and environment provide a framework for children's active learning through free play. The various gifts aid children in their self-directed activities (Berger 2000).

One of the most well-known pedagogical approaches emphasising the environment is the pedagogy of Maria Montessori (1870–1952). In the *Discovery of the Child* (Montessori 1988), Montessori gave a detailed description of the environment, the materials, and their use. More than in any other approach, the didactic materials placed in the environment in a precise way formed, and still do, the core of the whole pedagogy. The environment as such leads all activities carried out in a Montessori school. Objects are considered as the principal agents to help the child, not as an aid for teachers to give lessons. This is a feature that emphasises the child's active role in the environment. The use of all materials in a Montessori environment proceeds from concrete to abstract, gradually increasing in difficulty. According to Montessori, the development of a child is strongly dependant on environmental experiences, and on the child's possibilities to show initiative and to move independently (Montessori 1988). Since Montessori's emphasis was strongly on the physical/material features of the environment, as an approach it comes close to the target of the present study.

What has been meant by environment in the early childhood context is not unambiguous. In most of the pedagogical trends that have acknowledged the importance of environment, the starting point in environmental design has been children's learning and development, even so far as to say one could claim that this perspective has over-

Image 1

ruled all other elements in the design. Often ECEC environments reflect either a narrow health and safety agenda (usually environments for the youngest children) or a school-oriented agenda (Dudek 2005; Jilk 2005), and thus reproduce the split-age-related ECEC.

Although the meaning of environment is acknowledged in pedagogical trends, looking for the child's perspective in the design has been a rarity in the processes of creating spaces for children (Jilk 2005). Adults, architects and experts in education have interpreted what children need and like and what children's architecture should be like. In the worst cases this adult knowledge has resulted in very explicit childlike references, such as teddy bear door handles or over-elaborated decorations (Dudek 2005). Adult orientation of this kind can be seen in many countries. Often the childlike atmosphere has been achieved by putting pictures on the walls or by neatly placing toys as decorations (see Image 1 from a crèche outside Finland). According to Dudek (2005), these environments reflect the ideas of what adults think children like.

4.1 How have early childhood environments been assessed?

The most used and best known tools for assessing the quality of the environment in ECEC is the Early Childhood Environment Rating Scale (ECERS, 1980) for children from three years onwards, and the Infant/Toddler Environment Rating Scale (ITERS, 1990) for children under three years, by Harms, Cryer & Clifford. The revised versions were published in 2005 (ECERS-R) and 2006 (ITERS-R). The assessed subscales in ITERS-R are: space and furnishing, personal care routines, listening and talking, activities, interaction, program structure, and parents and staff. The assessment scale ranges between 1 (inadequate quality) and 7 (excellent quality), each level having a number of descriptive indicators to aid in the rating. However, due to being a quality assessment tool, its focus on assessing the physical environment as such is rather limited. The descriptions of "good" learning environments focus mainly on materials and equipment while paying some attention to what adults should do.

The idea in the ECERS and the ITERS is to provide a somewhat generic tool for environmental assessment. Walsh and Gardner (2005) wanted to eschew the top-down perspective of a generic model and developed a more contextualised and reflectional Quality Learning Instrument (QLI) for assessing children's early childhood environments. This model has six areas (motivation and concentration; independence; confidence and well-being; social interaction and respect; multiple skill acquisition; higher-order thinking skills) that manifest themselves in relation to the interactional triangle of children, adults, and their physical environment. Due to the model's reflectional nature, Walsh and Gardner recommend a more general use of the model across a variety of contexts.

According to Fjørtoft (2001), descriptions of physical environments have focused mainly on forms, which is especially the case in the ECERS/ITERS model. My study with its functional approach pays attention to interpreting children's relations to the assessed environments. The VASU-model provides information on the visible environment, i.e. its existing elements, here defined as cues. The deeper interpretation tries to identify how these cues affect children's relations to the studied environments. This perspective is closer to the QLI model in looking for contextual definitions than the ECERS/ITERS model. The VASU-model is by definition context-bound – tied to the studied day care centre environments and to the Finnish ECEC culture as defined in the curriculum guidelines.

4.2 Research on early childhood environments

Environment has more or less been one of the elements of educational research in the pedagogical discourse under the definition of *learning environment* (e.g. Brennan 2011; Horne-Martin 2002; Honebein, Duffy & Fishman 1993; Järvelä & Niemivirta 1997; Moore 2002; Walsh & Gardner 2005). Learning environment can be seen as a broad concept, including all spaces and places for learning. In the constructivist theories, learning environment is approached holistically. According to Kronqvist & Kumpulainen, "*Learning environment can be a place or a space, but it can also be a community, network, or activity that supports learning. Usually it means different physical, technical, social, cultural, cognitive, or affective environments for learning*" (Kronqvist & Kumpulainen 2011, 45). [Translated from Finnish by the Author.]

Significant amounts of research concerning ECEC learning environments has been carried out worldwide. Research has proved that the child's behaviour, development and learning can be affected by appropriate environmental planning (Evans 2006; Musatti & Mayer 2011). Although learning environment is basically a broad concept, often the role of the physical environment has been emphasised over other aspects, mostly to form a context for the adult-to-child relationship, peer-interaction, and activities (e.g. Harms, Cryer & Clifford 2006; Howes & Smith 1995; Jackman 2012; Melhuish 1993). There are a number of different handbooks for educators focusing on the improvement and the more effective use of children's learning environments (e.g. Curtis & Carter 2003; Wilson 2008). Many of the studies concern the assessment of environments by using the ECERS / ITERS models.

The assessment tools and the conducted research on early childhood environments have focused mostly on the centres' indoor environments. During recent years, in ECEC interest has grown in children's outdoor environments. This interest is focused both in the constructed playgrounds and in the surrounding natural environments (Fjørtoft 2001; Kernan 2010; Niklasson & Sandberg 2010; Moser & Martinsen 2010; Storli & Hagen 2010; Waller, Sandseter, Wyver, Ärlemalm-Hagsér & Maynard 2010; Waters & Maynard 2010). Especially the Nordic countries have been keen on this topic, but it has had relevance also elsewhere.

One of the characteristics in the Nordic ECEC culture is the large amount of time spent outdoors. In this respect the role of nature and the role of outdoor environments in general are characteristic. Mårtensson (2004) argued that children's outdoor time is as important as any other activity in the Swedish pre-school. Fjørtoft (2001) found in her Norwegian study that children's opportunities to utilise natural environments increased their opportunities for learning and development. Compared to traditional playgrounds the natural environments had more physical diversity, and hence especially children's balance and co-ordination abilities improved. **Fjørtoft** and Sageie (2000) pointed out the importance of versatile natural environments in children's

play. Woodlands and cliffs were used for climbing, slopes for sliding, and large areas for running. Waters and Maynard (2010) found in their study that the richness of a natural space raises children's interest in loose parts like mud, bugs, and "things" in particular. This result is supported by the study of Raittila (2008) as well as by that of Moser & Martinsen (2010), in which children kept finding interesting objects and material in the urban environment.

Niklasson & Sandberg (2010) studied children's affordances and the concepts private and public space in centres' outdoor environments of children three years onwards. Based on their results they suggested that children should be offered opportunities to build shelters as their private space. They argued that environments could be developed to let children experience and explore dirt, water, fire and wind in a more elaborate way. Moser & Martinsen (2010) argued that pedagogical quality can be improved by dedicating more time to outdoor play, and by developing the richness of the physical environment outdoors.

Many of the studies focusing on outdoor environments have been interested in the level of children's physical activity. Storli and Hagen (2010) studied this in traditional playgrounds and in nature environments. They found that children's physically active behaviour on an individual basis was similar from day to day, independent of the environment. In other words, active children were active in each environment. However, they also noticed that adult-initiated physical activity had an effect both on active and sedentary children, but in different ways. Organised activities might constrain the most active children but contribute positively to the amount of physical activity of the inactive children. Stephenson (2010) raised the issue of risks in her study. She found that children, independent of age, look for physical challenges. For children, undertaking "risky" activities meant to extend their physical skills and independence. She also claimed that being allowed to take risks is an essential element in learning and development in general. Therefore, children should be allowed to take risks to discover that one is adventurous, daring, brave, strong, confident and successful (Stephenson 2010, 42). As a conclusion of the outdoor environments, Waller et al (2010) stated that the meaning and importance of outdoor play should be studied more. It should not be taken as a self-evident fact, but needs to be explored more together with indoor play and activities. The different and/or similar roles of the various environmental components should be discussed.

ECEC environments have also been studied from the point of view of architecture and interior design. In fact, there have been many attempts to define a "good" or a child-friendly design for ECEC centres (e.g. Day & Midbjer 2007; Dudek 2005). There has also been research conducted in environmental psychology looking at children's preferences in regard to place, but according to a review by Korpela (2002), these have been focused on children from around 4 years onwards. Other important factors, such as the aesthetic elements of the environments have played a minor role in research.

Moreover, early childhood centre environments have not been adequately considered from the point of view of a probabilistic relation between environment and behaviour (e.g. Nasar 2000), and thus have not been seen as a promoter for the overall well-being of children.

Finnish studies concerning ECEC environments are few. In her doctoral thesis deriving from childhood studies and children's geographies, Raittila (2008) studied children's explorations during walking tours in an urban environment. The aim was to discover how children and the urban environment encounter each other. She summarised the results in children's four *"lived places":* explorative walking, focusing on self-generated action, social walking, and enjoying freedom (Raittila 2008, 145). Although Raittila's study concerned children aged from 4 to 6 years, the results provide interesting information for the present study. The different lived places were formed in the same physical, cultural and social environments. Children's choices concerning affordances and their interpretations of the environments formed each of the lived places. So, the same place could be for one child an inspiration for exploration, and for another an opportunity for freedom and mobility (Raittila 2008).The four different lived places as different possibilities for children increase knowledge about how children perceive and experience their environments.

Another interesting sociological thesis by Paju (2013) describes children's agency and the realisation of equality between boys and girls in day care centres. Paju found that objects, furniture, materials and their placement can direct action during everyday life in day care centres. Also this study brings valuable information about how adults can direct children's activities by environmental planning.

There are also studies concerning activities and life in day care centres in Finland that point to the weight of how the physical environment is organised. In these the focus has not been in the physical space, although its meaning becomes visible in the results. Puroila's (2002) doctoral thesis dealt with the practical work in day care centres within five different frames (educational, caring, managing, practical and personal). Puroila found that the physical environment could be used as a strong controlling element. The educators guided children's interest into activities by changing the materials and equipment in the environment. There is strong research evidence elsewhere that room organisation, even moving a piece of furniture, creates a new space for a child (e.g. Martin 2008). According to Puroila (2002) this was not only for creating new affordances for children to perceive, but also to constrain the use of certain elements important for the children. For instance playing with cars was in this way restricted in one centre, due to causing too much noise. Puroila found that the physical environment had a strong role in determining the activities in two ways. Some of the educators transformed the environment in accordance with the needs of the activities. Although the settings had rather fixed structures, the educators transformed them to better meet their needs. On the other hand, in some day-care centres the ac-

tivities were adapted to fit to the environmental structures. Whether the environment or the activities were modified depended also on the organisation of the child groups in the centres. The more strictly the groups worked as separate units, the more rigidly they used the spaces in the existing configuration. Moreover, if there was more collaboration between the child groups, and if the groups were not rigidly defined, the use of the environment was more flexible. (Puroila 2002.)

Also Kalliala's (2008) study brings information about the meaning and importance of the physical environment, especially in children's play. She utilised ITERS-R (Harms et al. 2006) for research purposes in her study on the day-care of children aged under three years. She was especially interested in the quality of the adult–child interaction, but the research provides also information on the material environment of the day care centres. She noticed that children's play could be supported and inspired by a diverse and well-planned environment. She also proved the power of natural, "not-too-ready" material in children's play. In their study of the narrated well-being of children under three years in day care centres, Puroila, Estola and Syrjälä (2012) also paid attention to the physical environment and children's opportunities to use it. Their finding can be crystallized in the following quote: "*The splendid spaces or attractive items do not produce anything 'good' for children if they are allowed only to admire them from afar*" (Puroila et al. 2012, 351).

4.3 Finnish day-care centre buildings and their design

Finnish day-care centre buildings have advantages compared to buildings in some other countries (see e.g. Kalliala & Tahkokallio 2001). They also seem to be internationally respected, especially from the architectural point of view. The OECD Country Note for Finland (STM 2001, 21-22) stated that the Finnish day-care centre buildings and the layout are of high quality and the surroundings have a generally high aesthetic quality. Moreover, many Finnish day-care centre buildings have been presented as exemplary in international architectural contexts (see e.g. OECD 2011).

Despite having many architectural differences, the basic pattern of the ground plans is very similar in most Finnish day-care centres. This pattern has not been much developed since the 1980s, when the National Board of Social Welfare made the normative instructions for day-care centre building (Sosiaalihallitus 1980)[6]. Since the decentralisation of the administration in Finland in the early 1990s, these instructions (RT-80-card) have no longer been normative, but due to the lack of newer appropriate directions concerning the construction of day-care centres, municipalities have con-

6 The normative instructions created by the National Board of Social Welfare were assembled to an RT Building Information Card RT SH-20380. The RT cards are provided by the Building Information Group, which is the leading provider of construction information in Finland (see: http://www.rakennustieto.fi/index/english.html).

tinued to use the instructions in their day-care centre design and construction processes until today.

RT-cards are widely used in Finland by architects as a recipe for the design process. The main purpose of RT-cards in general is to work as a common tool for all the participants in a building project - the builder, designer, contractor and building official. An RT-card also contains information about interior decorations, premises, furniture, structures and materials that interior design professionals need in their day-to-day work.

The RT-80-card provided detailed instructions for the design of different facilities in day-care centres. The instructions were based on working methods and pedagogical aspects that were considered appropriate at the time of the card's creation process. In addition to the knowledge of building public places and the architectural and interior design fashions of the time, the RT-80-card reflected the theoretical knowledge of early childhood pedagogy in the social context of the 1980s. For instance, the home-areas were designed for group sizes that were normative up to the 1990s. Since 1992 the Decree on Children's Day-care has defined only adult-to-child ratios. A lot of activities nowadays are carried out in small groups.

At that time activities were carefully planned in advance by adults responsible for education and care. Child initiatives related to certain activities were much more restricted than they are today, which implied also stricter rules for the use of the environment. In practice this meant that materials were placed in cupboards or at a high level out of children's reach. The RT-80-card also introduced a very thorough safety perspective.

A new RT-card for day-care centre buildings was published in autumn 2010, the RT 96-1103 (Rakennustieto 2010). The card was created by a multi-professional group with expertise in architecture, design, early childhood pedagogy, and policy both on national and municipal levels. The new card takes better into consideration the changed elements in policy and pedagogy. It allows more flexibility for instance in the design of activity spaces for children. It also takes into consideration the current regulation concerning adult-to-child ratios, according to which centres are allowed more flexibility to organise their work. The RT-card follows the pedagogical view presented in the *National Curriculum Guidelines on ECEC* (STAKES 2005).

Typology of Finnish day-care centres

During the last decades different architectural trends have affected the design processes, moving from the so-called "tube" day-care centres in the 1970s[7] to a variety of innovative and bold plans. Nevertheless, a clear pattern for both the architectural struc-

7 This is a colloquial expression for centres that were long and narrow, the different group spaces next to each other. Usually children aged under three were located on the other end of the building.


Image 2


Image 3

ture and the interior design has remained, creating a certain typology of the Finnish centres.

1. The planning of the premises in day-care centres has been based on fixed child groups. These are in the RT-80-card defined as care-groups of 12–21 children, depending on the age of the children (RT SH-20380, 6).[8] Children are most often grouped by their age, i.e. all children in one group are of the same age, although multi-age groups are also common. Moreover, activities are nowadays often carried out in small groups in accordance with the adult-to-child ratio.

   Each care-group usually has two (sometimes three) rooms, one of which has little tables and chairs for meals and activities, the other has beds for daily naps (Images 2 & 3). Both rooms are used for playing whenever the activities allow so.

2. Two groups usually share an entrance hall (with hooks and shelves for children's outdoor and spare cloths, Image 5) with a so-called "mud hall" to clean and store wellington boots and rubber clothes (Image 4), and a facility with toilet and bathroom (Image 6). In some very well equipped centres all these facilities are provided for each group.

3. Day-care centres also comprise a number of spaces for small-group activities. All the child groups usually share these. They include a small kitchen for children to practice cooking and to play home and other role play, rooms for various activity areas (sand play, water play, woodwork), or special rooms for providing sessions for children in need of special support (like speech therapy). Often the purpose of these rooms can be left open, and thus, enable flexibility in the daily use.

4. Depending on the standard of the centre, and often all larger centres (about 60 children or more), have a big hall that can be used for sport activities, supervised activities for a large number of children, different play activities, or festivities.

8 According to the current regulation concerning adult-to-child relations, centres are allowed more flexibility to organise the work based on adult to child ratios. Despite this, most centres still organise their practice by fixed child-groups, basically in accordance with the old regulation. The current regulation does not set group sizes. The adult-to-child ratio in full-time care for children 0-2 is 1:4, and for children aged 3–7 it is 1:7 (Decree on Children's Day-care 239/1973).


Image 4

Image 5


Image 6

5. Centres have a kitchen, either for cooking meals, or heating meals that have been prepared in shared kitchens of the municipality.

6. Centres may have a variety of entrance halls and corridors that can also be used for daily activities. In the architectural plans these rooms are usually not counted in the activity areas, and thus provide some extra space to use with children.

7. The Finnish name for day-care centre is "päiväkoti" [day home]. The interior design in centres tries to resemble home, or at least tries to reflect a cosy and homely atmosphere. Furniture in the centres is mostly of Finnish design, wooden, and child-sized. Colours are soft, usually with matching rugs and curtains, and sometimes even small table clothes. (See Andersson 1980.)

A similar typology can be seen in many of the recent Finnish studies conducted in day-care centre environments (Paju 2013; Vuorisalo 2013; Brotherus 2004; Puroila, 2002).

> The indoor space in the day-care centres was formed by child group spaces, (activity) spaces for all, spaces for the staff, and the kitchen areas. The child group spaces had entrance halls, washrooms, rooms for playing, and dormitories. In some of the centres each child group had its own dormitory; in some other centre many child groups shared one dormitory. There was considerable variation in the number of rooms allocated to the child groups. [.....] Spaces meant for all were the large halls and activity rooms for playing and other functions, like woodwork. (Puroila 2002, 119.)

Image 7 presents the ground plan of one day-care centre. This ground plan (from 2008) shows that day-care centres as public buildings are considered important and worth investment. However, it also shows that certain basic elements that were presented already in the RT-80 card are still in place. The basic pattern relies on home areas, and common space for all children. The red oval lines show two of the home areas. Between them is the entrance hall and the small mud hall.

In addition to the basic pattern of architectural and interior design, there are other instructions for the design of centres as spaces for children. These are elements that concern mostly the structure and safety of public buildings in general and should, thus, be applied to day-care centres as well.

Image 7 The Lehtoniemi day-care centre ground plan. Timo Koljonen / LINJA ARKKITEHDIT OY. www.linja-arkkitehdit.fi

In addition, there are some regulations or recommendations concerning environments from the perspective of ECEC as a function for children. These have either been defined in the legislation regulating ECEC, or in recommendations like VASU. However, these define the environment as an element increasing the child's well-being, and as such are on a rather general level. The Act on Children's Day-care (1973/36, §2a) states that day-care must offer the child a favourable environment in which the child can grow up in accordance with his/her background and personality.

Finnish day-care centres are considered public spaces. Especially in the newer buildings since the 1990s, transparency related to the surrounding community and nature is emphasised. Often the buildings serve as centres for the communities, and can be used for various purposes daily after the closure of the day-care centre (see OECD 2011, 133–138).

Flexibility in the organisation of space in the traditional day-care centres has been rare. However, especially during the new Millennium there have been some day-care centres where the structure has been designed differently, e.g. with more common space instead of fixed group rooms. Similar experiences have emerged also in other Nordic countries. Traditional kindergartens in Norway have followed a very similar typology to the Finnish one. In order to increase flexibility in the organisation of children and the work of staff to promote increased freedom of choice for children, a new design of space has emerged. Instead of building large group rooms, some centres have smaller "base areas" for particular child groups, and the rest of the space is for all children. The definitions of base areas seem to vary a lot. The common feature is the increased flexibility that also enables the organisation of children into more flexible groups. (Kjørholt and Tingstad 2007.)

Outdoor environments in Finnish day-care centres

The outdoor environments in day-care centres vary from large areas with versatile topography and natural elements to small flat areas. In some centres, especially when located in the heart of big cities, children use nearby public playgrounds. The variation in the size, topography, and other features of the outdoor environments depends on issues related to the original construction plan, e.g. how much space the zoning map of the area allows.

Outdoor environment has a strong role in the Finnish ECEC culture. Children spend at least two hours daily outdoors irrespective of weather conditions (Images 8 & 9). All children are expected to have suitable clothing, including rubber boots and rubber dungarees for wet weather, and thick winter suits for cold weather (Image 10).

Finnish ECEC playgrounds are rather well equipped. Especially on warm and non-rainy days they provide potentially plenty of opportunities for all kinds of activities, also those usually performed indoors. Traditionally, however, indoor and outdoor ac-

Image 8

Image 9

Image 10

tivities have had different roles. Activities outdoors have been considered mostly children's free time (see e.g. Kalliala 2008), while the guided pedagogical activities have taken place indoors, mainly before lunch time (e.g. Puroila 2002). This is more or less a global perspective (see e.g. Kernan 2010; Moser & Martinsen 2010) and not a much discussed issue in ECEC, but is rather taken as a self-evident fact. In addition to some supervised or instructed sport activities, children have been encouraged to explore the outdoor environment freely, while taking into consideration playground rules and adult-defined restrictions. This, however, applies only partly to children aged under three years, who are often separated in fenced areas with smaller equipment and less variation.

A typology can be found in the day care centre playground. The basic equipment consists of different kinds of swings, sandpits, climbing frames, slides and seesaws. The playgrounds are often flat, and covered with asphalt or gravel, sometimes partly grass. Some large playgrounds may also have more natural elements, usually a variable topography. A similar description can be found in the study of Fjørtoft (2001) concerning Norwegian playgrounds.

Indoor–outdoor connectedness

One of the special features in the Finnish day care centre architecture is related to the connection of the outdoor environment into the centre. In most centres there are several layers of constructions with different tasks and meanings that form a link between these two environments. First, when one enters into a day-care centre premises a gate to the surrounding yard and playgrounds has to be opened. Although Finnish municipal centres are public spaces, this gate (and fence) separates the surroundings from the centre and work as a sign for visitors. A practical denotative meaning of the gate is to prevent children running off the premises, i.e. the safety of children (Images 11 & 12).

The second layer of the linking spaces is usually a number of entrances. Through entrances one steps into the first indoor space that is usually the mud hall, a small entrance hall where all entering the centre are supposed to leave their shoes[9] and where children take off their rubber dungarees and other rain gear used in rainy (or otherwise wet/muddy) weather. According to Paju (2013, 80), mud halls are spaces where one entering the centre leaves all dirt and impurities from the outer world.


Image 11


Image 12

9 Adult visitors may also put (blue) plastic covers on top of their shoes.

A British architect and design teacher visiting Finnish day-care centres used the word ritual to describe the process of children moving inside from the playground. For a foreigner not used to the idea of children playing outdoors daily (see e.g. Kernan 2010), and not used to the Finnish climate, the process may seem a ritual. However, the mud halls have an important practical role in the Finnish ECEC culture, which values outdoor life by increasing the functionality of the everyday life in the centre.

The last layer is formed by the entrance hall. In the entrance hall children change the rest of their outdoor clothes into indoor clothes, and put their slippers on. This hall also works as storage for children's spare clothes. Each child has a small space of her/his own, in which it is possible to store also other important personal objects. Children are often supposed to leave their own toys, e.g. bedtime toys, in their compartment, which according to Paju (2013) increases the sense of these entrance halls forming a borderline between the centre and the space outside.

Especially in many fairly new day-care centres the entrance halls are large, allowing also space for many activities (Images 13 & 14). Thus, entrance halls have many important meanings. They are for entering the centre, but for instance for parents they are usually the most important visiting places. This issue will be discussed further later.


Image 13


Image 14

5 THE NATIONAL CURRICULUM GUIDELINES ON ECEC

The *National Curriculum Guidelines on ECEC* (STAKES 2005), VASU, is the national guiding framework for the content of ECEC for children under the age of six in Finland.[10] VASU was first introduced in September 2003, and revised in 2005 after a thorough stakeholder and user review. VASU forms the basis of the model for the photographic interpretation used in the present study, and hence, the contents of the document are introduced while paying attention especially to the visible features of the environment.

Being the national recommendation for high quality ECEC in Finland, VASU is the framework defining also the ECEC environments. The importance of environment is highly recognised throughout the document. Environment can be seen as one of three central elements guiding the child's activities, the child and the educator community being the other two. Environment has a special role in VASU, according to which both the aesthetic and the functional elements of the environment should be emphasised. However, being a framing document, the instructions concerning environmental design are general and approximate. There are no clear instructions or means for how to develop a "well-designed" environment to promote children's activities.

VASU is a core curriculum. It is a framework providing a basis for local and unit-based curricula. The central principle concerning the implementation of VASU on each level is that of reflective practice and communication in the early childhood communities. In accordance with the definition by Crawley (2005), critical reflection is fundamental to understanding how one should proceed in a new situation. "*We can question our routine, convenient, every day practices and ask questions about what really does and doesn't work. We can challenge some of our deeper social and cultural thoughts, feelings and reactions[...]*" (Crawley 2005, 166).

10 The content of pre-school education for six-year-olds (i.e. the final year before children start school) is defined by the Core Curriculum for Pre-School Education (National Board of Education 2000).

The national core is adapted to the municipal and unit levels through communication. According to the latest inquiry (THL 2011), all municipalities that supplied their responses (response rate 74.4%) had formed their own local curriculum. In 71.6% of the municipalities, the ECEC units, i.e. day-care centres and family day-care units, had also formed their own curricula. Though the percentage seems high taking into account that VASU is a recommendation for the municipalities, it does not describe the success of the implementation process as such. It merely reveals to what extent the core document has been translated into the local level as text. The possible qualitative changes in the ECEC practices in the course of the implementation have not been assessed.[11] Research in the area has shown that the implementation process is challenging and time consuming, requiring a lot of dialogue and reflection in the working community (see Nummenmaa, Karila, Joensuu & Rönnholm 2007).

In the present study the interest in the environmental interpretation is based solely on the national guidelines. The aim has been to build an interpretation model that is compatible with all the different local curricula. The observable and assessable elements have, therefore, been fixed into the national guidelines.

5.1 The basic principles in VASU

According to VASU the *primary aim of ECEC is to promote the child's overall well-being*. This is done in mutual, continuous and committed interaction between parents and educators. The educator community is expected to give space to children, to understand them and their needs, to support them and to participate with them. These issues are fundamental for children to enjoy meaningful experiences that promote the joy of learning and feeling of being understood and heard. By interacting and discussing with children, educators get insight into children's world and thinking, and children can act in ways that are meaningful to them.

The child's well-being as an ultimate target

Well-being is a challenging concept to define in the ECEC environment. Although it can be understood as very physical when related to concrete care and the child's physiological well-being, it is also a sensed, subjective feeling. Without going deeper into the philosophy of well-being, a brief definition by Roger Crisp (2008) enlightens the term and its use in general.

11 The inquiry had also open questions about what kinds of changes municipalities had noticed during the VASU implementation process. 67% of the municipalities informed that the process had boosted good practices in e.g. parental collaboration.

> Popular use of the term "well-being" usually relates to health [....] Philosophical use is broader, but related, and amounts to the notion of how well a person's life is going for that person. A person's well-being is what is "good for" them. Health, then, might be said to be a constituent of my well-being, but it is not plausibly taken to be all that matters for my well-being. One correlate term worth noting here is "self-interest": my self-interest is what is in the interest of myself, and not others. (Crisp 2008, 1.)

Laevers (2011), defined a two-dimensional perspective in high-quality ECEC, in which the child's emotional well-being is one dimension and involvement another. [12]

> Well-being indicates that the basic needs of the child are satisfied and refers to the degree to which children feel at ease, act spontaneously, show vitality and self-confidence. "Involvement" is evident when children are concentrated and focused, interested and fascinated and when they are operating at the very limits of their capabilities. (Laevers 2011, 1.)

Well-being in the context of VASU has similar elements, but involvement is seen as an element included in well-being. In fact, according to Kalliala (2008, 67), emotional well-being and involvement are compatible. Emotional well-being creates the ground for involvement, and experiencing involvement increases emotional well-being.

The term involvement is not explicitly used in VASU, but can be interpreted from the implicit definitions, e.g. of the child's need to learn by active exploration (STAKES 2005, 15). Involvement in VASU concerns strongly the child's opportunities to feel belonging, and to experience joy and freedom of action. Involvement as part of the child's well-being also concerns children's opportunities for participation. This should happen in a safe and unhurried atmosphere so that children can direct their energy into play and activities with an appropriate level of challenge. Young children who are adapting to a new environment need to experience a sense of belonging. The sense of belonging can be increased by promoting participation, which is a concept close to belonging. Children's participation in different definitions is increasingly seen as involvement and belonging in communities. According to Bardy, "*The crucial element in child participation is to involve children in communities in a way that secures their learning process. This enables an understanding of who we are, where we belong to, and how we live*" (Bardy, Salmi & Heino 2001). [Translated from Finnish by the Author.]

As a summary, in VASU well-being is a comprehensive notion that takes into consideration all different aspects in children's being, growth, learning and development, including also their health and basic needs. According to VASU a well-designed ECEC

12 The Leuven Involvement Scale for Youn Children (LIS-YC Scale, Laevers 1994) includes a methodology and a variety of applications to assess children's emotional well-being and involvement.

environment takes relevant notice on safety. Also safety is seen as a very holistic concept involving all the different elements related to well-being (STAKES 2005, 17), especially emotional safety. In practice it seems that the discussion around safety issues is often seen only from its physical perspective, i.e. the safety of the physical environment (see e.g. Saarsalmi 2008).

VASU defines well-being as a relative notion dependent on many personal and environmental factors. These factors constitute some six different contexts of the child and of the environment that will be discussed later. Children's contexts vary from each other, even daily, depending on various person- and environment-related factors. For instance, when more tired than usual, a child may need a smaller group or more adult attention. A compatible environment has a good person–environment fit (Kyttä 2003, 88), which means that each individual child can find the place safe, motivating, meaningful and relaxing. One can belong to a compatible environment. As a conclusion, well-being as a target is strongly connected to the other basic principles in VASU, especially to the idea of care, education and teaching as an integrated whole as the basis for pedagogy.

Pedagogy: Care, education, teaching

Pedagogy is defined as integrating the intertwined dimensions of care, education and teaching (STAKES 2005, 15).[13] The holistic nature of the content is similar to that opened in the definition of pedagogy by Dahlberg and Moss (2006, 33), which has been presented earlier.

These three dimensions describing the educare idea receive a different emphasis depending on the age, the specific needs and the situation of the child. The importance of the six different contexts (see Table 1 in Chapter 6) in the implementation of care, education, and teaching are obvious. Basically the holistic nature of these pedagogical elements seems to be widely accepted among the Finnish ECEC professional staff, at least on a theoretical level (see e.g. Karila & Kinos 2010). However, this kind of approach is very challenging, as it brings forth the importance of everyday activities and children's possibilities to be involved in and to participate in every matter concerning their lives. According to VASU, children's participation should create a feeling of belonging that helps to develop a healthy self-esteem and that promotes the well-being of children (STAKES 2005, 15). Moreover, when the child has a feeling of being important and having a place to belong to, learning likewise becomes more meaningful.

13 The concept used in the international contexts is educare (abbreviated from education and care). The three words (hoito=care; kasvatus =education; opetus=teaching) have been used in Finland, because the Finnish language does not know an equivalent term for education. Dictionaries translate the word education as both kasvatus and opetus, and hence, both these terms have been used in Finland to describe the educare tradition in the pedagogy.

Although the holistic pedagogy is in principle an absorbed way of working in the Finnish ECEC, some researchers question the educators' skills to implement it in practice. Karila (2008, 216) argued that although the three-dimensional pedagogy as the leading idea has been acknowledged, there are different opinions on the weight and the importance of the components. Karila claimed that the current information-steering documents put more emphasis on the educational (incl. teaching) activities of children, but the employee structure in the Finnish day-care centres emphasises the care aspects (see also STM 2008). Moreover, the wide range of different qualifications and the number of unqualified people working in the field of ECEC definitely poses challenges concerning professionalism in the ECEC work (see Alila et al. 2014).

Care has traditionally had a very strong position in Finnish ECEC, especially concerning children under three years (Välimäki 1998; see also Puroila 2002; Siren-Tiusanen & Tiusanen 2001). The content of the historical crèche activities focused on children's physical care: nutrition, rest and outdoor activities. Although the services were integrated under the term day-care centre [day home] some years before the Act on Children's Day-care in 1973, the care aspect remained strong (Välimäki 1998, 120). A general term used in the Finnish context has been *basic care* (e.g. Siren-Tiusanen & Tiusanen 2001, 69). Also VASU states that the younger the child, the more emphasis should be paid on care situations. A concrete fact is that basic care situations, like eating, getting dressed, or taking care of the child's hygiene take up the lion's share of the child's day. Daily meals, outdoor times, and the rest periods formed the "skeleton" for the daily rhythm in Puroila's research, giving structure to the day (Puroila 2002, 122-123; see also Nummenmaa et al. 2007).

Taking into consideration the strong care perspective in the Finnish context, an important question to ask is whether the educators' commitment to care should be reduced, and the educative component increased in the VASU context. According to VASU these should not be dealt with separately, because the pedagogical triangle enforced in VASU seeks not only a balanced perspective between the different elements, but full integration. On the one hand, the difficulty to define what that means has been brought into the discussion by research (Karila 2008). On the other hand, the caring elements in the day-care of children under three years have been taken as being almost self-evident. For instance, according to Siren-Tiusanen and Tiusanen (2001) the pedagogy is formed by the daily rhythm and the basic care of children.

So what would pedagogy that integrates care and education be like? Puroila (2002) discussed the different perspectives of care found in the research literature: taking care of one's physical needs, and fulfilling one's emotional and psychological preconditions. The pedagogical element of care in fact lies within these different definitions. According to Broström (2003), the emotional dimension of care means a caring attitude, while the action-oriented dimension is about carrying out an action, i.e. to take care of. As a philosophical dimension, care is a fundamental manifestation of

life. This kind of an attitude goes beyond the idea of care as child-minding. By a caring attitude the educator supports the child's feeling of being valued and important. A caring attitude builds a good relationship between educators and children, and thus, smooths the way for children's learning. Broström used Manen's (1991) term "pedagogical tact", meaning the educators ways of opening the child's eyes for new cultural experiences, and supporting the child's learning and development.

Hence, the caring attitude as such is not enough, but forms the basis for a pedagogical approach. The Danish example by Broström and Hansen (2010) shows that care can have a highly professional dimension. Children become more engaged in play and activities with other children when they receive care that is characterised by a high degree of empathy, attention and interest. In this process the professional educator has a fundamental role. Thus, the integrated nature of care–education–teaching should be reflected upon in the working communities to increase the awareness of the values, goals and the meanings of different educational practices. This requires strong and versatile professional expertise (Karila 2008).

Despite the new steering elements like VASU that focus on education and care, according to Karila (2008), the dimensions of care-taking and nursery nursing are still strengthening in Finland. One of the reasons lies within the tacit ways of working, and within the handed-down ways of understanding the work from generation to generation (Kalliala 2008; Nummenmaa & Karila 2005). This means that the existing definitions of work and the working cultures are difficult to change (Lindberg 2010). The question should not be what works (see Dahlberg & Moss 2005), but the reflection should lead to critical assessment of the practices and ways of working, and their implications on children (Nummenmaa & Karila 2005).

The integrated nature of pedagogy poses many challenges regarding the ECEC environments. This aspect is not explicitly argued or dealt with in VASU. The educative elements in the environment have been much researched, but the elements in a caring environment have been less discussed. In fact, the elements concerning ECEC environments in the current research culminate in the pedagogy formed by care, education and teaching.

The importance of language

VASU has a strong emphasis on language. Language is seen as a thread running through the whole curriculum, and is therefore not opened as a content area but as a vital communicative and cultural element in the ECEC communities. It goes beyond the more traditional curricular definitions of language that emphasise language acquisition and skills, and literacy (see e.g. The EYFS, Department for Education 2012). Language is both the medium for learning and a learning target, and therefore it is needed for all the different contents in ECEC (Korkeamäki 2011, 43). Figure 3 describes the various tasks and opportunities of language that VASU emphasises.

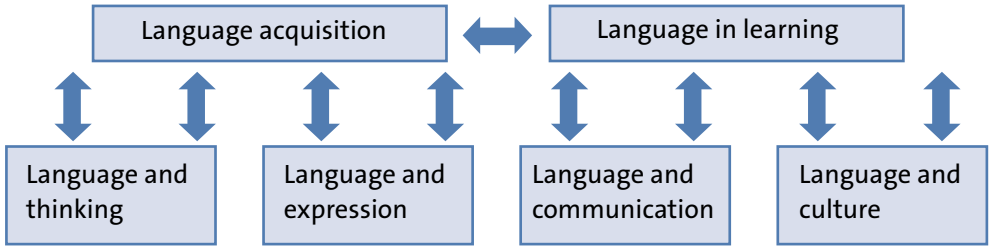


FIGURE 3 The role of language in VASU

A specifically emphasised feature of language in VASU is the meaning of stories and literature. Children should be familiarised to stories, books, and to written language. Literature helps children to gain insight into the world around them and of the richness of language.

In addition to the integrated nature of language in all activities and functions, language itself should be a learning target. Books, stories and rhymes are important means of teaching rich and varied language to children. According to material supporting the implementation of VASU (Korkeamäki 2011, 43; Suojala 2009, 42), children should have opportunities to choose what to read and have time and space to explore books with adults and with their peers.

VASU emphasises that language has a vital role in children's adaptation and orientation to the environment. A versatile and stimulating environment supports the child's linguistic development. Language is needed to make the environment understandable for children. By explaining the elements in the environment and by discussing with the children, the educators can guide the children's observations. Hence, language has a fundamental role in the process of opening the environmental affordances as social and cultural elements for the child.

From the point of view of VASU it is important to evaluate how language related elements are visible in the environments. During the last 25 years especially, written language has become more noticeable in Finnish day-care centres, and for children aged over three years in particular. It is difficult to say whether this has been a conscious, specifically language-related procedure, or more or less the result of the international pedagogical influence, mainly coming from the English-speaking countries. Written language has been much more visible in the early learning environments for instance in the Anglo-American countries than in Finland or the other Nordic countries (OECD 2006, 141).

One of the less emphasised elements in relation to language in VASU is the role of language as an artistic experience for the child. VASU highlights (STAKES 2005, 18)

[14] Figure used in the VASU-Mentor Education material (unpublished) during the national implementation process.

that different types of literature should be available to offer children different kinds of insight into the world. Probably due to VASU's framing nature, children's literature as a form of art is not opened (see Aerila & Sarmavuori 2010, 32). However, VASU emphasises that educators are responsible for creating an environment with an inspiring atmosphere, and a positive model for artistic appreciation. This is applicable also to *word art*, which according to Nurmilaakso and Välimäki (2011) is good company for any other form of art. Playing with words, using rhymes and funny non-sense words emphasised in VASU are supportive to the ideas of word art.

Defining language-related elements in the environment might seem challenging. On the one hand, language as such has multiple tasks (Figure 3) and is tied to all activity (Nurmilaakso & Välimäki 2011). On the other hand, there are certain specific issues that act as cues that one should be able to focus on when observing environments from the point of view of language (see e.g. Korkeamäki 2011).

The child's way of acting: What is meaningful and characteristic for children?

The child's way of acting can be considered as one of the aspects in VASU that has the most novelty. It is a way of emphasising the child's perspective instead of creating a child perspective to the activities.

The core of VASU is the child's characteristic activity. In the promotion of the child's well-being, each child's individuality is respected. Children are allowed to act and develop in accordance with their personal traits, which arise from their different temperaments, interests and contexts (STAKES 2005, 14). Children's individual differences affect the way they see the world, and how they want to explore it. According to VASU *playing, movement, exploration and self-expression through different forms of art* are ways of acting and thinking peculiar to children.

Activities derived from children's ways of acting enhance children's well-being and perception of themselves and increase their opportunities for participation. An activity that children find meaningful gives expression also to their thoughts and feelings. The ways of acting are used as guiding principles in the educator community's interactions with children.

Each of the ways of acting is examined from three different angles in the document: *the child's meaningful experiences, the educator community's activity, and the ECEC environment*. These three are interrelated, and thus support the central elements found in environmental affordances. The idea is that, e.g., through playing the child gets meaningful experiences. However, these experiences are enabled only through the intentional work of the educator community (see e.g. Nummenmaa et al. 2007), and through the conscious efforts to develop the environment. The educator community uses the *content orientations* as tools to develop the environment. For ex-

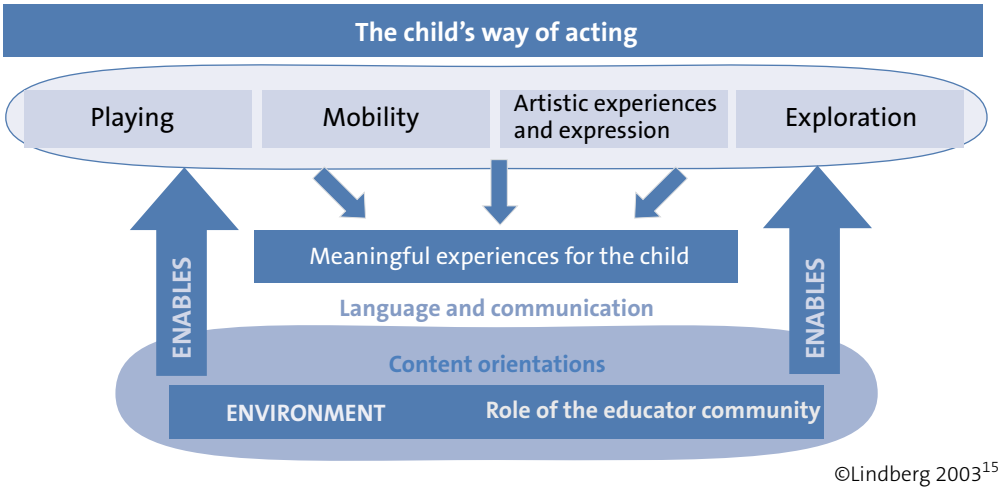

[15]

FIGURE 4 The child's ways of acting can create meaningful experiences for the child

ample, the child gets meaningful experiences in movement when the environment is rich with a variety of potential affordances. The educators support the child's possibilities for independent mobility, which helps to reveal the affordances. Again, by encouraging the child to actualise the affordances motivates the child's further exploration and mobility in the environment (see Kyttä 2003). Therefore, the way educators allow or constrain the use of the environmental affordances is fundamental. For instance even the most well-equipped day-care centre yard can be in vain if children are not allowed to utilise what it provides. Especially concerning the youngest children, the educators' role becomes elementary. Figure 4 illustrates the roles of the educator community and of the environment in children's opportunities to act in meaningful ways and to receive meaningful experiences.

The curriculum guidelines do not set goals for the child's developmental outcomes. All goals aim at the educational process and the environment. The guidelines challenge the educator communities to reflect upon their work and interaction in the community of children and adults (see Karila 2008). Therefore, the guidelines do not give an answer to the question "what works", but the goal is to go beyond these practical questions and to establish what is important in ECEC and how can a real community of children and adults be built (see Dahlberg & Moss 2005, 103-105; Urban 2012, 499).

Environment has a fundamental role in relation to the child's ways of acting. It either promotes or constraints children's mobility and exploration. Through the environment, e.g. by enriching spaces with a variety of materials and equipment, the educators can channel children's activities. For instance play, science education, and art education can be joined to meaningful activities by a water tank in the group room.

[15] Figure used in the VASU-Mentor Education material (unpublished) during the national implementation process.

Children can explore how natural materials change when wet or dry, why objects float, how to make bubbles, or how to change the colour of the water (Kalliala & Ruokonen 2009, 69). Creating an environment that takes notice on the child's ways of acting is more than developing the physical environment. It is creating a culture. (Broström & Hansen 2010, 99.)

Contents as orientations

The content areas in VASU are opened as orientations. These are the basic forms of human understanding, knowledge, and experience. According to VASU it is important to understand that children are not to study the contents of subject areas. The concept of orientation underpins that of tools or capabilities, by which children gradually gain in ability to examine, understand and experience the world around them. The idea of orientations as tools emphasises the educators' role to enrich the environment and activities. By these orientations the child gets a many-sided, integrated, and comprehensive image of the world.

VASU defines six orientations (mathematical, natural scientific, historical–societal, aesthetic, ethical, religious–philosophical), each of which has its own specific form of critical thinking and directing activity. The orientations are linked to children's daily life, concrete experiences and immediate environment. Vuorio (2010) used the metaphor of "special glasses" that an educator observes with when building an environment enriched with content orientations.

Educational partnership between parents and educators

The importance of educational partnership with the child's parents is emphasised throughout the document. According to the Act on Children's Day-care (1973/36, §2a) the primary right and responsibility for nurturing and educating children lie with their parents. However, to build a successful ECEC process for a child is dependent on how well the collaboration between parents and educational staff can support parenthood and parents (Tiilikka 2005).

In order to work best for the child, the professional staff and the parents should work in educational partnership (Kaskela & Kekkonen 2006). An educational partnership emphasises the mutual, continuous, and committed interaction between parents and the educators in all matters concerning the child. Educational partnership is a relatively new way to see collaboration between parents and ECEC professionals in Finland. According to Kekkonen (2012), the rise of educational partnership can be seen as part of the overall societal development. The social, political and economic changes have transformed the tasks and institutional relations of day-care and families. Historically, day-care professionals were seen as experts, their knowledge of children be-

ing superior. Their task was not only to support the parents but also to educate them with their incomparable knowledge of families and children. This stemmed from the early days of the Finnish child day-care history, when the main task of crèches and kindergartens was protecting children of socially and economically disadvantaged families (Välimäki 1998).

Collaboration between parents and day-care professionals was strongly based on the expertise of the professional staff before the milestone in the 1990s, when the unconditional right to day-care came into force in two steps, first for the under 3-year-olds in 1990, and then for all children under school age in 1996. Day-care for all children became a parental choice, which naturally increased the variety of children and families in the services. Parents started seeing themselves as customers with rights, which had an effect on their expectations towards the education of their children in day-care (Tiilikka 2005). Day-care became care and education for all children, instead of being a social service for vulnerable families (see e.g. Välimäki 1998). Parental role is much discussed from the rights perspective. According to Moss (2011), the involvement of parents is part of a democratic practice in ECEC.

Although educational partnership had been defined in international and Finnish documents (see Kekkonen 2012) the first official framework to define educational partnership in Finland was the National Policy Definition on ECEC made by the Ministry of Social Affairs and Health (STM 2002). The document saw educational partnership as a fundamental component of good ECEC.

> Interacting on a basis of equality, the two parties to this educational partnership can bring together the different expertise and knowledge they both possess. Parents should be allowed to participate in the early childhood education of their own children outside the home, and in planning and assessing it. (STM 2002, 17.)

According to Kekkonen (2012), ideally educational partnership is characterised by close co-operation, common goals, respect, honesty, real dialogue, and complementary expertise. One of the core tasks of the ECEC educator is to work as a connecting link, and to enable the families to take part in the child's ECEC. Although day-care centres in Finland have open access to all parents, participating in the ECEC of their own children, as defined in the policy definition (STM 2002), takes basically place through the evaluation of ECEC and the curricular activities as defined in VASU. Most often the parents assess the curricular outcomes in regard to their own children. This happens in the educational discussions where parents and ECEC educators prepare an individual ECEC plan for each child (see Tiilikka 2005). Currently this is the predominant practice, which according to the latest Statistical Report of Child Day-care (2012) is done for 80–100% of children in 80% of the Finnish municipalities.

Parents are interested in their own children's well-being and success in ECEC. To evaluate the educational processes, how their children are treated, what kinds of social relationships their children have, and the children's life in general in ECEC, parents need more information than provided by the educational discussions or the short daily chats with the educators. The easiest way for parents to evaluate their children's ECEC would be by participating in the daily work of the centres – if only occasionally. However, this is not a common practice,[16] one of the reasons being that most parents could not allocate time to spend in the centre. In the research of Tiilikka (2005) parents wished they could be like "flies on the ceiling" to get information of what is actually happening during the day, as they feel they do not have enough information. Tiilikka argued that parents need both a good information package when their child starts in the centre, and concrete daily information, supported by the information received when communicating with the child. This means that to work fully in partnership the centres need to become more open and create methods that improve the visibility of their pedagogy and work.

According to Kaskela and Kekkonen (2006), a core issue in educational partnership is the parents' feeling of belonging to their child's early education community. "*Experiential participation is created by mutual change of knowledge, meaningful encounter, and emotional involvement*" (Kaskela & Kekkonen 2006, 27). [Translated from Finnish by the Author.]

Kaskela & Kekkonen (2006) argued that parents' feeling of belonging can be achieved by a variety of ways, such as through daily discussions, being part of organising festivities and happenings, and being active in parent committees. A central element is that these should be meaningful for the parents, and that the parents should have a feeling that they can actively influence the pedagogy and the activities accomplished with the children.

An important discovery in the course of the current study has been that the definition of parent's participation or feeling of belonging in VASU completely fails to take account of the role of the environment. One of the reasons could be the lack of perspective regarding documentation in the VASU document. If parents cannot join the daily activities in the day-care centre, a possible way to receive knowledge of their children's day, in addition to discussing with their children or with the staff, is by accessing adequate information in the form of documentation. According to Keskinen and Lounassalo (2011) pedagogical documentation provides the basis of common dialogue between parents and the staff. The only references to documentation in VASU are related to the child's opportunities for artistic experiences and self-expression. VASU emphasises that the educators should document the children's artistic activities, and that the children's self-expression should be made visible in the environment.

16 Välimäki (1993) talked already in the beginning of the 1990s about parents having opinions and being willing to participate actively when encouraged and allowed into the discussion .

The photographic data of the present study revealed important aspects related to parents' participation and documentation, which will be discussed in the results section.

5.2 The ethos of VASU

VASU is a national policy instrument, and as such it should reflect the cultural, historical and political understanding of childhood in today's Finland (see Alasuutari and Karila 2010; Kalliala 2008, 38; Mayall 2002, 149). The values in VASU are based on the Convention on the Rights of the Child. Steering the Finnish ECEC as a universal service, and aiming at promoting the provision of ECEC on equal terms in the whole country, VASU opens up as a rights-based approach (Herczog 2012, 542). In addition to framing the contents of the different ECEC services in Finland, VASU works as a quality document. It introduces uniform principles for organising the services in a way that reproduces the commonly accepted values of Finnish society.

It is relevant to consider the definitions of quality in VASU, i.e. what are the explicit and implicit visions of ECEC that it provides. Before discussing the various aspects related to the content, it is important to revisit the previously discussed staff competency issue. One of the basic principles is that VASU should be taken as a framework for the local and the unit-based curricula. ECEC does not happen in a vacuum but is always embedded in, for example, an historical, geographical, political, economic context (see Dahlberg et al. 2013). So, the discussion of quality is not one of "*technical practice*" (Dahlberg & Moss 2005, 11), but needs to be addressed in its contexts. The perspective of reflective practice has a strong foothold in the VASU document. Questions like "what does this mean in our municipality" or "how does this apply to our day-care centres" should be asked. A single correct answer does not exist, only different viewpoints and negotiated solutions.

The question is whether VASU can, in reality, contribute to the definition of quality as a multi-dimensional and generic construct having an emphasis on dialogue and negotiation by all stakeholders (Urban, Vanderbroeck, Laere, Lazzari & Peeters 2012, 510). As presented earlier, the basic ideology of VASU as a framing element challenges the contemporary multi-professional staff's skills and abilities "*[...] to commit themselves to drafting, implementing, and evaluating [...]*" (STAKES 2005, 37) the local and unit-based curricula. According to Yelland and Kilderry (2005) this kind of commitment requires inspired educators who are capable of acting as agents of change by re-envisioning early childhood issues and discourses via critical reflection. Hence, while discussing the ethos, it is good to keep in mind that translating all the rather ideological thoughts in the national document onto the practical level needs a lot of time and new thinking (Alasuutari & Karila 2010). In hectic daily situations it is sometimes difficult to overcome old routines, especially when resistance to change is

strong (Lindberg 2010). On the other hand, the idea of reflective professionals is part of the VASU ethos. One of the basic assumptions of VASU is that the members of staff have the courage to think, to take intellectual risks, and to exchange ideas with others openly in the process of developing expertise (see Hakkarainen, Lonka & Lipponen 2004). Developing ECEC is a continuous process requiring not just methodological skills, but also skills to reflect and to become conscious of the different ways of working and of the contextual factors. All this has a tremendous effect on the development of children's environments, and will be further discussed in relation to the results of the present study.

All the different aspects concerning the ethos culminate in discussion concerning the image of the child. Paradigmatically, both the child's perspective and the child perspective can be recognised. The *child's perspective* stems from the child's ways of acting. The four different ways – playing, movement, experiment, and artistic experiences and expression – formulate the child's hundred languages[17] as different ways of telling stories and expressing feelings (Kalliala & Ruokonen 2009). The child should have meaningful experiences, and thus, needs to be listened to. The pedagogy of listening as described by Rinaldi (2005), needs an educator who is honestly curious about the child, and includes all the needed ingredients for the child's perspective. It means, *"listening to the hundred, the thousand languages, symbols and codes we use to express ourselves and communicate"* (Rinaldi 2006, 65). In VASU the educator community's role becomes fundamental in the process of enhancing or inhibiting children's competence and motivation (see Rinaldi 2006).

The role of the environment is crucial in the promotion of the child's perspective. *"A positive and encouraging environment supports children's explorative activities."* (STAKES 2005, 23) For example, the child gets meaningful experiences in movement when the educator community's actions and the environment are supportive. Possibilities for independent mobility reveal many affordances, and the actualisation of affordances motivates the child's further exploration and mobility in the environment (Kyttä 2003). It is also important how adults bring the different content orientations into the environment. With content-orientations adults can enrich the environment and increase children's interest towards learning about the world around them, and increase the number of potential affordances. To utilise the opportunities that environment provides, educators must themselves become aware of the different features, e.g. mathematical aspects in the environment (e.g. Vuorio 2010). The educators that together form a community should develop the environment and enable children's meaningful experiences. So, the guidelines challenge the educator communities to reflect on their work and on their interactions in the community of children and adults, such that environment also receives attention (Välimäki 2013).

17 This is one of the most well-known expressions of children's creative potential (see e.g. Rinaldi 2006).

The child's perspective stresses the role of other children. Especially with the youngest children in many Western education cultures, the adult–child relationship in a one-to-one form is emphasised more than relationships with peers, or with many adults. It seems there is a fear that if children have to rely on too many adults, their emotional security is threatened. According to Rogoff (2003) this is a very culturally bound attitude. Contrary to the usual beliefs, her research showed examples from many cultures where the shared responsibility of infants does not get in the way of close attachment to mothers. The adult–child relationship -model forms only a very limited part of the social relationships important for children's learning and development. Rogoff (1990) emphasised the importance of guided participation, where more skilled adult or peer partners have an influential role. In multi-age child groups, children's relations with peers have fundamental roles in the learning processes. These do not, however, exclude the adults, or diminish their power (see e.g. Kalliala 2011), but rather emphasise their role as more skilful partners and teachers from whom children potentially learn. VASU states that especially the youngest children's play happens in collaboration with an adult, or with older children. The child's belonging in the peer group is also emphasised.

However, to build an environment that supports the child's meaningful experiences, the educators need many skills and competences for reflection. The educator should also "*be committed, sensitive and able to react to the child's feelings and needs*" (STAKES 2005, 16). For instance, Kalliala (2008) claimed that in Finnish day-care centres, this kind of sensitiveness often remains on an ideological level. The problems in the interaction between children and adults are not discussed enough in the Finnish context, although good interaction forms the basis for good quality in ECEC (see e.g. Munter, 2002).

The *child perspective* is more difficult to uncover in the VASU document. Basically, the elements of child perspective are related to the need for individualisation, although not all individualisation can be related to the child perspective. The educational goals in VASU are to increase the child's personal well-being and to foster development. To increase the child's positive self-image and altruism are among the expressed goals. However, the way these elements are processed defines either the child or the child's perspective. Although the role of peers and the ECEC community indicating the child's perspective are emphasised on an explicit level in VASU, education today is getting more individual (Marjanen, Marttila & Varsa 2013). Karila (2012) claimed that increased individualisation is not only a Finnish trend but has gained popularity in the other Nordic countries, too. Individualisation means emphasis is on the individual child's needs, skills and interests as defined by adults speaking on behalf of the child. The child's participation in this information production is marginal. According to Johansson & Emilsson (2010), the interest in this kind of practice is not on the child's subjective experiences, but on the adult's definition of what is good and developmentally appropriate for the child (see Penn 2005).

The main element emphasising the individualised perspective introduced in VASU is the child's individual ECEC plan. The idea of the plan is to act as a collaborative tool between the parents and the professional educators in the provision of individually good and appropriate education and care for each child. According to VASU this individual plan should take note of the child's overall well-being, learning and development. The child's ECEC should be based on the plan, and the actualisation of the plan should be followed and assessed on a regular basis. The plan as such can indicate a child or a child's perspective. However, the statement in VASU does not strengthen the idea of participating children in a way meaningful for them by declaring that *"Even the child can participate in drafting and assessing the plan in such ways as agreed between parents and staff"* (STAKES 2005, 29). The stress in this sentence is on words *even* and *can*. This statement is rather strong, suggesting that the actual and active participants in the discussion are the adults. Hence, the plan "*notices children's experiences*" etc., but is not based on the idea of intersubjective knowledge. Karila and Alasuutari (2012) talked about framing a picture of the child suggesting that the individual educational plans (IEP) imply specific systems of meanings and propose expected ways to consider childhood, children and their education.

In practice, since there are no national instructions for the IEP, most municipalities have created their own formula to aid the planning process. The forms have usually been developed by kindergarten teachers, day-care centre directors, and special educators in the municipality (Alasuutari & Karila 2010). This creates challenges for the educators who have responsibility to initiate the individual plan process with the parents (Alasuutari & Karila 2010). As such, these plans also strongly affect the pedagogy and the functions in ECEC. In the data of Alasuutari and Karila the most prevalent frame was that of individual development. One of the problems in the frame is that the parents and the educator are expected to consider and discuss the child according to certain classifications (such as emotional development or motor skills), even though many of them are very unusual in lay speech. This also easily leads to the assessment of the child's development, because the inquiries in the formula assume that the present developmental state and functioning of the child is examined and goals for its advancement are set. (Karila & Alasuutari 2012.) However, this kind of an approach is not in accordance with VASU. One of the basic rules in VASU is that goals for a child's learning or development are not set, but all goals aim at the educational process, the work of the educators, and the environment.

According to Karila and Alasuutari (2012), IEP forms have a strong framing position in the parent–educator discussions. They are very powerful elements in composing an institutional practice. Via these forms it is possible to maximise certain capacities or desired behaviours of children and parents and to constrain others. Therefore, one is tempted to ask whether the original ethos of VASU transforms into the local ECEC, or whether the local documents begin their own life in the definition of ECEC.

The question posed is also relevant from the point of view of the day-care centre environments. What kinds of demands do the individual plans set for the environment? Is it possible to design environments on terms of each child's individual needs? In the discussion concerning the ethos of VASU, one of the explicit values is that children have the right to "*[...] secure, healthy environments that allow play and a wide range of activities*" (STAKES 2005, 13). If children are cared for and educated in accordance with the ethos of VASU, their environment is given a significant amount of attention. Children's sense of place should be fostered both indoors and outdoors (see e.g. Wilson 1997). The community of children, educators and parents should be an important determinant in the environmental planning (Rinaldi 2006). The feasibility of creating environments in accordance with the child's perspective is diminishing in accordance with the increased demand for individuality.

As a conclusion, the ethos of VASU is based mainly on the child's perspective, but in a way that does not decrease the responsibility of the adults. However, the individualisation aspect brought into the discussion by the child's individual plan creates a number of challenges on a practical level. These challenges arise both from the ideological discourse and on the competency of the professional staff. Hence, the competency of educators is crucial in the VASU-based work. Competency in this respect is not a static term, but it is a willingness to work and to learn together. "*Competence is first and foremost an open process of professional development and self-development, of mutual enrichment, and a human willingness to work cooperatively and take joint responsibility*" (Rinaldi 2006, 50).

A competent staff that implement VASU work mutually in collaboration with parents and actively and sensitively listens to the children. When striving towards finding the best interests of the children and the families it is important to unpack the power-relations, like the ones hidden in the IEP processes, so as to find the participative role of the child (Johansson & Emilsson, 2010).

The definition concerning environment in VASU is on a general level, but describes well the already argued ethos. The child's opportunities to belong in the community of children and adults is emphasised, the child's ways of acting and the content orientations should be visible in the environment, and the environment should enable children to act in meaningful ways. Flexibility, diversity, and opportunities for small group activities are stressed. The environment should also be aesthetic and motivate children to move. To concretise these elements into the visual level in the environments needs definition in the day-care centres. As well as bringing the other aspects of VASU from theory into practice, an environmental design based on the framework has to be discussed in the multi-professional communities (Nummenmaa & Karila 2005).

The theoretical approach to environment

6 PERSON–ENVIRONMENT RELATIONSHIP IN THE FRAMEWORK OF ECOLOGICAL PSYCHOLOGY

One of the basic questions in environmental psychology is the relationship between individuals and environment. This question has been considered as problematic and contradictory. The most dominant perspective, which Heft (2001) referred to as the Cartesian view, separates the person from the environment. In this traditional ontology, man and environment are seen as unconnected entities, where a person's inner world and a physical world that is outside the person are separate units. In other words, environment and nature are outside the person and contain stimuli that disturb the person's inner world, while the person processes the information internally (Järvilehto 1998). This traditional ontology of the environment forms a strong dichotomy between a meaningless material world and a subjective experience related to the meaningful psychological realm (Heft 2001).

The dominant paradigm of the person–environment relationship presents man's inner world (thoughts, emotions, hopes, and desires) as the basis for his behaviour (Järvilehto 1994, 17). Hence, from the epistemological point of view, an individual's awareness of the environment is seen as a mental construction. The world itself and individual understanding of it are separated from each other, and thus individuals experience the world as a subjective realm, not as a common directly perceivable world (Heft & Chawla 2006, 201). The individual's visual perception causes a process resulting in a mental representation of the environment with correlates in conscious experience (Heft 2001, 6).

The main theory in the present research, the theory of affordances, falls into the sphere of *ecological perceptual psychology*. Affordance escapes the environment's duality (Gibson 1986) by providing a *transactional* perspective on the person–environment relationship. In the transactional approaches the focus is on the dynamics of activities in relation to the environment and other people. This means a holistic person-in-environment system, where one must deal with the totality instead of one part only (i.e. person or environment) (Wapner & Demick 2000, 25-26). Järvilehto (2000, 38) de-

fined this system as "*a whole consisting of elements, the interaction of which makes possible its existence or action*". For instance, in the acts of reaching and of grasping, the psychological expression is always based on the co-effect of both bodily and environmental properties (Heft 2001, 110).

According to the transactional perspectives, the environment is not static but always in relation to its users. The relationship between the person and the environment is in constant transaction: the person develops by changing the environment and the transformed environment changes the person's experiences, emotions, and goals. This is seen as a continuous, dynamic process. (Aura, Horelli & Korpela 1997, 20-21; Heft 2001; Wapner & Demick 2002.) Heft (2001, 332) described this as a lifelong process of creating new environmental structures by transforming or eliminating existing ones.

The transactional view to the person–environment relationship relies on context (e.g. Clitheroe, Stokols & Zmuidzinas 1998; Stokols 1987; Wapner & Demick 2002; 2000). However, Wapner and Demick (2002, 3) claimed that there exist only a few theoretical discussions of the precise meaning of context in environmental research, or that most empirical work has focused on rather limited, controlled and artificial definitions of it (Clitheroe et al. 1998, 103). In their description of a holistic, developmental and systems-oriented approach to the person–environment relationship, Wapner and Demick (2002). assumed that context includes all aspects of the person-in-environment system. They proposed three contextual aspects related to person (physical, psychological/intrapersonal, and socio-cultural), and three related to environment (physical, psychological/interpersonal, and socio-cultural). Context refers to a certain variation within each of these aspects of person and environment as well as the relations among these aspects. (See also Little 2000, 89.)

Clitheroe et al (1998, 105) separated the definitions of the terms context, environment, behaviour setting, and situation. These four terms have some overlaps but basically there is some hierarchy between the definitions. Environment refers to the larger milieu that covers human behaviour, behaviour settings being their sub-sets. Behaviour settings are highly organised and consistent people–environment interactions occurring regularly at one or more specific locations. Situations are lowest in the hierarchy, considered as less structured people–environment interactions where the interaction is located in a certain place during a period of time. In relation to ECEC, centres could be defined as behaviour settings, while different pedagogical activities could be defined as situations.

Context in the definition of Clitheroe et al (1998) refers to particular kinds of personal, physical and social aspects that exist in a given environment, setting or situation, and their relationships. These aspects can be either contextual factors or focal variables. Focal variables affect the behaviours assumed to occur in a context, while contextual factors are aspects in the surrounding environment that might affect one

or more focal variables. There is an unlimited selection of contextual factors in any given environment, behaviour setting or situation.

Through the transactional approaches of person–environment relations, and especially with the definition of context as a holistic concept it is easier to understand young children in environments. Within the transactional paradigm, children's environments cannot be approached through a developmental perspective only, which has been the dominant way of assessing ECEC environments (e.g. Harms et al. 2006; 2005). One of the basic assumptions in the holistic approach is that the unit of analysis is the person-in-environment system. This system involves the variation of transactions of the person with the environment. Table 1 provides some basic ideas of the six intermingling contexts presented by Wapner and Demick, and as an example, a few concrete variables relevant in child-in-ECEC centre relations. The complexity of the person–environment relations is formed by the huge variation that the different contextual factors create in a number of situations. Table 1 will become even more illustrative in relation to the concept of affordances discussed further on.

The contextual factors in the person–environment relations are fundamental in the everyday lives of young children. There is research evidence of how these different contexts can be linked to outcomes in the form of children's physical health or behaviour (e.g. Evans 2006). The presented ideas are also well compatible with theories concerning visual quality, especially in relation to the affective appraisal and the associational elements of the environment (Nasar 2000; Kaplan & Kaplan 1989), with the impacts of environmental restoration into well-being (Korpela 2007), and with the theories linking thinking and learning in the context (see e.g. Rogoff 2003). These contexts are also relevant from the point of view of VASU, which provides a framing element for the environmental interpretation in the present research.

TABLE 1 Six contexts of ECEC (reflecting the definitions of Wapner & Demick 2002)

PERSON	IN	ENVIRONMENT
Physical • Health conditions • Development • Size •Skills		**Physical** • Outdoor (playground, forest, park) • Indoor (group room, hall, small group space) • Furniture • Decoration • Equipment
Psychological/intrapersonal • Personality • Motivation • Courage • Curiosity		**Psychological/interpersonal** • Peer relations • Group size • Adult-child interaction
Sociocultural • Family conditions • Cultural background		**Sociocultural** • Legislation • Centre rules • Curriculum

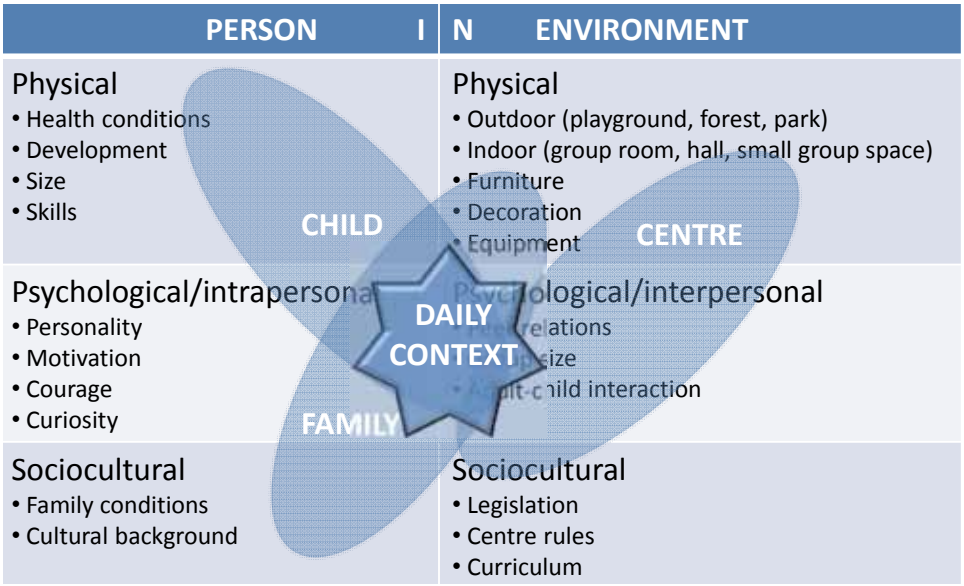


FIGURE 5 The child's daily context in ECEC

To understand children's behaviour and also how the pedagogy of care, education and teaching should be applied in daily situations (see Figure 5), educators working with young children need knowledge of these different contexts. Figure 5 is an application of Table 1. In addition to the six contexts, there are additional elements that may affect the child's well-being and thus the activity level on a *daily basis*. The daily context is formed by the situations concerning the child, the family, and the centre. VASU emphasises for instance the child's age as a factor that may affect how much individual care a child needs. However, if for example a child is becoming ill or is more tired than usual, her need for adult caring may be stronger than in a normal situation, or her activity level lower. Likewise, a changed situation in the child group may have an effect on an individual child's level of involvement.

Environment must be seen in relation to person and behaviour, and therefore its perceivable elements are important. Gibson's endeavour to surpass the subjective–objective dichotomy led him away from a stimulus relation of perception (Hodges & Baron 1992). Gibson (1986, 15) argued that "*The observer and his environment are complementary. So are the set of observers and their common environment*".

Gibson (1986) defined environment as the surroundings of those organisms that "*perceive and behave*". He emphasised the differences between the animal environment and physical world. Physical reality encompasses elements at all levels of size, from atoms to galaxies. However, to understand environment as something to be perceived, it must be seen at the "*ecological level*" (Gibson 1986, 7-9). Behaviour is always in relation to things one can look at and feel, or smell and taste, or events that can be

listened to. Therefore, in studying the person–environment relationship it is not relevant to research the physical world, but the environment that can be perceived and shared with other people (Gibson 1986). Perceiving here means more than just seeing. It is experiencing, feeling hearing, and smelling – using all the senses (Hyvönen 2011, 54). There are plenty of elements in the environment that are not perceivable, and thus cannot be shared with other people. What we see, hear and experience, and what we can talk about, is not private or secret but based on the results of our common activities. (Järvilehto 1994, 141.)

7 AFFORDANCE AS A THEORETICAL CONCEPT

> An affordance cuts across the dichotomy of subjective-objective and helps us to understand its inadequacy. It is equally a fact of the environment and a fact of behaviour. It is both physical and psychical, yet neither. An affordance points both ways, to the environment and to the observer. (Gibson 1986, 129.)

A central concept in Gibson's ecological approach is affordance. An affordance, being located in the intersection of person and environment, shows what kind of possibilities the environment provides, and therefore escapes the absolute duality of the objective and subjective (Gibson 1986). Affordances are potentials for activity that the environment offers for the perceiver. Affordance is thus linked to exploratory activity that can be called a perception–action sequence (Gibson 2000) or a flow of perception–action (Heft 2003) that has consequences. However, perception takes place only when the different characteristics of the individual are matched with the environmental features (Kyttä 2006). Heft (1988, 33) described affordances as "*the environmental counterparts to the expressed activities*".

Thus, an affordance is equally a fact of the environment and a fact of behaviour (Gibson 1986). It is a property of the environment that has perceived functional importance for an individual (Heft 2001, 124). This is what makes affordance so interesting but also challenging. The environment has many observers with limitless opportunities to live in it, and the affordances are always unique for each perceiver (Gibson 1986). Yet, it does not mean that the affordances would not exist without a perceiver. In fact, it is the opposite. The affordances are invariant, and exist in the environment whether perceived or not, as real, objective and physical elements, or as Heft (1989) defined, potential functional properties of the environment. Affordances are fascinating, since they are never fully predictable. Some of the invariants, i.e. the ontologically real affordances, will be actualised when an individual interacts with the environment (Heft 1989). The process of actualisation has many levels, proceeding from first perceiving the affordances, to possibly using or shaping them (Kyttä 2003).

Features of the world have meaning for the perceiver. An affordance gets its value and meaning from the perceiver's needs (Gibson 1986), thus pointing both to the ob-

server and to the environment. In addition to being experienced as attractive or unattractive, positive or negative, the environmental features are often experienced with respect to their functional significance (Heft 1988). Instead of perceiving the pure invariants in the environment, the perceiver sees the environmental features from the point of view of how to interact with them (Heft 1989; 2001). Bruner, whose interests in child development and learning are well-known, considered meaning-making as the core in adapting to the environment, as meanings guide our perception and thought processes (Bruner 1996). From the point of view of ECEC environments this means that children should, at least to some extent, be involved in designing the environments. Without being able to participate, children cannot create a personalised meaning towards their environment. In practice, for children under three years, this could mean having an opportunity to participate in decorating the environment (e.g. with their drawings), being able to create places for their play, and having access to different kinds of toys and materials.

The definition that affordances are realisable only if perception is intentional (Hodges & Baron 1992, 268) makes finding affordances in the environment a creative process. Especially young children who intensively explore the environment easily find meaningful affordances, related both to the usual socio-cultural use and more unusual use of items and places. As Heft (1989, 21) argued, most objects can be used in many ways, and talked about "*the discovery of a new affordance in a familiar object*". This is one of the aspects concerning affordance that makes it challenging, but on the other hand intriguing. Although affordances are dispositional properties, which are constrained by the physical characteristics of an object or environmental feature (Heft 1989), at the same time, the characteristics of the perceiver have to be taken into account. Affordance is a relational concept, which is important especially when talking about young children. As presented in Table 1, children's physical size, their abilities (see Scarantino 2003), needs, previous experiences, and other contextual factors are important determinants. Children and adults quite simply experience environments differently (Day 2007). Knee-high for a child is not the same as knee-high for an adult. A sit-on-able seat for an adult may not immediately afford sitting for a perceiving child. Instead, the child could perceive a shelter to crawl under, or if the child is learning to climb, an obstacle to climb on. In this case the seat affords a perfect place to rehearse that skill. Moreover, for an adult stairs afford climbing, but for a young child one step can perfectly well be sit-on-able, too.

The concept of affordance makes visual perception a functionally active process (Kyttä 2003) *body* being at the centre of perceptual experience (Heft 2001, 136). Perception of affordances is dependent on the body of the perceiver. The fact that affordances are tied to the person's corporality (Heft 1989) is specifically important when talking about young, growing children. All changes in the individual affect the perception of affordances (Heft 1989). The body sets the point of reference for all actions of

the person, and the individual point of view towards the common result of the whole co-operative system (Järvilehto 2000).

> If a surface is horizontal, flat, extended, rigid, and knee-high relative to a perceiver, it can in fact be sat upon. If it can be discriminated as having just these properties, it should look sit-on-able. If it does, the affordance is perceived visually. If the surface properties are seen relative to the body surfaces, the self, they constitute a seat and have meaning. (Gibson 1986, 128.)

Scarantino (2003, 953) proposed the principle that "*affordances are perceivable*" as the empirical hypothesis of the ecological psychology. Since affordances have ecological meanings or values, Scarantino (2003) reformulated the hypothesis by saying that ecological meanings/values are perceivable. For instance, a child perceives the ecological meaning of stairs leading to the loft as climbing-up-able. In fact, Michaels (2003) saw affordances always as action-related. Her definition outlined the actions as intentional goal-directed movement or non-movement. Hence, in the definition of actions, movement is not the issue. For instance watching television is an action. In this definition Michaels (2003) took a critical stance towards Gibson's definition, which introduced two different categories of affordances, only one of which was related to intentional actions. In the other category, actions were absent. For instance, Gibson (1986) defined certain invariants in the environment capable of affording action, like a chair that is sit-on-able, while others do not directly imply a necessary action, like a steep cliff is fall-off-able. Scarantino (2003), on the other hand, did not see these two categories in contradiction with the idea of affordances. Affordances can be either goal affordances, in which case their manifestation is a doing, or happening affordances (like in the case of the steep cliff), their manifestation being in the happening.

According to Michaels (2003), perception of affordances for others ought not to qualify as the perception of affordances. Affordances should always be related to direct attention to appropriate action-guiding information. For instance seeing that a seat could afford sitting to somebody should not qualify as an affordance. Michaels (2003) claimed that in such a case perceiving an affordance would just mean perceiving relations. Keeping strictly with Michaels' explanation, my search for affordances in the photographic data would be in vain, i.e. it would be impossible for me to find potential affordances for children by only analysing the photographs. I will, nevertheless, later bring into the discussion the social nature of affordances, which returns me to the broader interpretation of affordances, as seen by Gibson (1986) and by Heft (2001).

7.1 Affordances and independent mobility

Affordances are strongly related to the perceiver's opportunities for mobility. The degree of independent mobility is closely linked to the extent of affordances that children can perceive in their environment (Kyttä 2003). Gibson (1986, 223) stated that "*We must perceive to be able to move, but we must also move to be able to perceive*". With this relation Gibson wanted to disprove the theory that moving from one place to another is a physical and perceiving a mental process. Instead, these activities are interrelated, as one depends on the other. Our visual awareness is panoramic which means that a single frozen field of view does not give us enough information about the world, but we need long acts of locomotion. Gibson (1986, 197) called seeing the environment during locomotion the "*path of observation*". Mobility and action reveal affordances and when the child perceives them, more affordances are revealed, in Kyttä's (2003, 53) term as "*sequential affordances*". Affordances are revealed gradually – as in a chain. For example when a child climbs the ladder of a slide on a playground, the slide as an affordance is revealed to him/her. Sometimes an affordance remains hidden before the preceding affordance has been perceived and employed. (Kyttä 2003.) Image 15 illustrates an example of how the constraint of one affordance can hinder the occurrence of sequential affordances.


Image 15

The stairs in Image 15 lead to the loft. The child may perceive the stairs as an affordance for climbing up, after which the loft itself potentially affords other things like a space for playing. Blocking the way to the loft obstructs the actualisation of climbing and potentially finding all the other affordances. The single constraint impedes first using the stairs for many activities and then finding and actualising new affordances in the loft.

The interrelated nature of affordances and mobility form an important context for the child's learning and development. Vygotsky talked about "*the union of motives and perception*" (1978, 98) that is a

driving force of action. Children perceive affordances since their birth, first selecting affordances connected to their mothers. In the course of development also their skills to perceive affordances advance. (Kyttä 2003.) Each posture in development, e.g. when a child learns to stand up and walk, creates a new problem space for the child and also a new vantage point to view the environment (Adolph 2008). It is therefore important how adults working with children in ECEC centres promote the child's exploration in the environment. Adolph used the term "*learning to learn*" when talking about learning to move.

> In learning to learn, rather than learning cue-consequence associations (slopes are paired with falling), facts (slopes are dangerous), or particular solutions for familiar problems (avoid walking down slopes), infants acquire the ability to generate relevant information about novel locomotor problems and their potential solutions (e.g., on their first encounter with a slope, they perceive whether balance will be compromised and figure out an alternative, more stable position for descent (Adolph 2008, 214).

Maria Montessori had a very strong emphasis on the child's freedom to move. She stated that human development occurs only through freedom to move and environmental experiences (1988). She saw the restriction of the child's movement as a threat to development. "*Therefore, it happens that if a child is prevented from using his powers of movement as soon as they are ready, this child's mental development is obstructed*". *(Montessori 1988, 68*).

During the many years that Montessori observed children she became convinced that children have an innate motivation to explore the environment if allowed to. She described how mentally retarded children in spaces without any stimuli looked for and picked bread crumps under the table after their mealtimes. Although not defined as affordances, the description illustrates a situation where these children perceived the crumps as affordances for picking. After this observation Montessori started developing children's learning material based on sensory experiences and free exploration. (See Kramer 1976.)

Montessori's discovery has received support latterly. The concepts of "learning to move" and "moving to learn" have been defined as interrelated. Through movement the child learns about herself, about the environment and about the world. Learning through movement is a complicated process that involves cognitive, social, emotional, physical and environmental components. (Lyoka 2007, 345.) Many studies have shown that especially the levels of independent mobility influence children's social, cognitive and emotional development (Kyttä 2006, 144). In her research on child-friendly environments Kyttä (2003, 103) linked the actualisation of affordances into the critical periods of the child's development and pondered whether the sensi-

tisation to affordances especially in the outdoor environment is possible later if it has not taken place in childhood.

The issue of independent mobility is interesting and challenging in the context of children being younger than three. How much independent mobility can one allow for children without creating situations that exceed a safe risk level? Safety is an issue that should always be connected to risk management, and thus, the avoidance of dangerous situations (Laris 2005). Independent mobility has in this respect to do with the overall safety of the environment. However, managing risks does not mean building a boring environment without any challenges. It means that both in the planning and supervision of spaces it is important to distinguish activities that have an acceptable risk element from activities presenting real hazard (Stephenson 2010).

The issue of safety is a significant one considering that children's opportunities for independent mobility in Western societies have decreased tremendously during the last 30 years. Several reasons for this are linked to the physical environment or changes in lifestyle.[1] In addition to having fundamental child developmental consequences, active exploration increases place knowledge and develops the child's "*environmental competence*" (Rissotto & Giuliani 2006, 75). Adolph (2008, 216) proved that by locomotor experience children were learning to learn rather than learning particular solutions. According to Kyttä (2003), to actualise affordances requires independent mobility, and without actualised affordances, a child's responsible relationship with the environment does not develop.

The functional taxonomies of affordances

Both Heft (1988) and Kyttä (2002) have defined a functional taxonomy of affordances. These taxonomies are based on Gibson's ideas of the different perceptible features in environments (1986, 36-42), which can be divided into terrain features, shelters, water, fire, objects, tools, other animals, and human displays. According to Gibson this is just one way of organising the perceptual features in the environment too vast for description. However, using this kind of a perspective to observe the environment helps to classify environmental features according to their distinctive functional properties (Heft 1988, 33).

Heft (1988, 36) proposed a preliminary functional taxonomy of children's outdoor environments based on a number of studies following children's play in outdoor environments. The interest in the studies he observed was focused on environments outside the traditional playgrounds. In creating the functional taxonomy Heft (1988) grouped together environmental features that support some common activity. Hence, he finally defined 10 categories, each of which affords two or more activities. For in-

1 One main reason is safety both in terms of road safety and protection from strangers (Rissotto & Giuliani 2006).

stance, water according to Heft affords splashing, pouring, and floating objects, and attached objects afford sitting-on, or jumping-on/over/down-from. Kyttä (2002, 112) included also the environmental opportunities for sociality in her taxonomy. She defined a number of different plays as social affordances. When observing affordances of young children, as is the case in the present study, the affordances for sociality are crucially important.

The definitions of affordance taxonomies by Heft and Kyttä were utilised as the basis of the VASU-model used in the present study. Because the taxonomies of Heft and Kyttä were designed for children aged seven to nine, they were not as such adequate to take into consideration the needs of children under three. Kyttä saw this kind of taxonomy relevant also for younger children, but due to developmental aspects, she emphasised the importance of revision in accordance with children's age.

The VASU-model that forms the basis of the interpretation in the present study follows a similar idea of the environments' functional properties. However, as will be later explained, the definitions of features are to some extent more concrete than in the taxonomies proposed by Heft and by Kyttä so as to be more easily observable as cues in the environments.

Children's secret places

One of the noteworthy features concerning young children's environmental affordances is the need for special "*children only*" places (Heft 1988, 34). These places simultaneously afford a shelter (e.g. from rain, wind or sun), and afford a measure of privacy. Also Moser and Martinsen (2010) found children's own secret places as bringing value to playgrounds and ECEC centre indoor environments. They learned that particularly meaningful play is often going on in these places. This is supported also by Gallagher (2005), who discovered that the secret places of children are often the site for children's own under life and creative play.

To fit into the description of a secret place, the places should not be easily visually controlled or approached by staff (Moser & Martinsen, 2010). Gallagher (2005, 258) defined children's secret places as *"sanctuaries"* from adult control. In this respect, to perceive and to access these places children need to have opportunities for independent mobility. The issue of secret places is an important one concerning the youngest children, who are easily seen as being too vulnerable to be left without constant adult supervision, and whose independent mobility is restricted for safety reasons (see e.g. Gallagher 2005; Kalliala 2011). Children's secret places are also important in children's place preferences and restorative experiences.

7.2 The social and cultural dimensions of affordances

According to Heft (2001, 329), "*Individual knowledge grows out of social processes and socio-historical contexts*". The nature of affordances is social. Although affordances are always unique for each perceiver, an environment that surrounds a single observer surrounds all observers the same way (Gibson 1986). Therefore, the socialisation process requires the child to learn to perceive the affordances of things for others as well as for self (Gibson 1986, 141).

Discovering and utilising affordances is tied to the cultural and social dimensions of affordances, and to discover them children may need other children and adults (Kyttä 2003, 78). The meanings of affordances can originate from the children's interests or they can be tied to the cultural use of things. An affordance is never value-free. The perceiving of affordances is a process of perceiving a value-rich ecological object. This value has not been added in the affordance in a way that no one has been able to agree upon, but has been commonly, culturally accepted. (Gibson 1986, 140.) Thus, perceiving affordances does not happen in a vacuum, but in culturally and socially oriented contexts (Heft 2001). Perceiving is a value-realising activity (Hodges & Baron 1992), i.e. the values and meanings of invariants in the environment are directly perceivable (Gibson 1986). Thus, meaning and values of the affordances are perceived simultaneously with the object itself (Kyttä 2003, 71). Hodges & Baron (1992, 274) suggested that objects and actions of physical–social settings reveal values, laws, and rules of the setting, and "*speak as loud, if not louder, than words about such matters*".

Although affordances look different to each perceiver, many affordances are shared (Gibson 1986). A stool or a chair affords sitting for perceivers in Western cultures. In fact, many of the common affordances are related to certain cultural or social dimensions. Considering this, infants and toddlers need to learn the use of affordances. Especially when talking about young children's environments, learning the social and cultural aspects in affordances becomes crucially important. The child begins perceiving the affordances that are important for her/his own personal behaviour – one's activities in the environment are relative to one's own legs, body and hands (Gibson 1986, 141). The child discovers new affordances of an object by using it in new ways (Heft 1989). However, without the cultural experience of older children and adults, for instance a toilet bowl may afford a young child an interesting place for water play. Although the child would know the "right" cultural use of the toilet, it may have no or little personal interest for him/her. The adult's task is both to help in discovering affordances and to restrict and guide their use (Kyttä 2003). From a pedagogical point of view this means that even though children create their own meanings and make sense of the environment (Dahlberg, Moss & Pence 2013), adults play an active role in interpreting, guiding and challenging the perspectives children have.

In addition to creatively discovering affordances by using objects and places in many ways, children also learn the purposes of objects and environments by observing others (Heft, 1989). They perceive the physical and social aspects of the environment holistically, not separately and in isolation from each other (see Clark & Uzzell 2006). Heft (2001) argued that much of our knowledge about the use of tools, artefacts, and social patterns of actions in the environment is acquired through others. Within a social situation, in parallel to learning how to use an object, one learns the meaning of the object itself within the practices of the culture. The social aspects in affordances reflect the ideas of socio-cultural learning theories. For instance Barbara Rogoff (e.g. Rogoff, Paradise, Arauz, Correa-Chávez & Angelillo 2003) has paid a lot of attention to participative methods that involve children into culturally meaningful learning. In these methods children learn important skills and knowledge but also the needed culture, ways to act, attitudes, and a large amount of tacit knowledge. Hence, as Bruner (1996) defined, learning is always context-bound. "*Learning to be a scientist is not the same as 'learning science': it is learning a culture, with all the attendant 'non-rational' meaning making that goes with it*" (Bruner 1996, 132).

Affordances can be immediate or conventional, and these are perceived in the context of action (Heft 2001). For example, a spoon in an ECEC centre may afford eating. However, the same spoon perceived as a conventional affordance in the sandpit affords exploring and playing with sand.

Settings, like ECEC centres in which activities take place in a cultural and social context can be referred to as "niches". In architecture a niche is a place into which an object (e.g. a statue) fits. In ecology a niche is a setting of environmental elements that make the environment suitable for an animal. A niche is formed by a set of affordances – in a sense it refers to a way of life (Gibson 1986, 128). In cultural psychology this has been referred to as "activity settings" or "ecocultural niches" (e.g. Rogoff et al. 2007). An ECEC centre forms a micro-level (see Bronfenbrenner 1979) environment for a child's everyday life and interaction. The overall context of the person-in-environment is important. It includes the physical, psychological, inter- and intrapersonal, and socio-cultural features (Wapner & Demick 2002), which together make a day-care centre a niche for the child.

Through their own perception of affordances adults can actively guide the child's perception and actualisation of affordances. To be able to guide or to restrict the utilisation of affordances, adults must be able to "*see through the child's eyes*" (Kyttä 2003, 80). To see through the child's eyes means that adults must know the children and their personal interests, their traits, their developmental needs, and even their life situation, i.e. the previously defined contexts. In the approaches based on dominant learning theories, including the learning environment (see Dahlberg, Moss & Pence 2013), environmental design is based on developmental perspective. Hence, adults plan for children an inspiring and motivating environment with many stimuli. How-

ever, affordances are not stimuli that cause actions, but affordances are realisable only if perception is intentional (Hodges & Baron 1992, 268). Adults can try to direct the child's attention to certain invariants in the environment, but for the child these form affordances only if he/she finds them meaningful.

Kyttä (2003) argued that being with young children also to a certain extent requires the ability to sense the child's acts already beforehand. Seeing affordances through the eyes of children is crucially important to protect children from environmental dangers. Adults should be able to foresee the dangers created by environmental elements seen from the child's perspective. This is one of the central issues also in the ECEC centre settings of young children. It is important in the environmental design in general, but especially from the point of view of environmental safety.

The idea of a niche emphasises the value-realising aspects in affordances, where the importance of nonverbal communication (Rapoport 1982) of environments becomes crucially important. According to Kaplan & Kaplan (2009), we all the time receive different sensory inputs that we use for building cognitive maps of what leads to what. We use these maps and other signals from the environment to determine how to behave in a certain situation. Heft (2001, 329-330) referred to the tools, artefacts, representations, social patterns of actions, and institutions that help us to understand the meaning of the environment as "*ecological knowledge*".

One important aspect concerning ECEC centres as niches is compatibility. Compatibility (Kaplan 1995) is one of the components of restorative environments. A compatible setting has a good fit between an individual's purposes and the activities supported or demanded by the setting (Horelli 2007; Herzog, Maguire & Nebel 2003). An ECEC centre being a niche for the adult and child actors needs to have compatibility in order to support the well-being of children and adults. In a compatible environment the activities happen smoothly, comfortably and naturally (Kaplan 1995, 173). A compatible environment is a place where one can feel belonging. My interpretation is that a compatible environment is similar to Little's (2000) definition of a "*restorative niche*". Little has studied the issue of restorative niches from the point of view of personality trait differences. He observed genotypic traits as the "*first natures*" of individuals and phenotypic traits as the "*second nature*". If environments protractedly demand individuals to act "*out of character*" (in accordance with their second nature), it may cause strain that can exact costs in well-being. These costs can be mitigated by the availability of restorative niches where individuals have an opportunity to express their first natures. (Little 2000, 95-96.)

According to VASU (STAKES 2005), ECEC environments should be sensitive to the child's needs and interests in the everyday context. The educators' task is to create a positive and inspiring environment that supports the child's learning and well-being. Although it is not possible to look at compatibility from each individual child's point of view, it is possible to define a "*consensual good affective quality*" (Russell 1988,

127). The basic determinant in forming such communities is how children's well-being is fostered (Puroila et al. 2012), including the quality of the relationships (see also Kalliala 2011), and how well child participation is enabled. What adults do is important, because it defines the frames and limits for children's participation (Pramling Samuelsson & Asplund Carlsson 2003; Emilson & Folkesson 2006).

7.3 Affordances, learning, and development

The interrelation of affordances, learning and development has already been discussed from the point of view of independent mobility and the social nature of affordances. It is, however, important to pay some more attention to the role of constraints and the active promotion of affordances.

What places afford is not important just for the child's here-and-now, but has an important role in their long-term personal development (Spencer & Blades 2006). From the point of view of learning and development in the environment, the role of the adult is fundamental. Depending on the situation and contexts of the child and the environment ,some children naturally explore the environment more than others. The adults' important task is to encourage children to explore, and thus help children to form strategies to obtain and integrate knowledge and information (Spencer & Blades 2006), i.e. discover potential affordances, and actualise or shape them. Therefore, the social nature of affordances makes the developmental and learning perspectives inherently part of the affordance definition.

In an ECEC centre context, there is a variance in the ways adults either support or restrict children in their actualisation of affordances. The actualisation of affordances is related to the previously presented contexts of the child and of the environment. In practice, the differences between centres arise both from the individual differences of the adults and differences in their educational background (Emilson & Folkesson 2006, Kalliala 2008, OECD 2006), and the overall education (or action) culture in the centre (Puroila 2002). Adults set the frames and limits for children's participation and initiatives in environments, either restricting the use of the environment with strong classification, or allowing the use with weak classification (Pramling Samuelsson & Asplund Carlsson 2003; Emilson and Folkesson 2006).

The views of learning and development in ecological psychology are well compatible with the ideas presented by the theorists emphasising socio-cultural learning, e.g. Dewey's theories and Vygotsky's theory of the zone of proximal development (ZPD).[2]

2 According to Vygotsky (1978) the child has two different developmental levels: an actual level, in which she/he can solve problems and master skills independently, and a potential level, in which the child must get support in the problem-solving from more capable peers or adults. The area in between these two developmental levels is called the zone of proximal development (ZPD). In the actual developmental level, development is viewed retrospectively, as at the potential level, future development is at stake. Thus, Vygotsky stated that the actual developmental levels of two children could be convergent even though their developmental dynamics differ.

Like the social aspect in the affordance theory, these theories pay attention to the role of the adults and more competent others in socially and culturally determined situations (Rogoff et al. 2007). Vygotsky (1978) emphasised that the child's learning always occurs in a particular socio-cultural context in co-operation with someone more skilful. Until the child has acquired competence in developing skills, he/she needs help and supervision.[3]

What is actually interesting and also compatible with the affordance theory is the meaningfulness of activities. Children find tasks meaningful if they are challenging for them. According to Vygotsky (1978), the challenges are reasonable only within the child's ZPD. When activities are in the child's ZPD, with guidance children are capable of far more than could be assumed according to their actual developmental level. Valsiner (1997) approached the ZPD in relation to two zones – the zone of free movement (ZFM) and the zone of promoted action (ZPA), which are similar to the three fields redefined by Kyttä (2003; 2006).

The ZFM defines the area in the environment in which the child has access to objects and spaces. It also defines the ways to act using the objects in the given area. The ZFM is constructed in collaboration with adults and older actors in culturally determined systems. Hence, as also noticed by Daniels (2001), ZFM speaks – similarly to the theory of affordances – of the importance of constraints. ZFM is also a cognitive construction, since it organises the relations between the child and the environment, i.e. relations that have been formed by the society's social and cultural aims and values (Valsiner 1997). However, Cole (1996) emphasised that although the adults' task is to create these developmental spaces and use them for controlling the behaviour of children, the question is always about collaborative activities, where the child and the socio-cultural environment are participants.

The ZFM is seen more as a means to reach the culturally and socially determined goals than a goal itself. Its purpose is to organize the child's relations with the environment and thus channel the child's development in ways acceptable in the given culture. Independent of whether the environment is formal or informal, children's participation in events is always to some extent restricted. (Valsiner 1997.)

In addition to the ZFM, the child's development in the culturally determined direction is guided by the zone of promoted action (ZPA). For instance, the adult can choose a certain piece of equipment that seems relevant from the point of view of the child's development. The child is not necessarily interested in the equipment, but the adult tries with proper means to encourage the child's activity with the equipment. The aim is not, however, to force the child into the activity. Instead, the adult

3 Although Vygotsky emphasised holistic development and saw the social and environmental context crucial for the child's development and learning, he also paid much attention to the internalisation process. Compared to ecological psychology, in which the core issue is not what happens in the individual, but what happens in the ecological totality of which the individual is part (Kyttä 2003, 40), Vygotsky, when talking about higher mental processes, saw internalisation as something individually mental concerning the development of the brain (Vygotsky 1978).

can change the ZPA into the ZFM. These two fields cannot be taken as separate but have to be seen in relation to each other. An extreme example of the relation between these two zones is the way military institutions channel the activities so that the ZFM is equivalent with the ZPA. Thus, an individual does not have any freedom of choice but the only acceptable activity is the promoted (in this case the demanded) activity. (Valsiner 1997.)

The ZPD forms a clear link between the ZPA and the ZFM. If the chosen promoted action is not in the child's ZPD, one will fail in the aim to promote the child's development. The relation between these three zones constantly receives new content depending on what is important in the child's prevailing situation. For instance, when the child starts to climb the adults can channel the child's learning with the ZPA and the ZFM. On the one hand the adults restrict the child's climbing on objects or in an environment that belongs outside the ZFM, and on the other hand they can promote safe climbing by providing the child with different choices. If the child's prior motor development has created a basis where the new climbing skill can be integrated with the adult guidance, the ZPA is in the child's ZPD. (Valsiner 1997.)

The perspectives Kyttä proposed reflect similar ideas to those of Valsiner. Kyttä (2003; 2004; 2006) introduced a schema of how different cultural and social factors affect the actualisation of affordances. The schema – the elements of which are originally based on Vygotsky's ideas of the zone of proximal development and the definitions that Reed made about the ZPD in the systemic person–environment fit (Kyttä 2003, 84) – is divided into three fields that define the promotion or restriction of actualising affordances.

According to Kyttä (2003), in the field of promoted action (FPA) the actualisation of certain affordances is encouraged. FPA regulates which affordances can be actualised in a socially approved way. Hence, it controls the perception, utilisation, and shaping of affordances (Kyttä 2003, 80). When in the field of constrained action (FCA), adults may restrict the child's actualisation of the potential affordances by restricting the child's access (e.g. by the design of objects and spaces), by verbally explaining why children cannot actualise the affordance, or by diverting the child's attention to something else. The fields of constrained and promoted action are important to consider when designing the environments. Building solutions may exclude certain groups of users (here I am talking about, for example, accessibility) or promote certain types of action. The field of free action (FFA) consists of affordances that the child has independently perceived, utilised or shaped. Within the fields of promoted and free action the number of actualised affordances increases. (Kyttä 2004.)

When examined from the point of view of ECEC centres, the education culture and the adults' ideas and ways to act become significant indicators of how these different fields are implemented in a given centre. This is important also from the point of view of the VASU-model in the present study. In the model the actualisation of affor-

dances is proceeding through two filters, the second of which is on the level of practices in the ECEC centres. The practices arise from the education culture of the given centre, and as such reflect the rules of the centre and the values of its actors (the staff mainly).

An example that is related to these three fields of action in an ECEC centre is how children are encouraged or allowed to use certain elements in the environment. Sometimes in the Finnish centres adults create an FCA by restricting children's mobility with rules or denials, especially outdoors and usually due to safety. The younger the child, the more his/her independent mobility is constrained. In fact, in these situations the contexts of the child and the environment are not fully reflected, but the restrictions come from the developmental perspectives taken as self-evident facts (see e.g. Alderson 2010). Images 16 and 17 present two different children's slides with stairs. The slide in Image 16 is primarily meant for children over the age of three and the other slide in Image 17 is for children under three years of age. The small one is located in a separately fenced area for children under three years. The access of children under three years to the bigger slide is restricted, because the slide is located in the "big" children's playground, and thus in this case the slide forms an FCA for children under three. An FPA may be created either by directing the young child's attention towards the smaller slide, or letting the child go to the other playground and supporting her/him in the use of the bigger slide. A knowledgeable educator can define the child's ZPD, and thus choose the most appropriate solution from these options. If the child is

Image 16

Image 17

interested in climbing, he/she may perceive the slide's stairs as an affordance. In most cases slides, considering their location is well planned, are in the FFA. Children are allowed to use slides independently.

Educators in the Finnish ECEC do not sufficiently use the possibility to actively support children's learning by means of the ZPA. According to Vygotsky (1978), learning is always a social process that cannot happen separately from the environment or context. Although the adults would not directly create the ZPA, they guide the activities through different constraints in the ZFM (or in accordance with Kyttä, through the field of constrained action), and on the other hand, create the learning environment to support the child's learning process.

8 ENVIRONMENT'S VISUAL QUALITY

When one steps into an ECEC centre, the first impression of the place is formed very quickly. It is difficult to precisely define how that image is constructed, but the reasons are strongly related to the visual character of the environment. It is also about a combination of social and emotional elements, the atmosphere, the aesthetics, and the order. The formulation of the image is close to the definition of quality as seen by Robert Pirsig in his novel Zen and the Art of Motorcycle Maintenance: "*Quality is neither a part of mind, nor is it a part of matter. It is a third entity which is independent of the two*" (Pirsig 1974, 231).

Although this "third entity" seems to be something that cannot be defined, researchers interested in environmental design and environmental psychology point to the importance of the environment's visual quality, and in fact, it is not independent but dependent on mind and matter. The visual character of our surroundings has strong impacts on human experience. It can evoke emotions such as delight or fear. The visual quality of places can influence people's behaviour, even leading people to avoid a place or to attract people to go to certain places (Nasar 2000; Russel 1988). Moreover, visual does not only mean something that people see. Nasar (2000) emphasised that people respond not only to visual elements but also to *non-visual* properties of places. People pay attention to the environment's associational elements in addition to reacting to the perceptual aspects (Rapoport 1982).

When interpreting the visual quality of environments, we look for certain informants or indicators that gradually reveal to us what the environment is about. These informants can be called *cues* (Rapoport 1982; Nasar 2000). Cues, which are never verbal or vocal, help us to interpret the context and thus elicit appropriate behaviour in relation to the environment. Cues help us to answer questions like "*how we know that a setting is what it is*" (Rapoport 1982, 86), or "*what is going on*" (Kaplan & Kaplan 2009, 330). Thus, the image one formulates when stepping into an ECEC centre is formed by visual and non-visual cues, which are connected to a strong associational element. The image is formed by the prior knowledge and experiences one has combined with the visual (sometimes also extended to sonic, olfactory and haptic) cues in the environment (see Lang 1988). The combination of cues that environments provide is sometimes difficult to define and may feel, in Pirsig's terms, like a third entity.

The visual quality of an environment implies a full picture. ECEC centres are not merely planned spaces in settings, but includes everything that is encountered from the point of entry to the point of departure in the settings, both indoors and outdoors, including the resources, the images promoted, and the messages that these communicate regarding what the setting is about (Langston & Abbott 2005, 70-71). Olds (2000, 25) spoke about "*the true spirit of places*" which arises from the different symbolic meanings of people using them, and all the different contexts behind them.

Visual quality is a broad concept that includes the different meanings of environments (e.g. Lang 1988; Nasar 2000; Rapoport 1982), the whole range of aesthetic features (e.g. Flynn 1988; Kaplan 1988; Russel & Snodgrass 1989), and a variety of elements related to place preferences (e.g. Kaplan & Kaplan 1989; Nasar 1988). The focus in the present study is on those visual elements that strongly affect our interpretation of the environments, hence elements related to meaning and the compatibility of environments, i.e. the "*person–environment fit* " (see Kyttä 2003, 87-90).

8.1 Cues and meaning

The unifying concept in this research is meaning. Meaning is central in relation to the theoretical aspects of affordances, the visual quality, and in the interpretation process of the environments and images. By observing and evaluating the visual images in the environment, we are not operating with physical features. According to the theory of affordances, we perceive value-rich ecological objects and features in the environment (Gibson 1986, 140). According to Nasar (2000),

> The evaluative image arises from the person, the environment and the on-going interaction between the two. It may vary with biology, personality, socio-cultural experience, goals, expectations, and internal and external factors. The environment has many attributes. Observers, depending on both internal and environmental factors, overlook some attributes, attend to others, and evaluate what they see. This evaluation may involve feelings relating directly to the structure of the form. This would require little or no cognition or mental activity. On the other hand, it may arise from the content (meaning) of the form. The latter would require mental activity to recognize the content, place it into a mental framework, and then evaluate it. (Nasar 2000, 122.)

As argued so far, we respond to the environments both in perceptual and associational terms. Thus, there can never be a completely objective evaluation of an environment. We rely on cues to make our interpretation and to break the "third entity" into assessable elements.

Rapoport (1982) defined three types of cues that environments provide: *fixed feature elements, semi-fixed feature elements, and non-fixed feature elements*. The first two are more or less elements in the physical environment,[4] while the third concerns people's non-verbal communication. Due to the nature of the present research, where the interest is in the visual attributes of the environment, only the first two sets of cues are relevant. The environments are decoded by using the various cues as informants. This process also includes the idea of understanding the environment as places of activities, and thus trying to see the environments beyond the visible, i.e. their meaning.

According to Rapoport (1982), fixed feature elements have much less importance in the interpretation of cultural meaning than semi-fixed feature elements. This means that if the semi-fixed feature elements are removed from a building, the cultural meaning of the building becomes unclear. Semi-fixed feature elements are of particular importance in studying meaning in our current environments. Much more than the fixed feature elements, they are under the control of the users and so tend to be used to communicate meanings (Rapoport 1982). For instance many people today move into ready-made environments, and the interpretation of cultural meaning therefore has to rely on semi-fixed features.

In Finland, the designing of day-care centres is, at least to some extent, done in collaboration with architects and early childhood experts. The early childhood experts may bring in their knowledge and requirements at the latest towards the end of the designing process. One could with good reason claim that the pedagogical culture is transformed also into fixed feature elements. However, as described earlier, the typology of the Finnish day-care centre has remained rather static during the history of publicly supervised day-care in Finland. For instance, the indoor space in centres has been designed into home-areas for a specifically defined number of children. One obvious reason for the permanence of certain structures is the architectural process that relies strongly on the RT-cards. The lifespan of the RT-80 –card has been 30 years, during which many relevant changes in the ECEC culture, services and content have occurred. So, although these changes should affect the architectural design patterns, i.e. the fixed feature elements of the ECEC centres, the architectural pattern has been more or less fixed into the instructions of the RT-80 -card. Another possible explanation for the unchanged fixed feature elements in the day-care centre buildings is the long lifespan of the centres. Usually a day-care centre is built to be used for many decades. Even if the fixed feature elements would reflect the relevant pedagogical and cultural values at the time when the centre is built, to maintain an up-to-date design these features should be revised in accordance with changes in cultural values. Whatever the reason for the permanence of the fixed feature elements, the evident fact is

4 Although the present research does not look at the environment from the Cartesian dualistic perspective (Heft 2001) in which environment and perceiver are seen as separate entities, in this specific context the use of the term physical environment is justifiable. It describes the differences between the evaluative elements.

that a change in the day-care centres' architecture, as well as changes in the pedagogical practices, is slow.

Semi-fixed feature elements are easier to change, which emphasises their importance in the interpretation of cultural meaning. This is especially true nowadays, when societies become increasingly multicultural and the demand for flexibility in ECEC environments grows. Consequently, in accordance with Rapoport (1982), some inferences can be made from fixed feature elements, though it would be difficult to "read" the fuller meaning of the environment without the semi-fixed feature elements in the ECEC centre environment.

Images 18 and 19 illustrate the importance of the semi-fixed features in the interpretation of environmental meaning. Image 18 reflects a typical mud hall in a Finnish day-care centre. Children's rain gear and rubber boots imply the outdoor culture in the Finnish ECEC. Image 19 provides information on the recent pedagogical changes. The photographs and the mirror are placed on a level where children work with LEGO® bricks, thus providing many affordances and important emotional elements. The LEGO bricks are placed in an entrance hall, which points to flexibility and creativity in the use of space.

Image 18

Image 19

Formal and symbolic meaning

Environmental meanings convey either the potential instrumental use of an environment and an object, or the meanings can be symbolic or associational. Nasar (1988) talked about formal and associational or symbolic evaluations. Our response to certain formal variables in the environment can be direct, requiring no recognition, comprehension, or cognition (Nasar 2000). Symbolic meanings, however, are primarily socio-culturally determined. Lang (1988) defined a symbol as something that stands for something else. It has a connotative meaning that is beyond the instrumental meaning of an object, which makes a symbol the result of a cognitive process

Nasar (2000) saw that there is a probabilistic relation between environment and behaviour. This stems from the on-going interactional experience of persons with their surroundings. The visual feature may serve as a probabilistic cue for a non-visual attribute, i.e. the observer recognises a *denotative* meaning and construes *connotative* meanings to it. A connotative meaning includes non-visual attributes that are based in the observer's cognitive processes (Nasar 2000). The formal attributes, i.e. the denotative meanings may be similar in two spaces, and yet the connotations may be different. The connotations are bound to the observer's cultural, social, and historical context. However, the division between denotation and connotation is not very clear. The meanings can change with changes in social context over time and in the final analysis there is no such thing as a purely denotative meaning (Sturken & Cartwright 2009).

Non-personalised and personalised meaning

The evaluation of environments should be seen in terms of the meaning the environment has for different reference groups. Objects or architectural variables may have different meanings for different people, depending on their values and experiences. In the evaluation, it is essential to ask whose meaning one is looking for. In architecture, for instance, the meaning of the environment can be different for the designer and for the user. Designers tend to react to environments in *perceptual* terms, in which case the focus is on the instrumental meaning of the environment or an object. The users of environments often react in *associational* terms, and thus, the symbolic meaning becomes important (Rapoport 1982). Rapoport gives an example of how the designer of an elderly people's home thought that the exterior decorated with white frames with black infill elements would make an elegant appearance for the building. Instead, the elderly people who became the residents of the building associated these decorations with coffins and crosses. (Rapoport 1982.)This example shows that the nature of architectural meaning is complex. Architects use forms, colours, spaces and other qualities to communicate with the users of their buildings. However, to be able to communicate their intentions to the users, architects need to know the meanings the users attribute to the different qualities of the building (Hershberger 1988).

Environments can be personalised, taking into account the different perspectives of users, as well as being non-personalised, in which case a single designer's meanings conflict with the various meanings of users (Rapoport 1982). This kind of tendency is sometimes true of Finnish day-care centre design. As mentioned earlier, the day-care centre architecture in Finland is well known and valued (e.g. OECD 2011; 2001). However, the design process, although to some extent involving pedagogical staff is often a display of the skill of the architect, and the meanings of children, staff, and parents may be left unnoticed.

A design based on a non-personalised perspective contradicts the ideas of the day-care centre [school] design tradition in Reggio Emilia, where a space should be personalisable and open to receiving imprints. Those who inhabit the centre construct its identity day by day. A strong collaboration between educators and architects over years results in a series of precise guidelines for the architectural design. These criteria have a strong theoretical and pedagogical connotation. The educational project is formed by the whole community: children, educators, and parents making the centre a collective environment. The meaning is never constructed separate from the surrounding community, the importance of which is described as an "*osmosis*" with the world outside. (Ceppi & Zini 1998, 40.) According to Jilk (2005) learning environments should reflect the learning they are to support, and as such invite learner participation and belong to the community.

As Rapoport argued (1982), an environment that is open-ended and changeable is more participative, and helps the users to feel involved in a community. If the opinion of an environment is too strongly built according to one perspective only, it is difficult to find the environment's common meaning. The transformability of an environment, as the design tradition in Reggio Emilia claims (Rinaldi 2006), is the core factor in environmental meaning. The ideal situation would be to enable personalisation in the different features of the environment, i.e. the fixed, semi-fixed, and non-fixed feature elements. However, the reality in many cases puts the emphasis on the last two features. To build participative ECEC environments would require moving from the culture of strongly classified monomorphic spaces to a culture of forming weakly classified polymorphic spaces (see Kyttä 2003, 107). This is an aspect many current day-care centre and school architects emphasise as a "loose fit" design, which is more responsive to the changing needs of the inhabiting community (Clark 2005; Jilk 2005; Koralek & Mitchell 2005). Without the users' involvement these places are incomplete (Laris 2005).

Personalisation is a challenging issue in the day-care centre context. The composition of child-groups changes at least on a yearly basis, and therefore personalisation from each child's perspective is not feasible. Similarly, the fixed features, e.g. the interior design of the centres do not naturally allow much transformation. However, according to a number of research studies on children's environments, building an environment that enables children's participation and involvement requires flexibility and listening to children's voices (Burke 2007; Clark & Moss 2001). This means that instead of having a complete environment where all actions are pre-determined, and the design is based for instance on developmental aspects, where the setting should engage children. To some extent this is always possible in the ECEC context. The formation of semi-fixed features requires adults' creative thinking and positive attitudes towards children's participation. As will later be presented, documenting children's work visually provides a functioning tool for personalisation.

One of the characteristics that decreases the flexibility of space in ECEC centres is the dominance of certain patterns in the design. Often tables and chairs in one room, and beds in another dominate group space in the typology of the Finnish centres. This kind of space organisation does not leave much room for children to form their own preferable places. This has also been noticed by Burke (2007), who realised that in settings where tables and chairs dominated in the middle, the space at the edges of rooms around the tables became important in children's own definitions, while the furniture seemed to be in their way.

Personalised meanings of environments are strongly connected to environmental affordances. According to Kyttä (2003), without actualised affordances, it is not possible to develop personal relationships with the environment. Children especially need opportunities for exploration and independent mobility to get acquainted with and to

develop meanings within their environments. According to Day (2007), adults experience places by how to use them, since they usually know what a place is for. For children the question is about what places "say", because for them the world is still fresh and needs to be explored. Especially for very young children places are not yet categorised. Instead of seeing places from a simplistic perspective in accordance with their "normal" use, one room can consist of five different places: four corners and a centre, each having a different meaning. (Day 2007; see also Gallagher 2005.)

The definition of cues within the present research

Rapoport (1982) suggested that using cues as informants is a straightforward process involving observation (in this study photographing) and interpretation. One sensitises oneself to see, and saturates oneself in the information. Basically this means that there must be a good number of cues that work as informants for one to be able to interpret the meanings of the environment. The process Rapoport suggested relates well to the hermeneutic interpretation process. The process creates a kind of mode of thought, "*one needs to intuit the meaning of what one sees; that intuition then needs to be checked systematically*" (Rapoport 1982, 123). Moreover, to be able to interpret the meanings, one has to know well the cultural context in which the cues appear.

Cues constitute the basic informants within the present study. However, different than the definitions of Rapoport and others dedicated to this issue, cues in this study mean also the *environmental qualities that support affordances*. Environmental quality supporting an affordance is the definition used by Heft (1988) and Kyttä (2002) in their functional taxonomies of affordances. Basically, to some extent, these environmental qualities overlap with the cues as defined by Rapoport. For instance, a cue (which Kyttä and Heft would in this context call environmental quality) supporting the affordance of belonging is documented work by the children that is put on display. This same piece of documentation can also work as a cue (among a number of others) for defining that the environment is a children's place, and that the basic values in the centre are based on children being seen as competent and participant. Simply, cues are the smallest particles helping to break the visual information of the environment into assessable pieces.

8.2 Affective appraisal

In the definition of the visual quality of environments, affective appraisal provides an interesting point of view. Although affective appraisal will not be used as such in the interpretation of the research images, due to its relevance in our reactions towards places, it is important to briefly present its main elements. For a child, e.g. introduced

to an environment for the first time, affective appraisals can be vital and influence their current and also later environmental preferences. In a way, affective appraisal crystallises the effects of the previously discussed elements of visual quality.

Russell (1988) defined affective appraisal as one of the ways to interpret environment. "*To find a place pleasant, interesting, stressful, or the like is to attribute to that place an affective quality – a capacity to alter mood*" (*Russell 1988, 121*). Most importantly, Russell claimed that affective quality can be considered a key factor determining how humans respond to an environment.

Affective qualities in an environment can be spatially located within two bipolar dimensions (Figure 6). According to Russell, several lines of evidence suggest that all human emotional appraisals can be understood within these four salient aspects formed by two axes (Russell 1988; Russell & Snodgrass 1989). The vertical axis ranges from soporific to extremely arousing, and the horizontal axis from extreme unpleasantness via a neutral point to extreme pleasantness. Human affective appraisals can be located in a network of interrelated descriptors formed by mixes of arousal and pleasantness producing excitement, relaxation, gloom or distress. However, this is only a rough division of descriptors, as there are a number of others being located in different places in the space. Russell suggests four, or in some cases a finer division of eight regions within the space, numbered 1–4 in the figure. When evaluating a place it can be located within one of these regions. For instance *pretty* is between *pleasant* and *arousing*, being thus located in region one. (Russell 1988.)

All the affective descriptors are a matter of degree rather than all-or-none. The more neutral the appraisal is the closer to the centre of the space it is located, and the more extreme the appraisal, the more it falls towards the perimeter. Some places may be prototypically e.g. more pleasant than others, but each place will fit to some degree in many affective categories. (Russell 1988.)

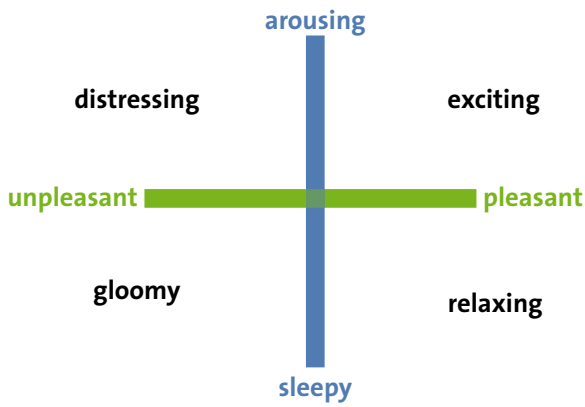


FIGURE 6 The descriptors of the affective quality of environments (Russell 1988)

Affective appraisals describe the affective components of environmental meaning. They are individuals' psychological reactions, for instance, whether they like a particular place or not (Russell 1988; Russell & Snodgrass 1989). Affective appraisal is the verbal description of emotions, and does not necessarily mean that the actual emotional state will be present. For instance, when one says that a place in a day-care centre is exciting, it does not necessarily mean that the description of one's personal mood in that place is excitement. According to Russell (1988), affective appraisals should be distinguished from other affective phenomena, although affective appraisals can also be associated with changes in emotion or mood.

An important element in the affective appraisal is the context of the judgement. Like in all interpretations concerning cues, the evaluative image is not only dependent on the place or its perceptual elements, but on the observer's frame of reference, personal background, purpose, and theoretical and conceptual views. Hence, my own experiences of ECEC have through the years formulated the frame of reference by which I interpret the visual cues I perceive when visiting an ECEC centre. An affective appraisal of a place is always relative to the previously encountered places (Russell 1988; Nasar 2000). For example my affective appraisal of a day-care centre in another country may depend on a specific type of environment that I personally am used to, and so the affective appraisal is also strongly about familiarity.

Being an extremely subjective evaluation, affective appraisal as such is difficult to define, and hence, will not be systematically used in the interpretation of this research. However, it is important to understand how strong certain affective reactions towards spaces can be. Affective appraisals can have a fundamental role for instance in place preferences, and as such forms a fundamental piece of information concerning environments and young children.

8.3 Environments' restorative qualities and children's place preferences

The notion *place preferences* refers to places that are favoured or disliked (Korpela 2002), so the affective quality and the meaningfulness of places are important. According to Korpela (2002), favourite places are used to regulate the experience of self and of emotions. They provide emotional release and restorative experiences.

It is important that ECEC environments provide restoration for children. The fact is that an ECEC centre environment is never fully compatible for all attending children. According to Kaplan (1995) a compatible environment is responsive, and because people's purposes vary, compatibility means different things for different people. However, even if the designed spaces would not function as restorative niches for everyone, laying emphasis on the restorative elements in the spaces in general can have an important effect on children's well-being (see Kaplan 1983).

It is commonly known among researchers interested in environmental restoration that people tend to prefer natural over built environments, and that natural environments have more potential than built ones in providing restoration from stress or mental fatigue. Berg et al. (2003) noticed that high levels of stress were associated with higher preferences for natural than built environments. Likewise, Staats, Kieviet and Hartig (2003) found that especially people who imagined themselves attentionally fatigued preferred a forest to an urban environment. Considering that children also otherwise seem to find natural environments preferable (Moser & Martinsen 2010; Kernan & Devine 2010), having nature as a daily resource has relevance in relation to children's restorative experiences and place preferences.

According to Kaplan (1995) fascination is a necessary but not sufficient basis for recovering directed attention. Kaplan divided fascination into *"soft"* and *"hard"* fascination (Kaplan 1995, 172). One can feel hard fascination for instance when watching a car race. Soft fascination is especially related to natural settings and has the potential for prompting reflection, and thus for restorative experiences. It includes the component of natural beauty. According to Korpela & Hartig (1996), natural places are often preferred over urban ones, especially those with traffic or crowds. They also found that favourite places are seen as sources of restorative experience (also Hartig & Staats 2006; Korpela 2002). In addition to natural places in general, children especially prefer private places. In addition to providing restorative experiences, they provide "sanctuaries" from adult control (Gallagher 2005).

An interesting and important feature related to restorative nature environments is safety. Staats and Hartig (2004) discovered that sometimes people feel unsafe in places with high restorative qualities, like in forests. In such cases having company may be the critical enabling factor in going to such places. Although the presence of another person may degrade the quality of the restorative experience, from a young child's perspective, providing the feeling of safety in a restorative environment is fundamental. However, one should keep in mind that *"[...] company enables restoration by providing safety, but when safety is not a concern, restoration is enhanced by the absence of company"* (Staats & Hartig 2004, 209). With children under three of age the provision of solitary restorative environments is a challenging issue. Safety in relation to young children is not only about children's feelings, but also a concrete question of the extent to which children can be let alone, and in what kinds of places. The issue of providing restorative experiences in nature environments for children under three has to be in relation to appropriate safety elements. Often it means the presence of an adult. However, the present adult can, in addition to providing safety for the child in the restorative environment, help the child to make observations that can feed the child's curiosity about the environment (Staats & Hartig 2004). In this way the adult enables or enhances the child's restorative experience.

According to Kaplan (1995, 172) sleep also provides a restorative experience. Although not a sufficient means of recovery from attentional fatigue, for the youngest children the opportunity to rest during the day has fundamental meaning. Considering this, the space for daily naps receives new importance. The atmosphere of the dormitory or another sleeping environment is highly important. The affective appraisal of the environment should be in between the points of pleasant and sleepy, thus providing the child with an emotionally safe and relaxing space.

In addition to providing restoration, another important feature making places preferable is their complexity, i.e. visual richness (Nasar 2000). Complexity can also be referred to as diversity, variety, or information rate. In children's environments "*moderate complexity*" (Nasar, 2000, 136) could work as an element increasing place preference. According to Kaplan & Kaplan (1989) the affective appraisal of too simple environments would be defined as dull.

Order is among the most prominent dimensions of human response to surroundings (Nasar 2000). Order and its related variables, such as coherence and legibility (Kaplan & Kaplan 1989), are important predictors of place preference among people, because people usually dislike chaos, disorder, and mismatched style. For instance a recent Finnish study conducted on the impacts of environmental stressors on children's diurnal cortisol levels found that a well-organised and comfortable environment can influence children's experiences of physiological safety and as such can have positive effects on children's ability to tolerate stress (Sajaniemi et al. 2011). It seems like no surprise that a chaotic, hectic and unemotional environment stresses children, while a natural, sustaining and harmonious environment decreases children's cortisol levels (Reunamo, Sajaniemi, Suhonen & Kontu 2012).

Order is not an easy concept. As explained, order is an important element (e.g. bringing safety) from the point of view of understanding the environment (Kaplan & Kaplan 1989). Order can also tell about good pedagogical planning (e.g. in a Montessori environment, see Montessori 1988), and as such can be an inspiring and motivating element for the child. A well-designed environment that has good order can also be a positive aesthetic experience for a child. To a certain extent, order tempts children to interact with the environment. However, if completely overriding flexibility and the aspects related to exploration, thus becoming a dominant perspective in the environment, it can be a message with a negative tone. Practically, it may hinder children from exploring the environment by advising not to touch or not to mess up.

Methodological choices

9 RESEARCH BASED ON IMAGES

Observing environments is possible in a variety of ways. However, if one wants to return to the visual elements in environments for evaluative purposes, and not, for instance, rely on their literal description, it is essential to have documented visual data. Photographs are visual images themselves and provide an appropriate way for visual documentation. Photographs can be seen as containers in which many things can be stored. They hold details and memories, even emotions and meanings (Loeffler 2004). With the amount of visual information photographs carry they can capture the *"texture"* of places, and convey the *"feel"* of specific locations (Rose 2007, 247). Hence, photographs can evoke in us similar affections as the visual elements in the environment itself and thus provide a functional means for environmental evaluation.

Pink (2007, 72), who looked at photography from the point of view of visual ethnography, saw photography as a research method with three themes: photography as a visual recording method; collaborative photography; and interviewing with photographs. Although not ethnographic, some of Pink's ideas are well applicable to the present study as well, in which photography has been used as a recording device. The aim of using such photographic records as research evidence is not to tell a whole truth of a certain phenomenon or environment. According to Pink (2007), photographic records are most useful when treated as representations or aspects of culture, instead of trying to be symbols of the whole culture or to have fixed meanings.

Hence, the photographic records formed by digital photographs in the present study illustrate the situation in seven Finnish day-care centres. They do not provide a full picture of the Finnish situation, but offer viewpoints into the culturally determined phenomenon, the Finnish day-care centre and its environment. In accordance with affordance theory, these views are presented from my perspective as a researcher, and are given meaning by me, within the context of my experiences and my theoretical frame of reference. Due to the social nature of affordances, which emphasises the importance of sharing and learning affordances, my aim is also to look for and to interpret the environments from a perspective that takes into consideration the child's point of view as far as possible, i.e. "looking through the child's eyes" (Kyttä 2003). Being an outsider from children's daily context in the centres, the point of view is restricted to the bodily aspects of the child as a perceiver (see Heft 1989), especially in relation to *size*.

9.1 Images as research data

Photographs and other visual images, such as film, paintings, or maps have been used extensively as research data, especially in visual sociology, anthropology and ethnography (Collier 2001; Pink 2007; Prosser 1998; Rose 2007; Stanczak 2007; Thomson 2008). Many researchers see, however, that a visual image is not adequate data, but requires other means to add to its informative value. Often visual images are seen to support or are supported by data in written form. For instance research in sociology and anthropology has used photographs to illustrate a significant finding or a sample of reality (Harper 1998). Considering this, one of the essential questions concerning photographs as research data is whether they can stand as preliminary research data, or if they are always subordinate to data in textual form. For instance, Wagner (2004) noticed that social researchers and also lay readers typically find images of culture and social life to be more credible if they are backed up by other data. Images should be based on extensive and detailed observation and include commentary from the people they depict.

This presented view has been argued by Pink in her rather comprehensive review of contemporary theorists and methodologists of visual methods (2007). Pink, whose research is ethnographic, introduced the main arguments in the discussion between traditional and postmodern approaches to visual sociology, and made a contrasting view. Abandoning the traditional approach in visual research, where data provided in written form is seen as superior, images should be regarded as an equally meaningful element. The purpose of analysis is not to translate visual evidence into verbal form, but to explore the relationship between the visual and other knowledge (Pink 2007). Further, Rose (2007) admitted that photographs as research data can be either support or supplement other methods in social science research.

Riessman (2008) argued that words are not the only form of communication. Other forms (gesture, sound, images, body movement, gaze, posture) communicate meaning throughout the course of life. The idea Riessman had about the different forms to communicate meaning is close to what the approach called multimodality (Kress 2010) refers to as different modes of communication. The first assumption in multimodality is that language is one part of a multimodal ensemble. Communication and representation draw on many modes, all of which have the potential to communicate equally to meaning (Jewitt & Oyama 2001; Seppänen 2005).

Multimodality, in fact, partly criticises Sturken and Cartwright's (2009) idea of images communicating meaning the same way as texts. Instead, images should be read on their own terms (Rose 2007). However, even though some researchers say that images speak for themselves, Riessman (2008) emphasised the enormous interpretative role of the researcher. Images have to be contextualised and interpreted in the light of theoretical questions.

9.2 Context and meaning

Photographs have a cultural, social and historical context. In fact, the meaning of photographs comes from their context (Becker 1998). Depending on the context of the viewer and on the context in which photographs are viewed, each photograph can simultaneously have different meanings (Pink 2007; Sturken & Cartwright 2009). Due to this context-bound nature, photographs provide a potential means of evaluating environmental affordances. In photographs, similarly to visual environments and affordances, the focus is on the perception process dependent on the individual perceiver. Both affordances and photographs get their meaning in relation to the perceiver. While photographs are interpreted in accordance with the perceiver's social, historical, cultural and professional context (the latter similarly in the present study), affordances are revealed and receive their meaning in connection with the perceiver's needs, personal attributes and intentions (Heft 2001). According to Banks (2007, 94), images "*speak*" to different people in different contexts in different ways. Thus, the photographic images that form my research data might obtain a different meaning outside the research frame or when analysed by another viewer. For instance, if the photographs were collated into a collage and shown in an exclusive environment, some of the photographs could be considered artistic.

Duff (1981) argued that photographs are part of a process where single images are dependent on th**e** context in which they are seen. To make sense of photographs requires words or other images. For instance, in the present study it is important to see a single photograph as one part of the data, i.e. revealing some aspects visible in that particular photograph, but at the same time, to see it also in the context of the day-care centre where it was taken and that of the full data.

Rapoport (1982) saw visual features serving as cues to interpret the environmental meaning. These cues are ambiguous and thus require redundancy. In other words, cues must add up to provide relevant information for analysis. Contexts help us to draw inferences from the visual cues. Therefore, the present research data enable me to make interpretations of the environmental meaning by having a vast number of cues with similar informative value. One of the ways to explore the accumulation of cues in the research is by analysis and interpretation.

An important means of increasing the contextual elements among the photographic data in the research was to form clusters of photographs to make sense of the environment. Thus, the visual features in the photographs are not in isolation, but form part of a certain space, e.g. a bathroom or a dormitory. The visual cues in the photographs become more understandable when seen in a specific context. Photographic images reflect a combination of information similarly to how scenes reflect parts of an environment. Scenes, a certain space in the case of the present research, function in a context as being a small portion of a larger pattern of information (see

Kaplan & Kaplan 2009). However, photographs cannot comprise a complete record of the scene. According to Ball (1998), to fully record the visual availability of a phenomenon would need still photographs taken from every conceivable angle and vantage point.

The context of the photographic data in the present study is in Finnish day-care centres. Interpreting the images gives tools to understand what happens in the day-care centres. Kaplan & Kaplan (2009) pointed to the importance of information working as inputs for our sensory system. Using this information we build cognitive maps, which we use to determine what to do in a certain situation. This kind of information is not only important in the process of interpreting how to behave in an environment, but also when trying to understand what certain pieces of information represent in the photographic images. The visual cues work as information, which can be used for the interpretation of environmental meaning.

Hence, when interpreting the present research data it is important to make two contexts visible: the context of the photographs, including the photographing situation, and the contexts of the researcher / photographer. To interpret significant elements in the environment through still images requires much of this contextual knowledge. Understanding the photographs requires information concerning the photographing itself, in addition to information on the architectural elements, the structure concerning adults and children, and activities in the centres. In the case of the present research data this means a description of when and how the photographing took place, what were the targets of shooting and why, who were present during the photographing, how the centres were instructed to be prepared, and what technical details (e.g. distance and light) one needed to concentrate on. This will be explained in chapter 10.

Pink (2007) divided the relationship between the context in which images are produced and their visual content into two differing approaches. In the scientific–realist approach the object of analysis is the image itself or its content. According to this approach, the content of the images should comprise reliable visual evidence of complete contexts and processes.

In contrast, a reflexive approach pays attention to the context in which images are produced and claims that it is impossible to record complete processes, activities or sets of relationships visually. Accordingly, the core is in the reflective act, and so the content of the photograph is not as important as in the scientific–realist approach. The images are always subjectively and plurally defined instead of having a single meaning or status. (Pink 2007.) This aspect is one of the starting points of the photographic interpretation in the present study. Instead of giving an objective appraisal of the seven researched day-care centres, the aim is to illustrate an interpretation of the environments and their visual qualities, and to discuss the potential affordances the environments according to the interpretation provide for children.

In the present study a combination of realist uses of visual images and an approach seeking the meanings of images has been used. The vast number of digital photographs makes a viable visual record for analysing the environmental features on a numerical basis, whereas each photograph or photographic cluster provides a platform for a deeper descriptive interpretation.

9.3 Meaning in the interpretation

The concept of meaning is central in the interpretation of images. Although the present study is not concerned with images as such, rather with what the environments provide, nevertheless to find the meaning in the images is crucially important. First of all, understanding images without interpreting meaning is impossible. Research photography, rather than being a technique of documenting life and finding objective relationships, is a method that seeks discovery. In this process, context and reflexivity become crucially important (Adelman 1998, 150).

Both the photographer and the viewer of the photograph together construct a meaning in a photograph by bringing their personality, personal history and social position into the photographic act, since we use our own cultural lenses both in the act of photographing and in viewing the images (Harper 1998). Meaning does not lie in the image itself but is produced through the process of interpretation. Besides the image itself and its producer, meaning involves three elements: 1) the codes and conventions structuring the image that cannot be separated from the content of the image; 2) the viewers and their interpretation; 3) the context in which the image is exhibited and viewed (Sturken & Cartwright 2009).

According to Sturken and Cartwright (2009), we use the tools of semiotics to interpret the meanings that images contain. They argued that the meaning of images could change remarkably when contexts change. Images contain denotative and connotative meanings, the connotative meanings being tied to ideologies and values. In fact, many of the theories related to image interpretation are based on the ideas originally created for text interpretation in semiotics (see e.g. Rose 2007).

The possibility that photographic images as research data have multiple meanings forms the basis of the interpretation in the present study of the ECEC centre environments. The researcher's subjective perspective also as the photographer plays an important role in the photographic act itself, and in the interpretation of the images.

Prosser (1988) paid attention also to the contextual validity that images do or do not contain. The information the images contain is worth one sixtieth of a second, and therefore still photographs can never attain the same contextual validity as, for instance, a film. A still camera can only capture what Gibson called "*an arrested image*" (1986, 197). However, even if a still photograph can capture only a brief

Image 20

moment, it can provide different meanings from many perspectives. This is possible by developing ways of categorising images that acknowledge the arbitrary nature of their interconnected meanings and are not dominated by content-based typologies of temporally determined sequences. Even if the image alone reveals nothing, it is given ethnographic meaning when linked to other types of knowledge through the analysis (Pink 2007). For instance, the photograph of a child's bed decorated with pictures of her/his family (Image 20) receives its meaning only after being interpreted in the light of the pedagogy utilised in the centre. The centre applies the primary caregiver –model, in which one of the main elements is to strengthen the child's bonds to her/his parents, e.g. by encouraging the child to bring family pictures into the centre.

What can be interpreted from photographs (or visual elements in general) is close to the interpretation in archaeology. In archaeology meaning must be derived from artefacts by making assumptions about behaviour (Rapoport 1982). Similarly, by interpreting photographs one is making assumptions about the behaviour of children and adults in the ECEC centres. Archaeologists make presuppositions of the life and behaviour that have taken place in the environment. To be able to proceed in their interpretations, archaeologists need contextual knowledge to support their conceptions. As in archaeology, a researcher using photographs as data is reflecting the information the photographs provide against all the contextual knowledge one has about ECEC centres. Without sufficient knowledge of, for example, how these centres work, what children and adults usually do, what kinds of rules these centres normally have, or what is the typical daily schedule, it would be very difficult to draw any conclusions

based on the information the photographs supply. Kaplan and Kaplan (2009, 336) referred to internal models, which help the observer to link one scene to a larger pattern of information. These models work as a cognitive map for interpreting the scenes.[1]

In relation to interpretation concerning environments both perceptual and associational aspects become important. Again, it is difficult to separate the assessment of environments or the interpretation of images in this respect. Therefore in this study the interpretation of the data is compatible with the interpretation of the day-care centre environments.

9.4 Can photographs serve as evidence?

In addition to using images as evidence in many research fields, there have been other disciplines that have developed imaging technologies. One of the oldest and the most familiar techniques in biomedicine is the x-ray, but recent decades have seen the introduction of many new ones, such as ultrasound, MRIs and CAT scans. These methods have increased the legacy of positivism, that there exists a true and valid knowledge about the world. Likewise, all mechanical and electronic image-producing systems (such as photography and motion picture film, television, computer graphics, and digital photography) have increased the belief that true and valid knowledge about the world is knowledge derived from objective scientific method. Images have served as evidence, the camera being an objective device for capturing reality despite the subjective vision of the person using the camera. (Sturken and Cartwright 2009.)

Although photographs have been used as evidence throughout the history of photographing, photographs have not been accepted as credible data by common consent. Within any one photographic image there is a complex range of relationships with the real world as well as the manipulations and interventions of the photographer. Hence, photographic images can be considered as evidence of the real world only in limited and complex ways (Winston 1998). Photographs are more or less marked with the photographer's fingerprints. Manipulation or subjectivity of data are not only a problem concerning visual images, but of all sociological data (Becker 1998). Using photographs as evidence brings challenges, as do other kinds of research methods (Razvi 2006).

To maintain the authenticity of the photographs has been an important task in the research process. It was noticed early that some of the workers in the day-care centres were tempted to manipulate the environments before the shooting, i.e. do something extra or unusual they would not normally do at that time of the day. It was nec-

1 Contrary to archaeology, I would have the possibility to strengthen the interpretation of the research images by other means, such as observation. As already argued, this would have changed the focus of the research from the visual environment towards the person's behaviour in the person–environment context.

essary to stress the importance of keeping the environments in as much an authentic state as possible, and not, for instance, tidying up before the photographing. Despite this, many important traces of children's activities had been cleared away before the photographing.

Another element affecting the visible cues is the daily schedule being followed in the centres. This includes tidying up most of the premises several times a day. The procedure easily turns existing cues of actualised affordances into missing ones. Instead of seeing this aspect as problematic from the point of view of evidence in the present study, it had to be taken as a contextual fact. It gave useful insight into the practices, and thus helped in the deeper interpretation concerning environmental meaning and values. One of the rather typical situations relating to the daily schedule is illustrated in Image 21. After lunch – the time when this photograph was shot – in many centres in Finland the room with tables and chairs is being cleaned. All cues of previously performed activities are cleaned away. This may happen even three times a day. On the one hand, this could indicate flexibility: With the procedure the environment transforms to meet different purposes. On the other hand, the procedure hampers children's opportunities for e.g. long-lasting play. Brotherus (2004, 95) called the situation "*tabula rasa*". Although the procedure seems a trivial issue, it reflects the thinking that is prevalent in many Finnish day-care centres. The activities and the environment are often organised from the point of view of ease of different everyday situations (such as eating, sleeping and going outdoors), emphasising the perspective of basic care. For instance, continuity in children's play and other activities is difficult, because the environment has to be emptied for cleaning to take place.

Image 21

Even if photographs are not manipulated in any way, there are other aspects to be considered when using images as research data. A photograph can never be a completely objective piece of data; it is taken by a camera that is used by someone. Like Berger (1972, 10) argued, "*The photographer's way of seeing is reflected in his choice of subject*". The photographer makes many choices, either fortuitously or deliberately, before and during a photographic session. When the choice of what to photograph has been made, there are a number of choices concerning the target, such as the angle, the distance and the framing of the target, and choices concerning the camera, such as lenses, shutter, speed and aperture. The photographer must be acknowledged as a subjective presence. When using photographs as research data, one should be aware of the implicit theories guiding the photographic choices.

In fact, one of the strengths of images as a form of data is that images are both objective and subjective. They form a physical record of what happened at some time or other, and therefore they can be physically objective. On the other hand, images bear a subjective element as they reflect the focus of attention of the photographer at a certain moment (Grady 2004). Depending on their research designs, the researchers determine what to include in the images and what to leave out. The researchers' frame of reference, personal background, purpose and theoretical and conceptual framework affect the description and interpretation of the visual data. The images are captured, analysed and presented through a certain lens (Razvi 2006). Töttö (1999) argued that all description is about making choices, i.e. deciding what is essential and what is not. This description includes also the provision of visual representation in the form of photographing. According to Töttö, admitting that description is subjective serves the objectivity much better than a seemingly objective description.

In the present study the photographic images stood for concrete evidence to be relied on in the analysis, and as such the camera provided a way of going back into what was seen during the centre visits. Although the images would not provide the same multi-sensorial richness of experience as visiting the interpreted environments, they represent the environments well enough to bring forth assessments similar to the ones on site (see Hartig & Staats 2006). The main argument for this in the present study is that I actually visited all the centres. Therefore, the visual interpretation of the actual environments forms one element in the research, and photographs as a concrete aid in the process of analysis and interpretation another. Stanczak (2007) saw a number of benefits in using photographs as data. In addition to being an aid to our memory, photographs may also capture data that we may not have been attuned to but can access later. This is what actually happened in the present study. When visiting a day-care centre one can focus attention only to a certain extent on visual information in the environment. It was crucially important to have stored evidence to reflect upon later.

Exploring and interpreting the environments

10 COLLECTING THE DATA

The data used in the present study is a visual record formed by digital photographs. According to Pink (2007), visual records representing physical environments, objects, events or performances can form a reflexive approach, in which photographs should be treated as representations or aspects of culture. As such, visual records can never have complete or fixed meanings. Contrary to the realist approaches to images that assume that the object of analysis could be the image itself or its content, the reflexive approach demands that attention has to be paid to the contexts in which the images are produced (Pink 2007). Therefore, in addition to the visual record as data in the present study, contextual information from the study centres and from the photographic event were used to support the visual data.

10.1 Forming the visual record in two phases

The digital photographs that form the visual record were shot in seven day-care centres located in five different municipalities in Southern and Eastern Finland. Two of the centres were photographed first during late autumn, and the other five centres between June and November the following year. Photographing in two phases was part of the research design. The intention was to leave the research design slightly open, which enabled making a brief interpretation of the photographs taken in the first phase before proceeding to the second. Making the data collection and the interpretation of the data a continuous process increased the reflexivity of the research, which is a valuable element in a qualitative approach (Edwards 2001, 123), and according to Pink (2007, 23), a central aspect of interpretation and representation. Hence, the photographic data forms a process in which the photographic act and the interpretation are in dialogue. Moreover, with the knowledge received during the first phase, it was possible to focus on some issues more than others during the second phase.

Phase 1

I photographed the first two centres without a focused perspective. Although the aim of the present study was to concentrate on environments for children under three years, and even though in most of the centres the under 3-year-olds have their own separated environments, I photographed the entire centre. It was important to gain a full picture of the centres with all the different spaces. Although children under three years spend most of the day in their own premises, there are also other rooms they use. Most centres have a big hall for gymnastics and festivities, and some centres also have other common premises, such as water play areas and rooms for woodwork. Photographing the entire centre ensured that all places children use were included in the material to be analysed.

I photographed each part of the centres systematically, focusing both on the general view and on details. The photographing session in the two centres resulted in 211 images in total. I downloaded all the images to the computer and viewed them several times to get a first impression of the material. I used my pre-understanding in the exploration of the research material. Viewing the photographs several times prepared me for the second photographing phase.

The thoughtful and thorough viewing of the photographs revealed two things. First, to bring out the full potential of the visual material, a framework needed to be created for photographic interpretation, which would also help to achieve focus during the second phase of the photographing process. Second, in addition to looking for the obvious, explicit cues, I should try to look for implicit cues that may help to find the environments' deeper meanings. Third, I should also deliberately look for both existing and non-existing cues of affordances when photographing. All this resulted in the earlier described VASU-model.

Phase 2

During the second phase I photographed the remaining five centres. By the time the photographing took place I already had a good impression of the 211 photographs shot in the first two centres.

The photographing of the seven centres resulted in a total of 1431 digital photographs. Before starting the interpretation process of all seven centres, I reduced the number of the photographs to 1226. This was an important step in order to delete image duplicates, i.e. images that had an overlapping resemblance with another image. This had to be done carefully so as not to lose any essential viewpoints or information. However, this was a necessary step, since the coding of images into categories and the interpretation would have been difficult if there had been two essentially similar images. Deleting the duplicates was important in the VASU-model interpretation, where

the variety of affordances and the number of occurrences played a fundamental role. It was also important in the process of forming image clusters to increase the contextual validity (Prosser 1998, 106) of the images.

After the first appraisal of the photographs I cut their number further. I made the decision to leave out the images that evidently represented places of children over three years of age in the centres. Basically this meant the group premises of the older children. This concerned all centres, except centre D with no groups and, hence, no spaces defined specifically for children under three. However, I kept all images illustrating outdoor environments, since in all of the centres the children *to some extent* were using the whole yard, not only the one fenced for children under three. Likewise, I kept images of the shared rooms, like the big hall, and the small group activity rooms, as these were more or less used by all child groups. After this operation the number of photographs was reduced to 563. After one more thorough observation during the interpretation process I cut some more overlaps, which yielded 412 images as the data.

Table 2 shows the number of images in each of the centres. One can see that the number of photographs taken in each centre depends on the size of the centre, especially in regard to children under three. Likewise, the size of the outdoor area has an effect on the number of photographs. Since I photographed all relevant areas, the larger the area and the more rooms, the more photographs were taken.

10.2 Photographing context

According to Patton (2001), qualitative research seeks to understand phenomena in context-specific settings. In this section the context in which the photographing took place will be opened. The description includes a portrayal of the centres, i.e. what the centres were like in general and what special features they had, an account of the shooting situation and time of shoot, and all the additional data gathered during the photographing.

The centres

The basic idea was to select day-care centres of different sizes, and with some specific pedagogical and functional features.

An overview of the seven researched day-care centres is important in helping the reader to understand the phenomena described in the interpretation. Also, whenever relevant during the analytical description, additional information concerning the context of the centres will be provided.

TABLE 2 Descriptions of the seven study centres

Day-care centre	Number of photos	Location of the centre	Number of children		Structure of the centre (children under 3)	Issues to mention
			total	children under3		
A	23	Town suburb / block of flats ground floor	36	8	activities mainly in (mixed)small groups, one group of children under 3	applied art-pedagogy close to the Reggio Emilian approach
B	63	Town suburb / own building	67	17	one group of children under 3, one sibling group*	primary caregiver – model applied in the groups of under 3's
C	81	Small municipality / own building	92	12	one group of children under 3	
D	42	Town suburb / block of flats ground floor	65	19	no age groups, space divided in activity rooms	
E	39	Town suburb / own building	65	14	one group of children under 3	
F	54	Town suburb / own building	87	15	one group of children under 3, one mixed age allergy group	
G	110	Town suburb / own building	124	24	two groups of children under 3	primary caregiver – model applied in the groups of under 3's

*Sibling group=a mixed aged group, often for siblings in the same family

Five of the seven centres could be described as typical Finnish centres, i.e. fitting into the Finnish day-care centre typology. This definition applies also to the environment, i.e. the physical space and its organisation.

Table 2 provides an overall image of the seven centres and the size of the data. Additional information about the outdoor spaces in the centres is provided later in Table 19.

The architecture and the interior design of the five centres having their own building (B, C, E, F, and G) could be described as appropriate. They were originally designed as day-care centres and being relatively new (all built at the end of the 1990s or at the beginning of the Millennium) all were in good condition. At its best, the Finnish day-care centre architecture entails a lot of daylight, an airy atmosphere with high rooms, and large room facilities. These features apply to all these five centres.

The two centres located on the ground floors of residential buildings had more challenges in regard to the needs of an ECEC centre. One of them (D) had been originally built as a day-care centre in the 1970s, its architecture being typical for that time. Colloquially that type of design was called a "tube", referring to the long and narrow structure of the building. The outdoor space was restricted to the area around the

building, which differed from the other centres that had a playground as part of the architectural design. The other centre (A) located on the ground floor of a block of flats was originally a shop for car supplies. Its renovation into a day-care centre had been accomplished with creativity. It was rambling with many small rooms. Generally speaking the space was rather limited to the number of children there was, the space per child being 5m^2.[1] Likewise, the outdoor space was small and modest. However, this specific centre utilised the surrounding woods and natural areas to a great extent.

Centres B and G applied the "primary caregiver -model", which has been developed to help children under three to adapt to the day-care centre environment (see e.g. Ebbeck & Yim 2009). According to the theory behind the model, the mother's availability to the child is seen as a critical factor to the child's attachment to other people and to the environment (Hautamäki 2001). The model utilised in the centres has been further developed in Finland (e.g. Tuliharju 2004), and specifically applied to children under three years. The primary caregiver (the term "personal nurse" has also been used) has usually four children in her responsibility during the day, and also has the main responsibility to collaborate with the parents of these children. Even before the child starts in the group the primary caregiver contacts the parents for information and often makes a home visit.

Photographing time

In six of the seven day-care centres the photographs were taken in the morning, after the morning activities, when most of the children had gone outdoors to play. When children went back in for lunch at around 11 am, the outdoor environment was photographed. In the seventh centre the photographing session took place in the afternoon, after lunch. In that centre I photographed indoors and outdoors flexibly, i.e. by moving out of children's way. Five of the centres were photographed in autumn, and two in early summer.

The photographing time is a relevant aspect in the research process, since the daily timetable forms an important context for all activities in Finnish day-care centres. Although the centres can work out their schedules rather independently, the daily timetable is one of the most uniform elements among centres working on a normal schedule[2] around the country. An approximate timetable in Finnish day-care centres is illustrated in Table 3 (see also Puroila 2002, 121; Reunamo, Saros & Ruismäki 2012, 504). Naturally, there is some variation especially in the activities, but schedules are usually rather static (e.g. lunch and snack times or opening and closing).

1 According to the RT-80 –card, the square metres per child in a group of 1–2 year old children would be 8.5. Although not a normative rule, this instruction is to some extent followed, and the area per child usually varies between 7-and 9m2 per child in centres.

2 Day-care services in Finland include also evening and around the clock care.

TABLE 3 The daily schedule in day-care centres

06.00 (–06.30)	Opening of the centre	Gathering in one group's premises Free play Moving to own groups
08.00	Breakfast	
09.00	Morning circle	Preparing for the daily tasks Calendar Songs and games
	Activities according to the centre's plan (Timetable for indoor and outdoor activities vary in centres)	Guided activities in small groups Guided or free play Common happenings Walks and trips Outdoor time (at least 1 hour)
11.00–11.30 (–12.00)	Lunch	Usually lunch in own groups Moving to dormitories for rest
11.30–14.00 (flexible)	Rest	In many centres all children have beds or mattresses for resting. Usually younger children sleep, older listen to a story while resting for a while and then have free (quiet) play and games.
14.00	Snack	
	Indoor activities	Free play Stories
	Outdoor activities (time depends on weather)	Activities (guided or free) Mostly free play
17.30 (–18.00)	Closing time	

Mornings in day-care centres form the most active time of the day. During that time of day most of the children in the centre are present. Usually the didactic and other adult-guided activities happen between breakfast and the outdoor time before lunch. In addition to guided activities there are also a lot of free play activities and other collaboration between children. Although it would be interesting to document all the different times of the day, and thus try to record the variety of activities, it would not necessarily provide wider perspectives on the environmental affordances. One should be reminded that the interest of this research lies within the potential affordances. As the focus is mainly on the semi-fixed feature elements in the environment, and not in the non-fixed feature elements illustrating the activities, the cues of affordances do not necessarily change on a daily basis.

Since one aim of the photographing was to record affordances, especially from the point of view of VASU, and the visual quality as such, the timing of the photographing sessions had an effect on the description. Noticing cues of affordances that have semi-fixed meanings (Rapoport 1982) is dependent on how well they remain in the environment. Although semi-fixed feature elements can change rather quickly, some are more permanent than others. There were some rather permanent elements, like furniture, curtains and carpets.

Although the best time of the day for photographing was after the morning activities, one of the photographing sessions had to be placed in the afternoon due to practical reasons.

The shooting of the photographs

The camera used for all the shootings was a Canon EOS 350D, and the lens an EFS 18-55mm. Only the automatic function with the inbuilt flashlight was used. Keeping to these basic functions it was possible to fully concentrate on the actual photographing process, the aim of which was to create a functioning visual record with enough informative elements.

The artistic aspects were not important in the photographs, as they were only used as research material from the point of view of representing the environments of interest. Other elements, other than those important to the authenticity of the environments, were deliberately ignored when shooting. This was an important part of collecting the data, since although photographs can be said to provide a correspondence to what was in front of the camera (van Leeuwen 2001, 96), contrary to when observing an environment in photographs it is possible to put emphasis on selected items, details or perspectives in the environment. For example, by shedding light on an element, or reducing the element to a shadowy outline, the photographer can purposely change the focus of the details in the environment (see Berger 1972).

Admittedly, certain elements, like light, have an important effect on the visual aspects of the photographs. For instance the affective appraisal may differ between a gloomy room and a room full of daylight. However, the research data functioned as an aid to the researcher's memory, the full image of the places having been formed during the photographing sessions. Moreover, the photographs, the actual photographing, and the additional data complemented each other in providing a fuller picture of the environments.

10.3 Naturally occurring data

In research design that is partly left open, as in the present study, naturally occurring data, both images and data in written form, can offer significant additions to the information received from the systematic data collection (Silverman 2006, 246). In the present study naturally occurring data were gathered during the photographing sessions.

Although the primary data consists of photographs without children and adults, the image of the seven day-care centres was not purely formed by these pictures. It would be false to claim that what was seen and heard had no influence on the inter-

pretation. During the photographing sessions in each centre there were adults and children present at least part of the time. During photographing the observations of events and activities and people's comments became an important additional element in the interpretation. This information also added to the contextual knowledge I personally as the researcher have of ECEC centre environments, and as such formed an important part of the hermeneutic research process.

One example of this kind of information relates to a kiosk type of construction located in the entrance hall of a centre in Image 22. When I was shooting the image, one of the staff members in the centre told me how the kiosk functioned in the everyday practice. The function of the kiosk in the original interior design plan was to inspire children into certain types of child-initiated role-play (such as shop or restaurant). Rather soon the adults noticed that children had no interest in the kiosk as intended in the original plans.[3]

Children had found their own meaning for the construction. It had become the children's secret hiding place, having an important role in their peer culture. Whenever they had the opportunity, children made off to the kiosk to tease adults by hiding from them. This kiosk had become a "secret place" for children, a kind of sanctuary

Image 22

3 An important question is how the adults supported children. Did they encourage children to find interesting elements in the construction? Did they engage in children's play? Or did they expect children to utilise it in their free play sessions?

away from adult control (see Gallagher 2005). With a plea to safety reasons, the educators were trying to prevent the use by blocking the entrance with a chair in the doorway. According to Gallagher (2005) this emphasis on the correct use of spaces implies the aspect of control in the form of surveillance.

10.4 Ethical considerations of the study

There are two important ethical perspectives to be considered in the present study. The first point of view is related to the communication of the research results (see Aguinis & Henle 2002). My interpretations of the photographs may seem critical, but my purpose has not been to downplay the work and education done in the centres. Instead, I hope this study helps stakeholders in ECEC to rethink environments and to consider improvements. I would like to argue that although there are only seven day-care centres in the study, the same observations could be made elsewhere, as I have brought up in the discussion of the results.

The second ethical perspective of this study concerns the consent of the staff in the research day-care centres. I first addressed the municipal ECEC managers with a general written research permission request to photograph the centres. I then approached the day-care centres. Before entering the centres I telephoned each manager and agreed on the practical issues concerning the photographing.

I have deliberately obscured the years of the photographing in the description of the process to ensure the confidentiality and anonymity of the study centres. Although the data does not include images of children or staff, I have treated them with similar sensitivity as if people were present.

11 THE VASU-MODEL

Before going into the interpretation model based on VASU, it is important to describe how the almost limitless number of affordances can be brought first into an evaluative level and finally towards actualised affordances by having a structured filtering process. This process is described in Figure 7.

Within Figure 7 the *grand total potential* describes all the potential affordances in the environment. This layer in the figure is hypothetical, describing the almost limitless number of potential affordances. The dashed line illustrates the undefined number of potential affordances. I could define some of them, either those that are meaningful to me, or the ones that I can assume within my theoretical and professional context would be meaningful for children. However, the result would be a limited selection of affordances picked rather randomly with no clearly defined criteria. To avoid the situation of having affordances determined on the grounds of vague criteria, based only on my subjective knowledge, interests and experience, I needed a credible framework for categorising the affordances, i.e. a reliable way of choosing and prioritising certain affordances over some other. Therefore, *filter one is the curriculum*, in

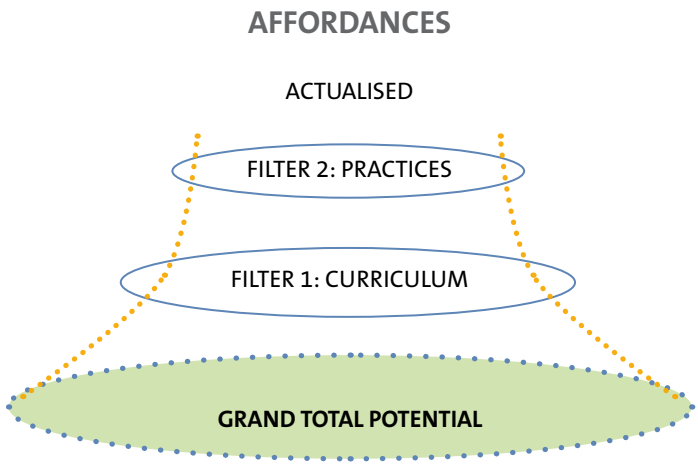


FIGURE 7 The filtering process of affordances

the Finnish case VASU. To enable the filtering of affordances from the grand total potential visible in the research data, an interpretation model, the categories of which are based on VASU, was created.

Filter two in the process of approaching towards actualised affordances is the *practices* employed in the centre in question. Because affordances are functional properties, they are also about behaviour in the environment (Heft 2001). Thus, the pedagogical practices implemented in the centre, and especially the educators' roles are important. Even if the environment would support certain potential affordances that are in accordance with the curriculum framework, the educators can either promote or constrain the actualisation of these by their own activities and attitudes. This aspect relates to the different fields regulating the child's independent mobility.

In this study the interest is in filter one, i.e. what potential affordances VASU suggests, and hence, what can be found in the photographic images forming the data. Whether these potential affordances are actualised or not depends on the practices. Moreover, it is also important to explore what kinds of potential affordances can and cannot be revealed by the photographs and why.

11.1 The structure of the VASU-model

The formulation of the VASU-model was a process proceeding in several phases. These phases are described as part of the research process. The model presented here is, therefore, the *result* of the full research process from the collection of data to the interpretation of the environments. The overall structure of the final model is described in Figure 8.

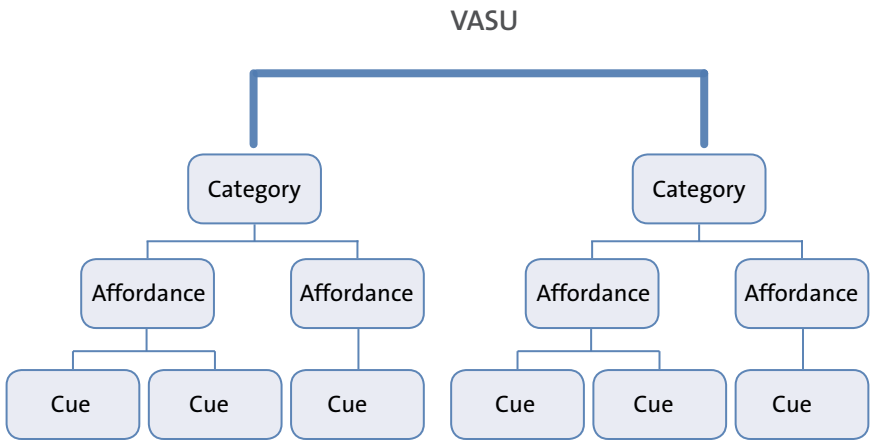


FIGURE 8 The structure of the VASU-model

The model comprises three levels, i.e. the categories, the affordances, and the cues supporting the affordances. The levels can be opened as follows:

Category:	The categories are based on the core ideas of VASU, i.e. aspects explicitly argued in the document. These categories bring in the main issues concerning the implementation of ECEC defined in the document. The categories are divided into 51 affordances in total, and 83 cues supporting the affordances. For example playing and exploration is one category. It is the top concept that gathers together 28 play-related affordances in the model.
Affordance:	Affordances are on a more concrete level than the categories, like playing home, playing shop, or hide and seek –play. Affordance, being in between the child and the environment, and always being functional, is a meaningful activity the child perceives. The affordances were defined through the contextual and practical level information concerning Finnish ECEC, and by the photographic interpretation.
Cue (supporting the affordance):	Cues supporting the affordances are concrete items, invariants in the environment the child perceives, e.g. an organised home corner or a doll that affords playing home. Cues were defined similarly as with the affordances, i.e. through contextual knowledge and by the information provided in the photographs. In the model, cues provide concrete information for the visual interpretation. Dismantling the general level aspects of VASU into assessable cues was important from the research point of view. According to Collier (2001), one can use the different elements of an image as important sources of knowledge, and hence, defining the cues aided in the process of breaking the images into assessable elements. The frequency of the cues worked as the countable elements in the model.

11.2 The contents of the VASU-model

The list of *categories* in the VASU-model is presented in Table 4. Although the categories are explicitly argued in VASU, they do not follow the table of contents in the actual VASU document. The categories were formed in relation to VASU, taking into consideration the affordances and the visual elements in the day-care centres.

The other levels in the VASU-model, i.e. the *affordances* and the environmental *cues*, were formed during the course of the interpretation process. Hence, initially the

list of cues and affordances looked slightly different than at the end of the interpretation process.

TABLE 4 The VASU-model categories

CATEGORIES
Well-being
Language oral written
Playing & exploration
Art experiences & expression
Physical activities
Orientations mathematical, natural sciences, historical-societal, aesthetic, ethical, religious-philosophical
Parental involvement
Environmental opportunity for sociality

The exactness and the concreteness between cues supporting affordances vary in the model. This is partly due to some affordances being more familiar, and thus the cues related to them being easier to define and to find than others. For example the affordance *playing home* has a long cultural history. Compared to some other affordances, it can be concretely verified in ECEC environments with toys and equipment as its cues. Most adults and children have experiences of playing home. Hence, most people also have clear images of what a home-play area should look like and what elements should be included. This is an aspect that also aids in the process of designing environments for playing home.

Whether cues are easy or difficult to define and to depict in the environments is also related to the roles that adults and children have in the process of designing and interacting with the environment and its parts. Environments can be designed on purpose by adults, by children, or by both together. Especially when designed on purpose by adults, the cues are usually rather clear to define, like in the case of home-play. On the other hand, even in role-play situations, like when playing home or shop, toys or other equipment can be used very creatively, differently to their original purpose, which makes the definition of cues more difficult.[4]

Environments in day-care centres are not only designed for a certain purpose, but can also be developed or the affordances can be found during children's activities, e.g. a good hiding place in a hide and seek play. When encouraged and allowed to explore the environment independently, children find affordances in a very creative way. As Kyttä (2003) argued, affordances can be other than the so-called right uses of objects. Especially in spontaneous child-initiated play, children use their imagination and utilise equipment differently to their original purpose (e.g. brooms become hobbyhorses, or a bench becomes a bus). When children are allowed to explore, it is not the designers who decide how environments or equipment will be used, but the children (see Laris 2005). Many play researchers have argued (see Kalliala 2008) that children

4 Laris (2005, 16-17) recalled a manufactured castle in a children's play park. Three young boys came to test the park. The explicit castle references in the building were not relevant to the narrative of their play at that moment, so in their imaginary play the castle became a ship.

do not necessarily need many toys to play with, but they need many things and a rich environment for their play.

Children are constantly looking for new affordances intentionally, not in a haphazard way, as sometimes thought (Laris 2005). This emphasises the subjective nature of affordances in children's environments and makes defining and finding the cues supporting affordances much more difficult. Sometimes the cues cannot be found without observing children's activities. This is especially true when affordances are related to the peer culture routines of children. Children use equipment and spaces in unauthorised ways, often in the course of official routine (such as lunch situations) or during free play (Gallagher 2005). However, these kinds of cues were not the target of the present study.

Describing the level of complexity of the affordances and cues may give rise to some decisions that feel too simplified or too categorical in the VASU-model. For instance placing the affordance *playing theatre* in the category oral language, and in the category artistic experiences and expression, but not in the category playing and exploration was a deliberate choice. When searching for cues supporting theatre play, children's opportunities for independent exploration of e.g. puppets was not definable, and yet, playing and exploration especially should be based on children's independent mobility. Therefore, when documenting the environmental affordances through snapshots, some simplification was needed to increase the feasibility of the model.

Well-being

Due to the ambiguity of well-being as a concept (see e.g. Roberts 2011),[5] some liberties have been taken to break it into affordances and cues. Information from the photographs has deliberately been used in the definition. This means that the affordance listing is by no means exhaustive, but describes merely those elements that are visible in the images, i.e. those revealed through the model.

Especially the child's emotional well-being is one of those elements best assessed by listening to and discussing with the child (e.g. Dahlberg et al. 2013). Even though environment is a crucially important factor in the promotion of well-being (e.g. Sajaniemi et al. 2011; Hartig & Staats 2006), the visual elements in the environment provide information related to it in limited ways. However, it is important to bring these elements into discussion and thus emphasise the significance the visual environment has in the well-being of children.

5 Well-being here is approached from a focused angle, excluding broader socio-economical welfare aspects, such as inequality issues (child-poverty, the right to health and education, and equal social participation) (Lammi-Taskula, Karvonen & Ahlström 2009; Fussel & Gauthier 2003).

TABLE 5 The affordances of well-being

Affordance	Cue	Cue	Cue	Cue	Cue	Cue	Cue
Belonging	Doc: children's work on display	Doc: photographs of activities	Doc: photographs of families or self	Doc: portfolios	Named chairs & beds	Named places for own things	Birhdays on display
Participation	Doc: children's work on display	Material & equipment easily accessible	Toys easily accessible				
Emotional care	Doc: photographs of families or self	Articles promoting emotional aspects					
Instoration/ restoration	Pleasant scenery from windows	Nature elements (trees, bushes) oudoors					
Safety	Safety transparency	Restrictions of access (mobility)	Restrictions of access (material)				

The category was divided into five affordances: *belonging, emotional care, restoration, participation, and safety* (Table 5). In the earlier phase of the interpretation process the model included also an affordance for humour. Humour is related to the skill of seeing things in life positively, and as Riihelä (2000, 38-41) stated, it is a fundamental means in finding intersubjectivity with children. Sensitive adults, who have a good sense of humour are more relaxed and enjoy being with children. However, due to its communication related nature, humour became one of the affordances excluded from the final model.

With the exception of participation, all the mentioned well-being related affordances are closer to the definition of happening affordances than goal affordances (Scarantino 2003). To a certain extent, belonging and participation are very similar concepts. Also emotional care, belonging and safety have elements that need to be discussed in relation to each other.

In the VASU-model, participation and belonging are seen as separate affordances. Although very close concepts, in the context of VASU they also have significant differences, especially from the point of view of cues. In the model *belonging* corresponds to the subjective feeling of being part of and having a role in the community. The cues related to belonging are strongly based on documentation. In the model, all cues except one (objects/issues promoting self-esteem) are documentative. Documentation as such is connected to affordances, and although in the VASU-model it is considered a cue, documentation could also be considered an affordance. In Gibson's (1986, 42) definition of what environment affords human displays come as one element. In human displays, as also in documentation, the informative value is much greater than in the actual material.

Participation in the model reflects participative activities, i.e. children's opportunities to take part, and to be involved. Thus, participation has been separated from its wider context of being a subjective feeling or sense, being entirely something craving for activity. The cues are related to what kinds of materials and equipment there are and how accessible to children they are.

Safety in general is fundamental when managing the environments of children under three. Because of the need to create a usable model, a decision was made to handle safety as a purely physical element, where the qualities are linked to transparency, to access, and to the attributes of equipment. The legislation sets certain standards for physical safety (e.g. Product safety legislation (75/2004). There is also a rather exhaustive recommendation for safety in day-care that applies as well to centre-based as to family-based services (Saarsalmi 2008). Also, the RT-80 card has paid attention to the physical safety in the building instructions.

The emotional/psychic side of safety in this model was approached through the concept of *emotional care*, which defines one part of emotional well-being, with belonging defining another. It became evident that there were only a few concrete and evaluative elements concerning emotional care in the environments. Once again the visual documentation of the performed activities proved a precious element.

Restoration is one of the affordances in the category not much discussed in the everyday context. It is especially relevant from the point of view of the person–environment fit. One could claim that if the person–environment fit is good, the restorative elements are reflexively included. In the VASU-model the cues supporting this affordance were limited to two: pleasant scenery through windows, and nature elements outdoors. In the larger ECEC context outside Finland it is not an exception that children completely lack outdoor experiences, although the importance of the outdoor environment is widely acknowledged in the context of children's well-being and learning (Moser & Martinsen 2010; Kernan & Devine 2010). A central element in children's restorative experiences in day-care centres is the wider outdoors accessible for walks or trips. However, the surrounding environment was not part of the focus in the definition of affordances in the present study.

Language

Affordance as a theoretical concept offers a valuable means to observe the elements of language in the environment. Oral language is a social activity that happens in interaction, but because affordance is in between the environment and the perceiver (Gibson 1986) it is possible to find also cues supporting the affordance *oral language* in the environment. Although Gibson never categorised the social dimensions of affordances, some of Gibson's followers have paid attention to the social and cultural at-

TABLE 6 The affordances of oral language

Affordance	Cue	Cue
Oral language in print-based book reading contexts	Cosy places for listening	Books, scripts, rhymes to listen
Talking	Visual images to discuss	Doc: photographs of activities
Theatre	Theater corner	Puppets etc.
Singing music	Music instruments	

tributes in affordances (see Kyttä 2003). Hence, both written and oral language can have potential affordances visible in the environment.

Although language in VASU is examined as a holistic concept, it was essential to break it into two different categories in the model, into *written* and *oral language*. The varied perspectives of language become visible in the different affordances related to the categories. Since one of the aims of the VASU-model is to open the meaning of the visual environment, it is important to choose affordances the visibility of which can best be affected.

Table 6 presents the four affordances of the category oral language*: oral language in print-based book reading contexts, talking, theatre, and singing music*. These four affordances were chosen because of their potential visibility in the environment.

The affordance *oral language in print based book reading contexts* has two cues, of which *books and scripts* as a cue is more or less predictable. The other, *cosy places for listening* has more novelty. This aspect has not been given much attention in Finnish centres, although from the point of view of the affective appraisal children have towards an environment, it is an essential one.

Talking is an affordance that relies much on social elements, and as such, is definable only after its actualisation. However, it can also be depicted in the environment as a potential affordance. Basically all visual aspects that interest children may afford talking. In the VASU-model due to feasibility these aspects have been reduced into different images and pieces of visual documentation to inspire discussion.

The last two affordances in the category that were placed under language, *theatre* and *singing music*, could also have been attached to artistic experiences.

The affordances of written language (Table 7) are related to "emergent literacy". This term was originally used by Clay (e.g. 1975; see also Korkeamäki 1996), to describe how all parts of language interrelate. Children e.g. interact with books and with

TABLE 7 The affordances of written language

Affordance	Cue	Cue	Cue
Seeing written language	Books, scripts, rhymes to see/use	Words & letters on display	Computer

print, and, through listening, develop their phonological awareness and vocabulary. *Seeing written language* is probably the most common language-related affordance in ECEC centres worldwide, especially in environments for children over the age of three years. This is logical, since literacy (which often becomes explicit through written language) is one of the most highlighted curricular aspects, particularly in English-speaking countries (see e.g. Bennett 2004). However, in regard to environments of children aged less than three years, the situation is often very different.

Elements related to written language have become more visible also in Finnish ECEC centres during recent years. Furniture and objects are named by written tags, while letters and numbers are placed on walls for children to see, and books are more easily within children's reach. These are important aspects related to language but not sufficient to emphasise the importance of language as a holistic activity in ECEC. However, in relation to the visual aspects related to written language these are the most common and most easily depicted.

One of the newer elements related to language affordances is whether there is a computer in the environment. In addition to seeing written language or writing, computers also work as tools to promote children's oral language. Computers provide a number of potential affordances for children also in other areas than language. In the model the role of the computer is limited to written language.

Playing and exploration

Playing and exploration in VASU are considered ways of acting characteristic for children. Play and exploration have been joined in the model to form one category. Separating these two aspects would fundamentally shrink the viewpoint of play or exploration as a phenomenon, because for instance, when children play with water, they always also explore the element. This category has 16 affordances, all of them more or less related to both elements.

Table 8 reveals that seven of the affordances of playing and exploration are connected to different types of play*: role-play, playing home, playing with cars, playing shop, playing with small objects, building, and rough and tumble play* (which is in fact very close to some affordances related to physical activities). The rest of the affordances in the category are related to opportunities for exploration with a variety of materials and substance: *sensory exploration* (with different kinds of sensory material), *exploring nature* (which is very close to the natural sciences orientation), and *exploring water and sand* (also close to the natural sciences orientation).

Playing and exploration are very strongly dependent on independent mobility. The model recognises rough and tumble –play as an affordance. There are two cues (space indoors and space outdoor) related to the affordance. Potentially good spaces for rough and tumble –play create affordances, but they actualise only when children are allowed freedom to move.

TABLE 8 The affordances of playing and exploration

Affordance	Cue	Cue	Cue	Cue
Playing home	Home corner	Dolls & buggies	Kitchen stuff	
Playing with cars	Car mat & cars			
Playing with small objects	A variety of small objects			
Playing shop	Accessories & space			
Building	Blocks & legos			
Playing games	Games & puzzles			
Rough & tumble	Space outdoors	Space indoors		
Sensory exploration	Sensory material			
Role play	Clothes and paraphenalia			
Exploring nature	Nature material	Doc: nature work		
Exploring sand	Sand pits			
Exploring water	Bathing facilities	Water toys	Taps & basins	Puddles outdoors
Real life activities	Rooms and equipment			

Playing and exploration as children's activity is much more versatile than what the model can show. When allowed freedom of movement and freedom of choice, children can be creative in their play. For instance puppets as cues for theatre play could be used in play as well, if their free use is allowed.

Artistic experiences and expression

Artistic experiences and expression are here defined in broad terms, including performing arts and visual arts.[6] Although according to the Oxford dictionaries a general definition of the arts encompasses also literary arts, in the VASU-model they are included in the categories oral and written language, i.e. theatre and literature in general.

The artistic experiences and expression category (Table 9) includes the affordances *hand crafts, woodwork, modelling,* and *painting and drawing*. These affordances are typically some of the major forms of sedentary activities in day-care centres. The cues supporting the affordances are of three types: materials and equipment, special places, and traces of work showing the actualised affordances. This category has many elements present also in the aesthetic orientation.

6 [http://oxforddictionaries.com/definition/english/art].

TABLE 9 The affordances of artistic experiences and expression

Affordance	Cue	Cue	Cue
Playing music & singing	Music instruments		
Listening to music	Music instruments	Cd-players	
Dancing	Music instruments	Cd-players	
Theatre	Theater corner	Puppets etc.	Props for acting/playing
Hand crafts	Material and equipment for handcrafts	Doc: handcrafts	
Modeling	Material and equipment for modeling	Doc: modeling	
Painting and drawing	Paints, brushes, crayons etc.	Doc: paintings and drawings	

Physical activities

The original Finnish version of VASU uses the term movement, which is a much broader expression than physical activities. Movement is one of the four ways of acting characteristic for children (together with playing, exploration and experimentation, and artistic experiences and self-expression). Hence, the term is not only about physical activities but a definition including the idea of independent mobility, and children's innate desire to test their skills – i.e. a fundamental part of child development. Similar to, for instance, playing and exploration or language, movement forms one of the threads running through the VASU document. As such, physical activities come very close to many other categories.

In the English version of VASU the term has been translated to physical activities, which is also used in the VASU-model. VASU defines a physical activity for a child as "*[...] a natural way of getting to know themselves, other people and the environment. Children's awareness and mastering of their body provides a basis for a sound self-esteem*". (STAKES 2005, 22).

TABLE 10 The affordances of physical activities

Affordance	Cue	Cue	Cue	Cue
Balancing	Balance boards			
Climbing	Stairs	Stairs on slides	Cl. frames	Stones, tree trunks
Crawling under	Nook/shelter			
Digging	Sand pits			
Pulling & pushing	Carts, bikes, pushchairs			
Running & jumping	Enough space			
Resting	Matresses	Quiet corner		
Sliding	Hills outdoors	Slide		
Swinging	Swings			
Throwing & catching	Balls			

The affordances in this category are rather simplified, as can be seen in Table 10. A young child would definitely find many more affordances needing physical activity in the day-care centre environment. Creative use of equipment is a relevant aspect, especially in regard to the affordances *climbing* and *balancing*, but also many other physical activities. A bench or the edge of a sandpit would afford balancing, a chair and a table climbing. In many studies concerning young children's environments, climbing has been found to be a prominent affordance (Hansen Sandseter 2007; Stephenson 2003), and for instance a child who is learning or has just learned to walk finds affordances for climbing in places and objects unimaginable for an adult. Especially children over three are very creative in using playground equipment. Theoretically the slide in Image 23 affords sliding down and as a more demanding task climbing up. Climbing up the slide is what Kyttä (2003; 2002) referred to as shaped affordances. However, in the present research climbing up was not considered an affordance to be included in the model. Even if some children under three in the centres would find that an affordance, its actualisation would most likely be constrained by adult control.


Image 23

Content orientations

Even if the affordances and cues concerning content orientations seem very few, it is important to notice that other categories, like playing and exploration, and artistic experiences and expression, include several elements present in the various content orientations. Due to the integrated nature of the work with children in day-care centres, the content orientations are better covered than one would suppose in accordance with the VASU-model.

Although there are similarities in the affordances between certain content orientations and the child's ways of acting, there are also differences regarding both the intentionality of the activities, and the level of independence children have when carrying out the activities in the environment. For this reason, there is a deliberate difference between the definitions of these categories. Content orientations are more goal-oriented, and as such also more adult-initiated, while the basic idea in the different child's ways of acting is to allow exploration and child-initiatives. This makes the child's ways of acting more related to independent mobility in the model.

During the interpretation process the number of affordances in the mathematical orientation (Table 11) was cut from six to one. Exploring size, order, shape, quantity and number are affordances that can be found in any environment. The number of these affordances can be limitless, because cues supporting them are everywhere (see Vuorio 2010). Objects of different sizes and of different geometrical form, or quantity of material like sand afford children to explore and experiment. Similarly to some affordances linked to children's mobility, these were left out due to feasibility. Therefore, only the most easily definable affordance, recognising numbers, was left in the model. Especially from the point of view of children under three this cue simplifies and also to some extent distorts the very essential affordance in the environment. On the other hand, it may also show some of the conscious choices made in the environment in relation to this affordance.

Natural sciences orientation in the model (Table 12) is very close to some of the affordances concerning playing and exploration (especially exploring nature, water,

TABLE 11 The affordances of mathematical orientation

Affordance	Cue
Recognising numbers	Numbers on display

TABLE 12 The affordances of natural sciences orientation

Affordance	Cue	Cue
Natural sciences experimentation	Material and equipment	Doc: nature work

sand, and snow). The only affordance in this category is *experimentation*. The difference between exploration and experimentation is vague, and some of the elements related to the natural-sciences orientation are visible in the category exploring nature. There are two cues supporting the affordance *experimentation*. Material and equipment shows the potential to the affordance, while traces of work are documentative, showing the potential through the actualised affordance.

In the playing and exploration category the cue for the affordance exploring nature is natural material. This refers to different things like stones, cones, leaves etc. Material and equipment in the natural sciences experimentation is broader, including also man-made material, images, etc.

Natural sciences orientation (together especially with the aesthetic orientation) is also significant for children's relationship with nature in general.

The aesthetic orientation opened up in Table 13 is very close to the category of artistic experiences and expression. Aesthetic orientation is strongly linked to the visual quality of the environment, and as such the number of different environmental elements is much larger than is suggested in the model.

Aesthetics is also important from the point of view of how children develop their love towards nature. Research has strongly demonstrated that natural environments attract people (e.g. Kaplan 1983). Hence, the aesthetics that nature provides together with children's opportunities for experimentation in the natural sciences orientation, and the different opportunities for exploration in the category playing and exploration are important in the environments of children under three. These elements are especially important in the outdoor environment. Moreover, aesthetics is a fundamental factor from the point of view of well-being, and in the model it is strongly related to the affordance *restoration*.

TABLE 13 The affordances of aesthetic orientation

Affordance	Cue
Visual experiences	Aesthetic display of children's work
Exploring art	Doc: artwork

TABLE 14 The affordances of historical societal, ethical and religious/philosophical orientation

Affordance	Cue	Cue
Historical experimentation	Material for historical experimentation	Doc: historical experimentation
Opportunities for ethical discussion	Doc: cues of ethical discussion	
Opportunities for religious discussion	Doc: cues of religious discussion	

The affordance of historical societal orientation visible in Table 14 is *experimentation*. The cues supporting this affordance are material and equipment, and the documentary traces of work.

The way to discover the potential affordance *opportunities for discussion* of ethical and religious/ philosophical orientation purely from environmental interpretation is by documented activities visible in the environment.

Parental involvement

To work in partnership with the professional educators parents must feel they are involved into their child's ECEC. Traditionally, most of the parental involvement occurs in everyday encounters and in various happenings and festivities. In the model parental involvement includes also the element of parental participation in the daily lives of their children, which is an important part of educational partnership in VASU.

Parental involvement has three affordances: *coming in and staying, getting information, and participation in child's ECEC* (Table 15). Coming in and staying means that parents should be able to feel that they are welcome at the centre at any time. In the model the cue related to this affordance is places to enter and stay, like sofas to sit, or large enough corridors / halls to enter. One of the elements not discussed in the current study is the first impression that parents get when entering the centre. The feeling of being welcome is also tied to the visual "messages" a centre gives to visitors, like rules to take off shoes, open or closed doors to the group rooms, or presentations of children's activities on walls. This issue was left out from the interpretation model, but it will be discussed as an important element of visual quality.

It is also important for parents to get enough information concerning their child's ECEC. Although not sufficient in these days of various types of electronic information, the cue for getting information in the model is very traditional – the information board.

The third affordance is based on documentative cues. By documented activities parents become better aware of what is happening in the centre. Documentation that involves parents is formed by children's work, stories about children and activities, and especially photographs of various activities and situations. Without being pres-

TABLE 15 The affordances of parental involvement

Affordance	Cue	Cue
Coming in and staying	Places to enter and stay (e.g. Sofas)	
Getting information	Information board	
Participation into child's ECEC	Doc: children's work on display	Doc: photographs of activities

ent, parents can feel involved in the ECEC community, which increases their trust towards the centre.

Environmental opportunity for sociality

Most of the affordances in the VASU-model have inclusively environmental opportunities for many types of sociality, e.g. play mostly happens in social interaction. Technically, the ECEC environment should afford collaboration in different kinds of groups that also have a multi-age collaborative element. The environmental planning should also afford different kinds of collaborative activities, such as team games or quiet playtime in small groups.

More than anything, environmental opportunity for sociality forms a paradigmatic question. What kinds of social opportunities that environments should provide is dependent on how we see children's sociality. To look at the opportunities for sociality as a an affordance of its own is especially important in relation to small children, who are often seen as needing much adult care and support, and less peer contacts (see e.g. Broström 2003; Roberts 2011). Children's opportunities for sociality are also strongly related to the adult control element. Especially the youngest children's independent forming of peer-contacts may be constrained due to e.g. safety reasons, as presented in the example concerning the entrance hall construction.

Opportunities for social interaction are considered very important in the Finnish ECEC. In a national ECEC parental enquiry (Kronqvist & Jokimies 2008), parents rated children's opportunities for social contacts with peers the most important issue in ECEC. Parents have great expectations on children's sociality and having peer-contacts, and how to act in a larger group of children (Alasuutari 2003; Tiilikka 2005). Since the social environment also has a crucial role in children's well-being, learning and development, the opportunity for sociality is entitled to its own category in the model.

Collaboration in large groups of children seems rather self-evident in ECEC worldwide. The Finnish day care centre typology showed that the fixed feature elements in day centres favour set child-groups of around 12 children under the age of three years (or 21–25 children aged 3–6 years). However, different small group practices have emerged especially during the last 15 years in Finnish ECEC, and nowadays it is very common to divide children into small groups during the day, often in accord-

TABLE 16 The affordances of environmental opportunity for sociality

Affordance	Cue	Cue	Cue
Collaboration in small groups	Small group room	Corners, sofas etc.	Huts or nooks outdoors

ance with the normative adult-to-child ratio (1:4 for children under 3 years; 1:7 for children over 3 years). According to VASU, day-care centres should afford many opportunities for collaboration in small groups.

The social aspect is naturally involved in many of the affordances in different categories. Many of the affordances for children are related to what other children do. Especially younger children often admire the older ones, and try to imitate them. This issue receives far too little research, though.

Initially the emphasis in the model was to observe how the spaces and their structural solutions afford collaboration among children, i.e. children *collaborating in small or larger groups*, and *multi-age collaboration*. Over the course of the interpretation it became evident that almost all of the spaces support some collaboration in larger child groups. Likewise, multi-age collaboration was difficult to observe in the images, as almost any space allows it, if not constrained by adults. It also became clear that the cues were not very easy to authenticate, or even to define precisely. Hence, the final model includes only collaboration in small groups from a rather traditional perspective, i.e. whether there are physical premises for it (Table 16). Although simplified, these cues provided rather interesting information to interpret.

One of the aspects that is less emphasised in the Finnish ECEC is how the centre becomes part of its neighbourhood, i.e. *joining with the larger community*. This issue was not included in the model, but forms an important element of environmental transparency that is discussed in the results.

The excluded categories, affordances, and cues

There were basically two reasons for some affordances to be removed from the model. The first was the rather self-evident nature of the cues, e.g. some natural materials supporting the mathematical orientation, or many parts of the interior and exterior design, such as chairs and benches that afford climbing or hiding. Marking all these cues in the photographs would definitely have decreased the feasibility of the model, as all chairs potentially afford climbing for a child who is eager to test his/her skills. The second, interrelated reason was the constraints formed by the social and socio-cultural contexts of the day-care centres. For instance a toilet-bowl may afford water play for a child, but the adults systematically constrain the child's independent use of the toilet-bowl (seeing it as a negative affordance) by closing doors and by forbidding the child. Similarly, adults usually would not allow climbing on chairs and on tables. During the interpretation these kinds of cues in relation to certain affordances were removed from the model. Thus, the remaining affordances in the model are all more or less goal-oriented affordances, i.e. affordances that from the perspective of VASU *ought to be observable* in the environments.

When forming the first version of the model, two important categories argued in VASU were intentionally excluded. These are related to the support measures for children with special needs, and to different cultural and linguistic viewpoints. Although important from the point of view of the equal opportunities policy emphasised in VASU, these were excluded for the sake of the model's feasibility. Environmental perspectives concerning different multicultural factors and a variety of support measures for different needs are areas that have a number of special challenges. To begin with, there is the question of how multicultural elements should be visible in the environment. Finding a solution to this question is a process starting from definitions of multicultural. Secondly, both the multicultural elements and the support measures for children in need of extra support should be as much as possible inclusive in the environment, and as such are difficult to be specified in this type of an interpretation context. Hence, in order to restrict the number of evaluative elements down to a feasible level, multicultural issues and special support would better be examined as separate entities, and thus were excluded from the model and the interpretation.

In addition to the removed affordances, there were some basic elements of the Finnish ECEC that were initially left out. These are related to nutrition and rest, and to taking care of hygiene. These form part of the child's well-being defined in the Act on Children's Day Care (36/1973), and as such should be enabled in all centres. Although beds for the child's daily rest were not counted in the interpretation as a cue supporting the affordance resting, beds were included as cues to support other affordances. For instance, many photographs revealed that the child's independent mobility is encouraged by providing a ladder to reach the upper bunk bed. Many of the photographs also revealed that children's emotional well-being is emphasised by allowing children to have their own cuddly toys in their named beds while sleeping. Therefore, the mentioned facilities, similarly to the other elements concerning children's basic physical well-being, were analysed only in relation to other aspects of the child's well-being, learning and independent mobility. Likewise, children's opportunities for restoration in the form of sleep were not considered as an assessable element in the model, although an important aspect in the environment.

12 THE PROCESS OF VISUAL ANALYSIS AND INTERPRETATION

The analysis and interpretation is formed by two partly overlapping approaches that include quantitative and qualitative elements. The quantitative part of the analysis can be called the *VASU-model analysis*, based on Pink's (2007, 74-75) idea of visual records. In the VASU-model analysis the occurrence of cues supporting the affordances was made visible by using the VASU-model. Counting the number of cues could reveal valuable information a) about the environments and b) about the VASU-model itself. The qualitative part of the analysis is based on the contextual interpretation of separate photographs or photographic clusters. Pink (2007) talked about the importance of linking the different knowledge in a photographic image to communicate ethnographic understandings. Although the present study is not ethnographic, the analysis and interpretation provides information and understanding of the activities and life in the ECEC centres.

These two approaches complemented each other during the process of analysis and interpretation. The VASU-model helped to decode the visual information in the photographs into details, i.e. into cues. In this way the research process formed a hermeneutic cycle, in which the analysis and interpretation moved between holistic viewing of the photographs and structured, detailed examination of particular images and their cues.

The focus of the analysis and interpretation was both on representation and on hidden meanings (van Leeuwen 2001) of the images. Representation is about what the images represent and how, while hidden, connotative meanings look for deeper perspectives connected to ideas and values. Combining these elements in the analysis and interpretation helped to create the best possible image of the environments in the present research.

12.1 The VASU-model in the research process

The aim of the VASU-model analysis was to concentrate on the occurrence and lack of potential affordances by observing the accumulation of the cues supporting affordances. By making the occurrence of cues visible in numbers, and paying attention to the cues that were missing or had only limited occurrence, the aim was to show which VASU-related elements were visible in the environments.

To notice what cues are missing one has to know what to look for. Finding the missing cues means that the photographs need to be analysed while also taking into consideration different contextual factors. Therefore, the researcher's subjective visions form an important context. As Pink (2007) argued, reality is not assessable and recordable only through scientific methods, since reality is itself subjective and known only as individuals experience it.

Coding the photographs for interpretation

Visual records need clear identification that provides connection to important contextual information (Collier 2001). The identification connects the contextual information concerning each centre to each analysed photograph. This information has relevance from the point of view of cues as informants of affordances. For instance, when analysing the role of the computer in Image 24, the contextual information needed in the interpretation is the strong documentation practice in the centre. The computer as a cue supports many affordances in that centre. For example, it affords getting acquainted with written language. It also supports children's joy of learning by creating experiences for children to learn written language or image processing in a meaningful context. Without the mentioned contextual information the computer could be interpreted also as a game device for children, or as a tool for the adults' office work.

Coding the photographs was also important to assist in record-keeping during the interpretation. The volume of information generated from visual analysis can overwhelm the researcher's capacity to keep in mind all the details and important associations (Collier 2001). The visual record, being formed by 412 images and 50 different affordances, and altogether 83 different cues, needed a logical and analytical coding system. First, each centre was coded with a letter, from A to G. Images were then coded with the letter of a centre and with consecutive numbers (e.g. A8, C13, G28). After coding the images, a visual effect was added and the photographs were placed in 12 colour-coded groups/clusters in the VASU-model in accordance with the space/room they represent (e.g. dining/activity room, dormitory, hall, and toilet).

Image 24

Using the VASU-model

The VASU-model was transformed into an Excel-table, and each of the research photographs were brought into the table for interpretation.

There are certain basic principles concerning the use of the model that have to be taken into consideration:

1. Each image was analysed by marking the cues supporting the affordances on a 1/0 basis – 1 pointing to the occurrence and 0 to the absence of a cue in the photograph. Hence, one photograph may have none or many cues.
2 To be precise in counting the *frequency* of the cues, it was important to concentrate on the environments, and not on the images. Both single images and formulated clusters were observed. To avoid overlapping, instead of marking all cues in the images on the 1/0 basis, each image was also observed as part of the cluster.
3. If a cue *documentation: photographs of families or self* occurred in Image 1 and in Image 2 in a yellow cluster (dormitory), it was marked only once, see Images 25 and 26. However, if another set of children's paintings occurred in Image 1 it was also marked.


Image 25


Image 26

4. If two different sets of children's paintings occurred in a single photograph, one of them was marked to another photograph in the same cluster, e.g. as in Image 27.


Image 27

5. The cues in the environment were counted as an *existing feature in the environment*, not as many articles / toys. For instance, in Image 28 the frequency of the cue *soft cuddly toys* in the model was counted as one, although in the image one can see there are several soft toys that could fit as a cue. Likewise, a set of children's winter paintings was counted as one cue for *documentation: children's work on display*. This kind of marking showed whether certain types of cues supporting the affordances exist or not.


Image 28

12.2 Constructing representations of representations

One of the central conclusions from using the VASU-model was that it provides a reliable picture of the environments only when integrated with a study also of visual quality in the broader sense. Therefore, the VASU-model analysis was expanded by a descriptive, context-bound exploration of the images and the image clusters. The model's task was to offer an overall image of the focused centres' *choices* – conscious or unconscious[7] – concerning the pedagogical orientation. When added to the elements obtained by interpreting the visual quality, the image of the environment became deeper, and was able to include also the values and the conception of the child that form the basis for the pedagogy (see Rinaldi 2006).

The focus on decoding the photographs was to define the evaluative image of the photographs by interpreting the different meanings they revealed for the researcher. In addition to looking at the cues as the informative elements, other important aspects related to visual quality were also taken into consideration. An evaluative image of a place is always subjectively defined: observers create their own meanings. Therefore, an image is never neutral, but is literally and socially constructed. To be reliable, the interpretation has to be a conscious activity, using systematic approaches that are open to scrutiny. (Thomson 2008.) This principle was followed by providing sufficient visual material for the readers to track the researcher's choices, understanding and interpretation.

Decoding the photographs meant providing relations between the data and its textual description. In the visual interpretation one has to move from the visual domain into the textual, which means constructing representations of representations. The study photographs form a fixed, stored and accountable data set, which can be repeatedly reviewed and also shared with the reader of the text. The interpretation in the form of text is accountable to the photographic data.

7 Argyris and Schön (1974) talked about theories of action that can be espoused or they can be theories-in-use, which are tacit in nature. These theories govern the pedagogical choices we make in education.

Results and interpretation

13 CUES AND THEIR VISIBILITY

In order to provide a sound basis for interpretations related to affordances, a brief examination of what makes cues visible is necessary. This is important to realise that the number of hits has different meanings for different cues. In the following sub-chapters the cues are examined according to their visibility in the environments. The hit rates provide an interesting reflection tool for the interpretation. This is an especially important aspect further on, when the results will be interpreted in accordance with the affordances and the VASU-related categories.

13.1 The hit rates of cues

Table 17 provides an overall impression of the hit rate variance. Using these simple quantitative measures enables a survey of the whole corpus of data, and provides the reader with a glimpse of the data as a whole (see Silverman 2006). The number of hits shows what kinds of cues were visible in general in the environments and to what extent. Taking into consideration that each observer has a certain frame of reference when seeing the environments, the hit rates show the actual situation in the observed seven day-care centres as I have seen it. Although the hits are counted cues, and as such "objective", the observer's frame of reference affects how they are perceived.

Listing which cues have a big or a small hit rate also provides some foundation for the expectations one builds around the number of cues in day-care centres. For example *children's work on display* as a semi-fixed feature has and should have a bigger hit rate than *cosy places for stories and discussion* partly formed by fixed features.

Table 17 does not show what exact number of hits is a good or a bad result concerning a cue. In order to interpret the visibility one needs more information.

TABLE 17 The hit rates of cues

The hit rates of cues					
Visual images to discuss	113	Soft cuddly toys; Books &rhymes to see/use; Dolls & buggies	23	Things to buy etc.	10
Children's work on display	62	Information board	22	Stones & tree trunks	9
Restrictions of access (mobility)	45	Documented nature work; Named places for own things	20	Numbers on display; Photographs of activities; Quiet corner; Sand pits; Stairs indoors/outdoors; Slides; Stairs on slides; Transparency in environment ; Birthdays on display	8
Paintings and drawings	43	Games & Puzzles	19	Music instruments; Theater corner	7
Words & letters on display	42	CD players & CDs; Home corner; Taps & basins; Small group room	18	Huts or nooks outdoors; Portfolios	6
Books & rhymes to listen; Corners, sofas, tents&huts	38	Home accessories; Material & equipment easily accessible	17	Balls; Puppets & clothes; Slopes outdoors	5
Cosy places for stories & discussion	33	Paints, brushes, crayons etc.	16	Bathing facilities; Material and equipment for moulding; Moulded work;	4
Enough space to run	30	Documented handcrafts; Material and equipment for handcrafts; Named chairs & beds; Photographs of families or self; Restrictions of access (material); Swings	15	Puddles outdoors; Water toys; Variety of small objects	3
Car mat & cars & parking tower	29	Aesthetic display of children's work; Nature material	14	Documented ethical discussion	2
Blocks & legos	27	Carts, bikes, pushchairs; Climbing frames; Windows allowing good view	13	Computer	1
Places to enter & stay (sofas etc.)	25	Matresses	11	Documented historical experimentation; Material for historical experimentation; Documented religious discussion	0

13.2 The visibility of cues

Due to the large number of cues, the most enlightening cues (Rose 2007, 65) were chosen, i.e. the most interesting and also the most unexpected that invite further interpretation.

The most visible cues

The cues that had the best visibility in the centres were mostly fixed features, although certain self-evident elements related to nutrition and rest (tables, beds) were excluded from the VASU-model. One should notice that the hit rates of these fixed feature elements can be of different sizes. The outdoor spaces had a variety of cues with good coverage in all of the centres: *climbing frames* (13), *sand pits* (8), *slides* (8), and *swings* (15). These are all typical fixed features in accordance with the day-care centre typology (see Chapter 4.3; see also Kalliala 2008, 210). These also strongly reflect the Nordic ECEC outdoor culture (Moser & Martinsen 2010, 465). Likewise, there were many fixed features indoors working as cues supporting affordances: *halls* (7), *taps & basins* (20), and *enough space to run* both indoors and outdoors (30), and *windows allowing* specifically a *good view* (13) for children to see outside.

One of the much-discussed aspects in environmental design in Finnish day-care centres is how they enable different small group activities. When ECEC staff are asked about the suitability of premises, one of the most common complaints is that there are not enough spaces for dividing children into small groups. Yet, the research data provides quite a different picture of this issue. In the seven centres there were 18 different *small-group rooms.* 13 of these were fixed features, i.e. rooms that were specifically designed facilities for small group activities, located in all but one of the centres. The group rooms were not counted into this number. The centre that did not have a designed small group space for children under three had a well-functioning large entrance hall that could be used for the purpose. The remaining five *small-group rooms* were loft-areas located in group rooms (4) or in the hall (1). In addition to these spaces, the data revealed 38 other cues – that could be defined as semi-fixed-features – for collaboration in small groups. Because basically all spaces that could be separated into smaller areas potentially afforded collaboration in small groups, the interpretation was restricted to some of the most visible elements, such as *corners* fenced by shelves and *sofas* forming cosy sitting areas, or *tents* and *hut* indoors. In addition to these, there were also 8 *huts or nooks outdoors*. Usually the staff are very knowledgeable about various ways to build cosy spaces for small groups, such as by using blankets and tables to build tents or huts. Thus, the VASU-model analysis by no means provides an exhaustive image of the situations in the centres.

Table 18 The number of fixed feature outdoor cues in the day-care centres

	climbing frames	sand pits	slides	swings
Day-care centre A	1	1	1	1
Day-care centre B	2	1	1	3
Day-care centre C	1	1	1	2
Day-care centre D	1	1	1	1
Day-care centre E	2	1	1	2
Day-care centre F	2	1	1	3
Day-care centre G	4	2	1	3

These and some other mainly fixed features as cues provide an exceptional set in the data. Although having a relatively small hit rate, their visibility is good when "full coverage" in all centres is checked. Full coverage is a relative definition. It can be reached even with one hit per centre – though dependent on the number of children, as Table 18 illustrates. In cases like the example in Table 18, it is possible to define full coverage. However, in relation to some other types of cues, like *children's work on display*, full coverage cannot be defined. These differences arise from the nature of the cues. One climbing frame per centre accessible for young children may in many cases be enough to serve its purpose, while for instance one *doll and buggy* per centre will definitely not. On the other hand, it would be very difficult to define an appropriate number in the latter case.

Restrictions of access from the point of view of mobility (45) in the environments were formed by rather easily visible barriers, such as gates and fences, 28 of which were in outdoor environments. All day-care centres had a fence around the playground, gates indoors, and doors that children could not open without help. These are usually related to safety issues, and to the surveillance task of the staff, and are given much attention. This is clearly visible in the data both indoors and outdoors. Especially indoors, rooms usually had a good view without restricting structures. The principle in the Finnish ECEC seems to be that children are never left alone in any of the rooms or certainly outdoors. This is not only a Finnish phenomenon but identifiable in many countries (e.g. Penn 2005, 163; Powell 2005, 112).

In all centres children had *named places for* their *own things*, with 20 hits altogether. These cues were partly fixed features (coat racks), and partly semi-fixed (drawers or baskets). In all centres children had a named place in the coat rack and a shelf or basket for clothes and personal objects. In addition, children had at least one named drawer for their own work. In five of the seven centres children had named beds, and in one centre each child had a named and a self-painted bag for bedclothes. In six centres children also had their own places at tables with named chairs.

There were also some semi-fixed features that were clearly visible by having a small number of hits per centre or per child group. However, visibility related to all the other

cues in the data was more or less dependent on the number of hits. In relation to many of the cues the principle being the more hits the better the visibility.

Concerning the semi-fixed features, the cues based on documentation proved significant in producing visibility in the environment. The one cue with the most hits in the model was *visual images to discuss* (113). It combines a part of visual work made by children and other small and large images, such as posters or small labels hanged on walls. *Children's work on display* (with 62 hits altogether) is partly included in the previous cue. It relies totally on documentation. It is a combination of three different cues: *handcrafts* (15), *moulded work* (4), and *paintings and drawings* (43). The strong habit of displaying children's work, based on the long Kindergarten tradition (see e.g. Välimäki 1998), was clearly visible in the environments. However, as will later be discussed, this habit has not necessarily been much reflected on in the pedagogy or in regard to the child's needs and interests.

The disposition of visual images, whether child-made or other pictures, is a good example of a cue in relation to which the bigger hit rate provides better visibility. The same applies to the language-related cues, many of which were among the most visible according to the hit rate. *Books and rhymes to listen* (38), *words and letters on display* (42), and *cosy places for stories and discussion* (33) had high hit rates. There were also some cues related to play with high hit rates. The most visible play cues were *cars* and related equipment (29), and a variety of building *blocks* (27). Except *cosy places for stories and discussion*, which was partly formed by fixed-features, all these cues were semi fixed-features, concrete, and easily countable.

Most of the children's activity based cues had rather high hit rates. *Dolls and buggies* and *soft cuddly toys* (23), *puzzles & games* (19), *home corners* (18), and different *home accessories* (irons, stoves, dishes) (17) were among cues with the most hits supporting play. The other large group of cues was related to arts and crafts work, such as *paints, brushes and crayons* (16) and *material and equipment for handcrafts* (15). These hit rates show much about the kinds of activities put into practice in the centres. The result is not surprising, but confirms the image of the activities in environments for children under three (see e.g. Helenius & Mäntynen 2001). One reason for the result is the concreteness of the mentioned cues, which makes it easier for educators to develop these elements in the environments, and which also makes these cues more easily depictable through observation and by photographing.

Carts, bikes and pushchairs had only 13 hits in the data. Despite the small number of hits, one has to keep in mind that all loose equipment in playgrounds is usually kept in outdoor storages when children are indoors, and thus would not necessarily be visible in the photographs. Each of the centres had an outdoor storage room (see Images 29 and 30) for a variety of outdoor toys, such as small and large spades, cups and buckets for digging and building of sand and snow, sledges for pulling, pushing, and for sliding down, balls, skipping ropes, carts, and bikes. These elements were not


Image 29


Image 30

systematically photographed, and therefore, there is not enough data to interpret how well these storages were equipped and how well they support the affordances.

In accordance with research, one can draft a conclusion that to have good visibility there has to be a good number of hits related to the cues supporting pushing and pulling. Young children love pushing and pulling, and trying out different vehicles (Helenius & Mäntynen 2001). This is one important element in their learning about the environment and its relations (see e.g. Bruce 2005).

The environments had a good number of cues for *places to enter and stay* (25). By these are meant places where parents enter or where they stay when bringing or picking up children, such as sofas, entrance halls, or outdoor benches. These places are needed daily both for the interactive situations between staff and parents (see Kaskela & Kekkonen 2006, 44) and for providing parents with opportunities to participate in their children's ECEC.

Higher hit rates in the environments provide usually better visibility and more affordances for children. However, taking into consideration the different contexts of children and the environments, and from the point of view of visual quality, the matter is clearly not as simple as this. There are definable differences in the visual quality, which are not only related to the number of cues. Naturally, the cues also have different qualities – some are visually better than others or better from the point of view of affordances.

Cues with limited or poor visibility

The cue *Photographs of families or self* had 15 hits. Two of the study centres utilised a primary caregiver model, the idea of which is to involve the child's family as much as possible in the daily life of the child in the centre. However, according to the number

and quality of the cues, this principle was clearly visible only in one of those two centres – with 6 hits.

Children's *birthdays on display* had 7 hits. These hits were in five of the centres. Despite the small number of hits, the nature of the cue makes the visibility better than the number indicates. A full coverage would in this case mean one display per child group in the data (10 altogether). This same logic applies to children's *portfolios*. Documentation by portfolios had five hits, one each in five of the seven centres. For portfolios, one hit per group in the centres would reflect full coverage. These cues are good examples of cues in regard to which certain visual elements, like where the displays are located, are important when interpreting the visual quality of the environment. This will be discussed more in relation to affordances.

All cues related to the content orientations had poor visibility in each setting. This, however, applied only to those cues defined in the VASU-model, as will later be discussed. Poor visibility was also seen in regard to some other cues related to learning skills and knowledge usually meant for older children, although there is strong evidence in research that one should not give too much weight to specific age expectations. Children begin to contribute to activities according to the support and constraints offered by their community and environment (Rogoff 2003). In this respect, it was surprising that there was only one *computer* in the whole data, although in Finland computers are part of the everyday contexts in which children live since birth.

Within the content orientation, cues related to *ethical* or *religious discussion,* or *historical experimentation* had poor visibility in the environments. There were only two hits for *ethical discussion*, one of which can be seen in Image 31 where the collage of photographs makes visible a day in the forest as part of an imaginary nature project (Matti-troll –project).[1] Part of the visual documentation in this case was a verbal description of the photographed event attached to the collage. In addition to the already mentioned reasons, the explanation for the missing cues can be the nature of the activities, discussion, and the nature of the cues being related to documentation. In general having *photographs of* children's *activities* was a rarity in the study centres, although visual documentation in its other forms had a strong foothold in the visible cues.

1 According to the staff in the day-care centre, the aims of the Matti-troll –project were to get to know each other using a puppet and its family and life as a medium; to think of the wonderful and controversial feelings related to one's own families and parents; to feel safety, joy, pleasure, excitement and the feeling of belonging together; and to learn responsibility: "What I do has importance to the troll family....".

Image 31

Outdoor activities in Finnish ECEC are utilised daily regardless of weather. All of the researched environments had some cues related to exploring sand and water, and other natural material. These are cues supporting affordances children perceive in every centre depending on season. They are self-evident elements in the Finnish ECEC outdoor culture, similar to each centre having beds or mattresses for children's daily nap. In relation to the weather conditions and season, some of the cues, like *puddles* (3) or snow-related cues, were not visible in the photographs.

Although there were many visible cues supporting children's mobility in the playgrounds, one of the noteworthy deficits in the cues concerned the natural components, such as *stones and tree trunks* (9). Another deficit in the outdoor spaces concerned the variability of topography. The playground areas, especially the ones fenced for children under three, were mainly flat. There were altogether only 5 natural *slopes* in three of the centres, just one of which was in the small children's fenced area.

There was also one noteworthy lack of cues concerning children's play. The hit rate for *puppets* and *clothes* (5) was very limited. Likewise, the cue *things to buy* had only 10 hits. Especially noticeable was the limited number of hits concerning *clothes*, here meaning a variety of dressing-up clothes. These are all cues related to role-play, which is a prominent activity for young children. Does this lack indicate the educators' image of a child "not ready yet" for this kind of role-play? Another possible explanation relates to the time of the photographing, which in most cases was at the beginning of the semester. This kind of play requires more independence from children, and thus may happen a bit later when children have better adapted to the group.

As argued before, according to the number of cues there were also better-supported role-plays, such as *playing home*. Considering the strong argument in the Finnish ECEC of the importance of play in the national documents (STAKES 2005; National Board of Education 2010), and the dominance of play as an activity in a number of

research studies on the area (e.g. Weikart, Olmsted, Montie, Hayes & Ojala 2003, 249), the small number of cues supporting role play in general was surprising.

The cues in the model were initially developed during the first interpretation of the photographic data, and finalised towards the end of the interpretation process. In this respect the model does not give a full picture of the missing cues. There are some important cues that the research has emphasised, but which were completely invisible in the research data, and hence, were not included in the model. Helenius & Mäntynen (2001) discussed multipurpose play materials, such as cardboard boxes, blankets, strings and cords, pieces of wood and natural materials, such as pebbles and cones. Also Kalliala (2008, 221-223) described how children find numerous ways to use different materials and objects other than toys in their play. From the point of view of the affordance theory, the lack of multipurpose material has relevance in young children's environments. As Helenius & Mäntynen (2001) described, children replace objects with other objects, e.g. a cardboard box may become a car or a hut, i.e. perceive new affordances of an object by using it in creative ways (Heft 1989). In the research data the outdoor environments, of course, provided some natural elements, but in addition to that there were no cues of such play materials being visible for children. Moreover, natural materials, like cones or pebbles, were not utilised as play or arts and crafts material indoors (see also Kalliala 1999, 243), except in one of the centres where these kinds of materials were seemingly used.

Another aspect concerning the visibility of cues is related to the relative nature of affordances and the cues supporting them. Although not counted as hits in accordance with the VASU-model, as discussed previously, there were many cues related to the content orientations that were visible especially in the outdoor environments. In fact, the number of these kinds of cues for potential affordances can be unlimited, although in many cases without clear promotion by the educators, children do not necessarily perceive them as affordances (Kyttä 2003). This is an aspect that is non-verifiable in the present study.

14 AFFORDANCES AND VISUAL QUALITY IN THE DAY-CARE CENTRES

Looking at the discovered cues in Chapter 13, the next question concerns the affordances and the different elements of visual quality in the settings. What kinds of affordances do these detected cues support, i.e. what do the environments potentially afford children? Here the affordances are discussed according to their visibility and invisibility. In contrast to the interpretation in Chapter 13, the results will be considered while taking into consideration aspects of the visual quality and what the visual quality *would potentially* provide for children. Hence, the cues are related to other aspects concerning visual quality, making the interpretation more intensive and as such revealing different levels in the photographic interpretation.

The interpretation does not straightforwardly follow the VASU-model. Instead, the existing and the missing affordances, and the cues supporting them are observed in seven groups: *belonging & participation, play, independent mobility, language, belonging to the community*, *typology of home*, and the *emptiness* found in many of the environments. These groups arose through the hermeneutic process. The model offered an important systematic way to observe the environments through the large number of individual photographs.

According to the taxonomy of Malone and Hartung (2010, 25), due to the intentional and functional importance of affordances for the individual, they belong to conceptual frameworks emphasising participation. Participation is an especially central element in all seven affordance groups, since it is defined as a counterpart to belonging in the results.

Another element that is central in all the result groups is independent mobility. The perception of affordances is linked with corporality and physical action. Children's opportunity for independent mobility is a prerequisite for perceiving and actualising affordances. According to Kyttä (2003), independent mobility is even more important in children's environments than the number of potential affordances. Although perceiving affordances is possible both in controlled situations and in situations tied to children's opportunities to be independent mobile and to engage in free exploration, independent exploration allows the sequential nature of affordances and, hence, reveals more affordances to the child than adult-supported or guided activities.

14.1 Belonging and participation based on visual documentation

The photographic data showed that documented children's work can be a cue for many different potential or actualised affordances. For instance *children's work on display* can be an actualised affordance, like the *documented ethical discussion* in Image 31 in the previous chapter. Likewise, Image 32 shows that the work visible as a document (i.e. drawing) has been completed. This same piece of documentation also visualises the actualised child participation, and the topic in the drawing being autumn leaves shows that processes related to science orientation have been actualised. It also makes visible the child's good experience (see Klausen & Grangaard 2000, 19). On the other hand, these same documents work as potential affordances for children's sense of belonging or learning language. Moreover, the documents work as potential affordances for parental involvement, thus promoting educational partnership between parents and the educators.

Children's work on display was among the most visible cues in the centres. Forming the major part of *visual documentation*[2] in the centres, it could carry significant poten-


Image 32

2 The term used in the present study is visual documentation. It can be defined as the visual part of pedagogical documentation. On the one hand, it is similar to pedagogical documentation, i.e. being about content and process. The content (in this research the work done by children and the photographs of activities) both makes the pedagogical work visible and helps in the process of reflecting on the work with other pedagogues, parents and children themselves (Dahlberg et al.2013). Hence, visual (or pedagogical) documentation is not an end but a process – a way of working with children. It is good to keep in mind that pedagogical documentation is not the same as child observation (see e.g. Rolfe 2001).

tial in supporting children's belonging and participation. However, according to the interpretation, the potential not only depended on the visibility (e.g. in the form of hit rates) but relied on elements related to the ways in which the work had been displayed.

Documenting children's work demonstrated more an actualised affordance of e.g. painting and drawing, than the potential affordance of children's sense of belonging. Children's work was often displayed on a physically high level, barely visible for children. For instance children's handprints in Image 33 were displayed at the height of adults, not for children to see. Although it is important that children have opportunities to participate in a variety of activities, to be able to feel that one belongs in the environment, children must also have opportunities to see the results of their common work, and to reflect on the work done (Rinaldi 2006, 62). Thus, belonging in fact demands participation in more than one part of the process. Children's opportunities to examine the pieces of work, hung on walls or placed in *portfolios* (Image 34), is an important element in the participation process. Rinaldi (2006) defined documentation as a tool for recalling. It is strongly a reflective part of the pedagogical process. Moreover, by taking children as participants in the transformation of their environment, e.g. by decorating the walls with their own work, it increases their sense of belonging by creating for them a personalised meaningful relationship towards their environment (Rapoport 1982).

Having *photographs of activities* was among the least visible cues in the data. In addition to supporting many other affordances, this cue is fundamental in supporting children's sense of belonging. Children under three who have just begun their early childhood education path need reminders of the activities they have been part of.


Image 33


Image 34

Memorising activities together creates a feeling of togetherness, and hence, increases children's sense of belonging. Having documentation of children's activities in the centre also creates a history for children. Moreover, as Elfer (2005) found out, documenting children's work means getting to know the children and also realising better what their needs and interests are. For children it means closer relationships with the adults.

Yet, one has to keep in mind that there might be documents of activities in children's *portfolios*, in which case the lack of documented activities in the centres may only concern the visible environment. During the last 20 years, documentation based on portfolios has become very common in the Finnish ECEC (Kankaanranta 1998). There were children's portfolios visible in five of the study centres. However, photographs placed in portfolios have certain limitations concerning children's sense of belonging. Photographs of activities placed in portfolios may serve other purposes related to documentation, e.g. informing parents of various issues, or working as child assessment material (see Tiilikka 2005, 163), yet from the point of view of children's sense of belonging, having visible cues of performed activities is essential.

Portfolios may provide many affordances for children if placed low enough for children to grasp them and to be able to look at them independently. This was the case in only two of the centres (Image 34). One of the explanations for this may be the children's young age, i.e. adults may fear that children tear the pages of the folders,[3] or that they do not understand their meaning. Another explanation relates to the use and role of portfolios in general. Portfolios are for restoring the collected work for assessment or for discussing with parents, instead of reflecting activities and work with the children. Often documenting children's work is seen as an end in itself (Dahlberg et. al. 2013). However, if documentation is really pedagogical, it becomes part of the applied practice instead of being something extra. As such it poses challenges for the work of the educators. At its best it may mean a pedagogical change towards co-constructive processes between adults and children (see Dahlberg & Moss 2005).

The photographs cannot reveal whether the portfolios were actively used in discussions with children, although otherwise kept out of the reach of the children. Nevertheless, taking into consideration that affordances are perceptible and linked to each other to form sequential affordances (Kyttä 2003), children's opportunities to grasp the portfolios independently is important.

Analysing the research data raises also other questions concerning pedagogical documentation in the study centres. Even though there were many different collages of children's work visible, the way the work had been displayed did not support the

3 The fear of children tearing pictures or material seems to be a restrictive factor in the environment. One of the quality indicators in the excellent category (7.1) in the ITERS-R rating scale is that most pictures displayed for children must be protected from being torn. However, instead of instructing to place e.g. pictures on a higher level or otherwise out of children's reach, the ITERS-R suggests laminating them with clear plastic.

idea of reflection with the children. It is also hard to say how much children participated in the displaying of the material, i.e. in making the work visible, and thus creating personalised meanings towards the environments. From looking at the different displays outside the reaching level of children (Image 35), one could reason that decorating the centres was a task conducted mainly by the adults.

There were also other ways of displaying children's work. Especially in one centre it was explicable that children had been involved also in the process of decorating the environment, or at least children could look and touch the pieces of work. Much of children's activities were visible by different forms of documented work (Image 36).

In one of the centres work was rather well documented by photographs. There were six different photographic collages of activities visible in the environment, two of which related to the same project. The data cannot provide information on how much the environment was transformed during the year, and how much children participated in the transformation process. Therefore, it is difficult to say how well these documented activities supported the affordances of belonging and participation in the centre. However, for the visual quality of the centre the pieces of work and the collages of photographs made a huge difference. The documented activities worked as cues for a variety of interactive situations with children, thus providing potential affordances for using language, emphasising emotional aspects, or for many content orientations depending on the content of the photographs. More than anything, children were visible in the centre with the photographs in place.

In some cases it seemed that adults had purposefully increased the aesthetics of the environment by careful design and use of colour and form in the displays (see Haynes 1999). This is an important aspect concerning the affective appraisals children make (Russell 1988, 121). Decorating beautifully was especially visible in one of the centres (Images 37–39). Children's work had been displayed in neat collages, paint-


Image 35


Image 36


Image 37


Image 38


Image 39

ed artwork in matching frames. The meaning of these pieces of artwork was not only documentative, but also decorative. For me the message of this kind of displaying is "it is important what children do" and "we value children".

All except one centre had photographs of individual children visible in the environment. The purpose of these photographs seemed to be to personalise the environments for children. Photographs were used to mark a child's place in the coat rack or to show who the children in the setting were. In six centres the dates of children's *birthdays* were displayed. These had been added with a child's photograph in two of the centres, like in Image 40 where a "birthday train" had been formed. Again, some of the nicely built displays were placed too high for children to see them. One got the impression that these cues had been put in place without any further reflection of the effects on the environment's visual quality or of children's perspectives. In order to be perceived as affordances, the different displays should be viewable for the children (see Heft 1988, 30). With children under three, one of the determining contextual factors is children's size in relation to the environmental features.

The most typical way of personalising the environments for children seemed to be naming chairs, beds, coat racks, and assigning a locker, drawer or a basket for children's work. Often the child's photograph or another recognisable visual image (Images 41 & 42) was used to help the child to find his/her own place. The photographs also showed that children's beds were personalised with their own cuddly toys during naptime. In many cases, however, only the child's name indicated the "owning" of the place.


Image 40

The display of the elements recognisable for a child was in many cases dependent on architectural solutions. Thus, sometimes the fixed-feature elements did not unreservedly support child-friendly displays. Image 41 shows how the adults had paid attention to the child's perspective by personalising children's compartments in the coat rack in a visually nice way. However, the structure of the coat rack did not easily support the display of the recognisable images on the eye-level of a young child. In this case the fixed feature element worked as a constraint for the child's potential affordance, which makes adult support necessary. Image 42 also shows that in some cases the non-planned everyday elements may support affordances. Even though the photographs were not easily visible for children, children's own bags and backpacks worked as cues for the affordance.

Two of the centres utilised the primary caregiver -model, but this was visible only in one centre. One aim of the model is to bridge the day-care centre and the child's home in many ways, especially by bringing *photographs of families or self* into the centre (see Kaskela & Kekkonen 2006, 23). In one of the two centres there were special family presentations visible (Image 43, and family photographs pasted onto children's beds (Image 44). By bridging the day-care centre with the child's home this way, the educators in collaboration with the parents were promoting the child's feeling of belonging. This kind of habit can work as an associational cue for the child, and as such can effect positively on the affective appraisals the child has of the day-care centre environment. Bringing family photographs into the centre can also be an important element helping a child in forming a personalised relation with the environment.


Image 41

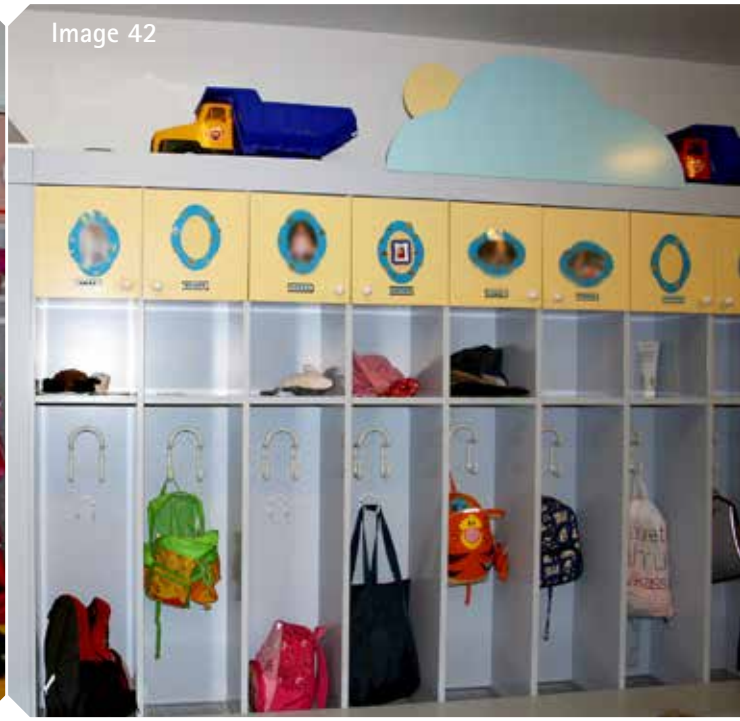


Image 42


Image 43


Image 44

Charts 1 and 2 are provided as an example to illustrate the relational nature of affordances. The charts visualise the number of hits concerning the documentation-based cues related to belonging.

Chart 1 illustrates the situation according to the interpretation presented in Chapter 13, i.e. the hit rates of all the cues depicted in the photographs. Chart 2 shows only hits for those cues that were independently accessible and visible for children. From the point of view of affordances and visual quality for children, Chart 2 provides a more realistic view of the situation in the seven day-care centres.

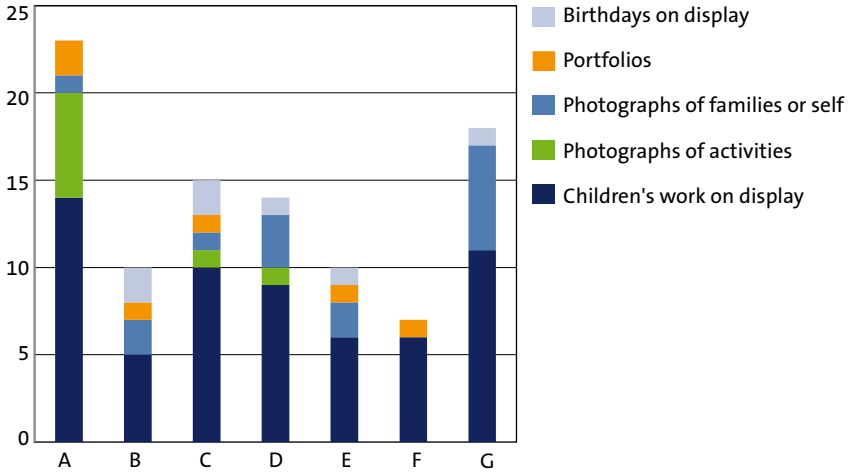


CHART 1 The hit rates of cues related to the affordance belonging

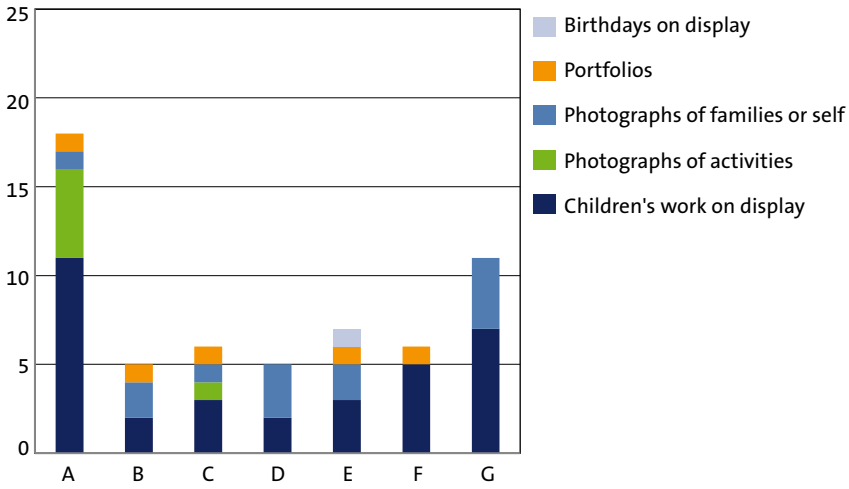


CHART 2 The hit rates of cues related to belonging, when cues are visible and accessible for children

The two charts illustrate how differently environments can be observed. Basically there were a large number of cues related to belonging in the centres. As Chart 2 shows, the situation looks completely different when the observation is done from a different angle. Chart 1 visualises that birthdays were on display in five centres. When a child's size perspective was taken in Chart 2, the cue could be depicted in only one centre. Moreover, the total number of hits in the first interpretation of children's work on display was 61 hits, but after the interpretation where the criterion of visibility for children was included, the number of hits dropped to 33. Only in Centre A did the number remain close to the original, dropping from 14 to 11.

Brief conclusion

Cues relying on documentation play a fundamental role in environments supporting young children's affordances for belonging and participation in day-care centres. These affordances are strongly intertwined. However, in general it seems that documentation had not been used for that purpose in the study centres. Documentation was more about showing the results and content of the work (for parents?), or decorating the centre than promoting children's sense of belonging, although Keskinen and Lounassalo (2011) argued that pedagogical documentation is the way to belonging and participation.[4]

Making certain activities perceptible by visual documentation can affect the "feel" of the environment (Rose 2007, 247). Since documentation has a strong role in the personalisation of environments, and hence, in the overall well-being of children, how children's work is displayed is important. In the present research, most centres seemed to have a gap between the educators' will and skills to increase personalisation in the environments. The number of children's work on display was large but the adults' skills to look through the child's eyes (Kyttä 2003), to see the functional properties while taking into consideration both the environmental features and the attributes of a particular individual (Heft 1988, 30) were lacking. Comparing the different centres implied that the staff saw the value of displaying children's work, but did not necessarily understand what kind of displaying supported children's belonging in the environment. The best displays in centre A indicated more reflection and discussion about the issue among the staff members (see Ceppi & Zini 1998).

Photographs cannot reveal whether documentation is used in a static or in a flexible way. Even though there would be many pieces of children's works of art, and as such the cues would indicate child participation, a single photograph taken at a specific time and situation cannot tell the whole truth. The centre may place children's artwork on the walls at the beginning of the year and the one and same pieces of work remain there the entire year, in which case documentation indicates a static environment. However, if these pieces of work have been placed on the wall recently, children have participated in the process of organising the environment and the placing process, and the pictures are changed e.g. every month, meaning the documentation becomes an indicator of an adaptable and participatory environment. An environment enriched with regularly changing documentation also gives the message of goal-orientation: creating visual documents, either using photographs or texts provided by adults or pieces of work provided by children, requires good planning regarding time, situations, and use of resources. Displaying children's work and images of activities may work as a sign that individual children are given attention (see Kalliala 2011).

4 The Finnish term here used is osallisuus, which is difficult to translate with one of these terms only.

On the other hand, a lack of documentation may indicate nonchalance to goal-oriented pedagogy and to the child's perspective. It may create a feeling of incompleteness and haste, which are not messages e.g. parents want to see. One possible interpretation is that visual documentation as such is not necessary for children under three, i.e. a care-oriented perspective is emphasised. Lack of visual documentation may also be a cultural issue, since children in Finnish ECEC are often given their work to take home, and thus the level of activity does not become visible in the environment.

From the point of view of visual quality, documented children's work is essential. Even if it indicates an image of a static environment, or a culture that does not emphasise the visual elements in the environment, pieces of children's work displayed on walls provide more affordances and visual quality than having no displays at all, especially so from the point of view of belonging.

14.2 Affordances and spaces for play

The space arrangement in five of the centres was rather monomorphic, following the typology of the Finnish day-care centres. The architectural design as the fixed feature elements in the centres seemed to have restricted any changes into the typology. However, the two centres in which the spaces were differently organised proved that despite the architectural design, changes are possible and can flexibility be provided. In Centre A the space had not originally been designed as a day-care centre, and the area per child was much smaller than in the average day-care centre. The situation was helped by creative use of space. Children were allowed to use the adults' dressing room, one of the small entrances was blocked and children could use it for their play, and all children who needed rest during the day had their nap in one of the rooms on mattresses instead of fixed beds (Image 45). This released floor space for other actions outside of naptime. This also created a feeling of an active environment. Children were allowed everywhere in the centre, including the spaces for adults. This increased children's freedom of movement and freedom of choice between different spaces. The way the border between adults' and children's spaces was reduced weakened the social order in the centre (see Paju 2013, 86), and made children more equal with the adults.

In Centre D the basic architectural pattern was similar to the typology, but the organisation of various functions had been done differently. The day-care centre did not have fixed child groups in the traditional sense. Instead, all rooms were dedicated to certain types of activities, e.g. games (Image 46) and children had as much freedom of choice as possible and were allowed to move independently from one place to another.


Image 45


Image 46

Organised and disorganised play

The environmental support offered to children's play in the study centres could be described as sporadic. Looking closer at the cues supporting e.g. *playing home* provides an illustrative image of the situation concerning play environments in the centres. For me the *home corners* in the seven centres provided a message that the design of these areas had to some extent been unintentional. In Image 47 the home play corner has a table, chairs, and a stove. Images 48 and 49 also show a couple of dolls and some dishes in a basket. For me these spaces signalled that little emphasis is put on children's long-lasting, creative play. From the point of view of visual quality one can ask "are these environments tempting?", or "what kinds of affective appraisals for children do these environments cause?"

Children's desire to play is strong and the youngest children often play with limited materials, e.g. with one doll and a blanket. Therefore, one is tempted to think that providing a few toys is enough to support play affordances. According to many play researchers this is a false way of thinking (see Fromberg 1992; Kalliala 1999). Instead, if play is not supported by a rich play environment, encouraging adults, and enough time, children start choosing only "easy" play, instead of creating long-lasting play sessions. The naked dolls and messy play environments in the study centres may also signal that the adults cannot find a balance between children's activation and autonomy. Children's play is not stimulated, but they are given too much freedom (Kalliala 2011). Another explanation is that adults cannot and do not want to play although especially children younger than three often need adult support to find play meaningful and to get involved in long-lasting play (see Kalliala 2008). This claim is supported by other Finnish research that reveals only 3.1% of the time spent indoors and 2.0% of the time spent outdoors was allocated to children's scaffolded play (Reunamo, Saros & Ruismäki 2012, 503).


Image 47


Image 48

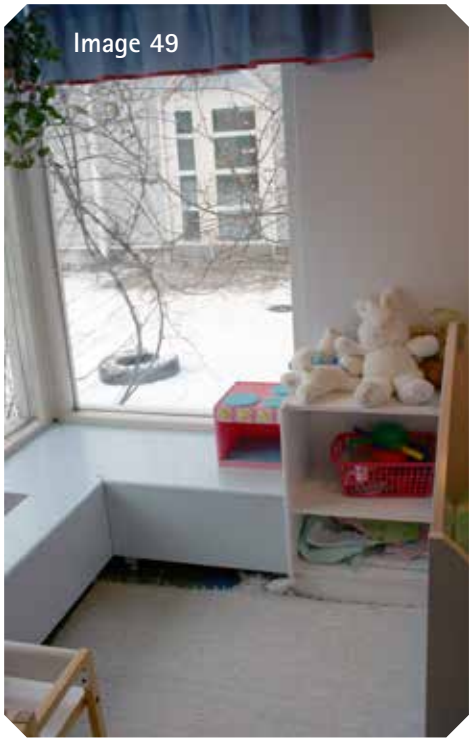


Image 49

According to Heft (1989) children learn the cultural use of toys and objects by observing others. For instance, to play home children need knowledge of the setting, of the roles, and the actions associated with those roles. The adults' responsibility is to model how to use different material in a symbolic way, thus also gradually increasing the variety of different uses of the same object (Bodrova 2008). It is, therefore, significant what adults do with the children, and how they arrange the environment (see also Horne-Martin 2006).

The *home corners* in Images 50 and 51 were among the most versatile in the research data. There were altogether four home corners equipped at this level. These environments had more elements to play with, and thus they also "suggested" children how play should proceed. In these four home corners toys and other objects were the cues signalling children how they should act in the environment. In Image 51 the home play area has been built in a small storage room. This is a good example of how to build a play environment utilising space in a creative way.

Regarding the situation in the researched centre environments, the intentional arranging of specific play areas seemed minimal. More toys would not necessarily be required to provide more affordances for e.g. home play, but better design of spaces to play in, and above all toys and accessories sorted by type would be needed. As mentioned, all centres had many toys for *playing home*, but they were mostly scattered around the rooms with no deliberate order to invite children to play (see e.g. Broth-


Image 50


Image 51

erus 2004). Maxwell (2007) found that if storages of play items were not located close to the play areas, children were less likely to play with the items. Only in one of the study centres did all group rooms have a rather well organised home play corner. One of the incentives of these corners was that the fixed feature elements, i.e. the architectural design of the centre, supported the affordance. There was a loft in each group space, with a small space resembling home underneath (Image 50).

The haphazard arrangement of toys concerned not only home play or other role-play, but seemed to be a strong element in many spaces in the centres (like in Images 52 and 53). Only 12 of the 27 *building* play areas were well-organised. Also noteworthy was that the play "area" was often only a stand with a rather small selection of toys.

Some of the well-organised building areas had a good number of blocks, although usually of one type only (mostly LEGO bricks), and some accessories, such as train sets or animals. Since the VASU-model does not provide any indicators of how much would be enough, one can take the ITERS-R scale as an instrument to provide some


Image 52


Image 53

gauge of what is an appropriate number and quality of such toys. The ITERS-R scale rates excellent an environment with *at least 3 sets (10 or more blocks per set) of different types accessible daily for much of the day* (indicator 7.1)., with *a variety of accessories including transportation toys, people, and animals* (indicator 7.2) (Harms et al. 2006, 40). Variety in indicator 7.2 means at least 5 materials from each of the categories of transportation toys, people, and animals. Although this kind of a very technical definition of the play environments does not necessarily suit the Finnish ECEC culture with its reliance on the educators' competence to see what would be needed in the environment, it provides a pivot for reflection. In the study centres the variety of accessories was in many spaces limited. For example, only 7 sets of animals altogether could be detected in 5 of the centres.

Access to *games* (like puzzles, memory games, and board games) was in many spaces restricted. This may again reflect the adults' difficulties in finding a balance between children's activation and autonomy (see Kalliala 2011). The devices used in games can be explored independently, in which case the rules and the cultural meaning attached to them do not necessarily open up to children. For instance, the pieces in a puzzle may work as small objects a child wants to explore. However, if games or puzzles are to be used in their appropriate context, a lot of adult assistance is needed. Therefore, the restricted access to games or the missing elements in the visible environment may signal that autonomy in the form of children's free exploration is not encouraged, but the correct use of games is emphasised. On the other hand, placing games out of children's reach means that the potential affordances games hold for children are tied to adult initiatives, and those potential affordances that children's free access to games and exploration provide are constrained. Instead of constraining all exploration adults could consider what kind of potential affordances different games provide when independent exploration is allowed.

Relying on the visual data one is tempted to interpret that lack of toys and equipment in the study centres signalled poorly organised activities and limited potential affordances for children. However, in many of the centres, in addition to games, a variety of other material and toys existed in storages and cupboards. This can be a conscious choice, as it is rather typical that educators change the material visible in certain intervals to provide new interest areas for children. Thus, the small selection of toys may also signal intentional designing of the play environments. However, even if the lack of material and equipment is a sign of choices concerning the environment, due to the emptiness concerning material and equipment the visual quality of some of the study centres was rather unexciting.

The most diversely organised play areas visible in the photographs were related to the affordance playing with cars**.** All centres had a variety of different *cars* and other vehicles both indoors and outdoors for children to play with. Moreover, other devices, such as *parking towers* and *car mats* were provided. However, only in three centres did the playing area combine cars with other accessories, such as animals.

Although the variety of material and toys in play areas is discussed here as an important element, it is worth emphasising that the number of toys is not the ultimate criterion for a good play environment. Sometimes too much variety can be disturbing and hamper children's concentration in play and other activities. To organise space for long-lasting play, and to help children to maintain their interest towards play requires a lot of adult engagement. In a development project in the Helsinki Capital Region (Wass & Valkonen 2011), the adults in day-care centres developed both the play environment and provided children with support for play. They noticed that with the youngest children, some simple elements, such as building huts with fabrics and helping children to choose a small number of toys in their play, made play situations more peaceful and play more intensive. Musatti and Mayer (2011) had similar results in their study conducted in Italy. In addition to a high quality spatial arrangement of the furniture and play material, responsive educator intervention was needed to improve children's interaction and social and cognitive performance. The data in the present research revealed one example of such play invention (see Image 54).

With a few exceptions the different play areas in the study centres signalled a tendency for "easy play". The organisation and location of the areas supported play of short duration and adult functionality, i.e. play that could be cleared away rather easily. Nothing indicated, for instance, long-lasting building play, because the areas did not support the idea of leaving the work to be continued later. Many of the play areas were located in the group rooms, the main purpose of which seemed to be for situations having care orientation, like eating and sleeping. However, each centre had rooms and spaces, like entrance halls, that potentially afforded also long-lasting play, but at the time of the photographing, these were not utilised for such purposes. Although many activities are situational and as such would not be visible in data like this, I found it an important sign that basically no play environments with cues for long-lasting play existed in the research data.

Creating rich play environments is also relevant from the point of view of children's "free play". This is a notion well known in the Finnish ECEC, although its definitive meaning has not been much discussed. In the Finnish context, especially when children over three years are of concern, it often means a padding activity for when there is nothing more important or when there happens to be time (Lindberg 2003). However, free play can also mean an empowering situation for the child, in which the child has the choice of whom to play with, where to play, and how to play (Canning 2007). *Free* does not mean free from the cultural rules of the day-care centre, but freedom from the direct guiding and supervision and the adult definition of the play content and themes (Rutanen 2009). This is often the intention during outdoor times concerning at least the older children in Finland. The observation of the outdoor environments for children aged under three years in the study centres did not unreservedly support this principle, because the environments signalled many restrictions on

children's independent mobility outdoors. This is, though, one of the issues difficult to depict from the photographs, as it is strongly dependent on the situation-specific support and constraints by the adults. Certainly, situations enabling children's free play vary between centres and even in one centre on a daily basis.

Small objects, multipurpose material, and long-lasting play

Many play researchers emphasise the importance of having enough props for role-play (Bodrova 2008; Kalliala 2008). The props do not necessarily mean toys, but different materials and objects to be used in a number of ways. Bodrova (2008) argued that children nowadays have extremely realistic toys to play with, and thus are not familiar with the concept "pretend". The researched environments lacked multipurpose material. Many of the environments for role-play were rather simple, even unappealing and boring, while all equipment for play were manufactured toys. Even the best-equipped play environments relied on "easy" material, e.g. kitchen utensils, dolls, and small furniture.

Most of the environments in the current study lacked different creative materials or signs of using equipment creatively. There was only one cue of that kind of play in the photographs. In one of the centres a hut had been built using large cushions and blankets (Image 54). Since the environment was for children under three years, the hut had obviously been built and the play presumably inspired by adults. This construction had been left in place when children moved to the playground and thus enabled the play to continue later.

Image 54

Despite this one example, the environments lacked other signs of long-lasting play. One of the explanations could be the strict daily schedule of the centres that does not allow for long-lasting play, especially if it causes disorder. Likewise, the monomorphic design of most of the centre environments may have worked as an obstacle for creative and flexible use of space. The basic typology of a Finnish day-care centre that was dominant in five of the centres did not allow much flexibility. In addition to the daily rhythm, time and space for long-lasting play were minimised so that they could be cleared away for some other activity. In addition to these practical reasons, the lack of creative solutions concerning play environments may be related to adults' attitudes. Innovative development of play, together with children requires engaged and open-minded adults.

Would it be possible for the centres to increase their materials by taking advantage of what nature provides? As previously discussed, the environments had only a few cues concerning natural materials, the only exhaustive nature material in the outdoor environments being sand. According to a number of studies, it is possible to increase the complexity and the novelty (see Nasar 2000) of the environments by using natural or creative materials. Sometimes a length of rope can inspire a child into imaginary play, like in Kalliala's (2008, 221) description of a two-year-old boy's play. However, adults may also constrain children's spontaneous use of natural materials (see Puroila et al. 2012). The lack of multipurpose materials and especially natural materials seems to be an issue also elsewhere. Kernan & Devine (2010) reported results of a study made in Ireland, where young children's ECEC environments completely lacked "real" or natural materials.

As Vecchi (1998) noticed in other countries, the environments of young children are often inattentive and boring, with especially the different sensory elements having been left unnoticed. Yet, sensory experiences are fundamental to children's development and learning. Bell (2006) found that young children are often interested in manipulating small objects. In the study centres, children's opportunities to explore the environment by manipulating small objects or by having sensory experiences were rather limited. One of the affordances in the VASU-model was playing with small objects. The related cue was a variety of small objects, which had only 3 hits in two centres in the interpretation. The main trend in the study centres seemed to be an avoidance of petite, tangible materials. However, in one of the centres children's interest in objects and materials of different sizes and of sensory experiences was seemingly better recognised. There was a variety of different sensory materials and two sets of small objects (beads and macaroni) visible. These worked well also as multipurpose creative material.

Weak and strong potential

Considering the nature of the constraints, some potential affordances were more likely to become actualised than others in the environments. Some of the cues in the model formed *weak,* and some *strong potential* for affordances. For instance, the model includes four cues supporting the affordance exploring water: *bathing facilities, water toys, taps and basins,* and *puddles outdoors*. Of all the 28 hits related to the affordance, 18 were found in taps and basins (e.g. Images 55 and 56). These I interpret to be a typical case of weak potential. Although being a cue for the potential affordance of exploring water, the *probability* of the affordance being actualised is in most cases low. Often the view to these facilities is more or less practical, i.e. enabling certain functionality and facilitating the care of children. Children under three are not usually allowed the independent mobility that would be needed for them to perceive water play in bathrooms as an affordance. Also, the toilet bowls in centres potentially afford exploring water. However, these were not defined as cues supporting the affordance, since toilets are typically *negative* affordances, the use of which adults have a reason to constrain (see Kyttä 2003).

Thus, although having fewer hits (4), *bathing facilities* show stronger potential, i.e. the probability of the affordance being actualised through this cue is high. Usually when architects have designed facilities such as in Image 57, these are regularly or at least to some extent used in centres. This was the case in the study centres and was revealed by traces in the spaces (like water toys placed in baskets, or a squeegee and a swab to dry the floor), and by the information received during the photographing. On the other hand, utilising these bathing facilities also needs much adult support, and thus children's independent exploration is not encouraged.

The water play facility in Image 57 provides a good example of design supporting, enjoyable and relaxing affective appraisal. The warm water for children to bathe and play provides both pleasure and interest, and the large decorated window allowing a good view to the playground increases both perspectives. These are important in the affective domain (Kaplan 1988). Good lighting, which here is a natural bonus, is important in the aesthetic and psychological character of the space (Horne-Martin 2006).

Although water is an inspiring and motivating element for young children, the cues strongly supporting exploration with water were few in the images. The photographs could not reveal all cues related to water. Some cues outdoors appear naturally, when it rains. Likewise, some cues are created by the different pedagogical situations, e.g. water sprinkled on the playground during hot summer days. Using the VASU-model type of a method for regular environmental tracking, or using long-term observation on a daily basis would make these affordances more visible. These other methods would possibly change the interpretation concerning affordances based on exploring or experimenting with water.

Brief conclusion

Creating a supporting environment is an important part of adult responsibilities. Although the environments had a good number of cues supporting a variety of play, a deeper visual interpretation showed that potentially the environments did not afford as much as one expected. For me the first affective appraisal of most of the indoor spaces was boring and maybe nice or relaxing, but not exciting or interesting. Therefore, one can question whether these environments had the best possible potential to promote children's curiosity and exploration. Elements related to excitement were mostly missing in the majority of the centres.

Play environments in five of the centres were defined by the typology of the group rooms. The design of play spaces had to be fitted into the group premises, which made the settings rather monomorphic (see Kyttä 2003, 107), the play areas being designed more or less as "stations" (Strandell 1995, 105). However, there were also elements of polymorphic design that allowed more flexibility. Especially some building-play areas were organised as a stand with toys in one of the group rooms. Depending on the constraints in the centres, for instance regular or situational rules restricting the use of the environment (see e.g. Karila & Nummenmaa 2001; Strandell 1995), some of the space arrangements had the potential for flexibility in the play environments.

Kalliala (2008) observed the differences concerning children's play in rich and in lacking play environments. In a rich home play environment children's involvement was much higher than in an environment where children could not find enough cues for how to develop their play. A rich play environment invites children to play, while a poorly equipped environment banishes it (Kalliala & Tahkokallio 2001). In the study centres the devices for play signalled that in principle play is an important activity with young children. Basically toys (like dolls, cars, animals) were the most visible elements, while for instance different games were less present. However, the number of toys and equipment provided, and their quality in particular, did not necessarily work as cues for affordances. The carelessness in the display was not inviting. Many dolls were naked and no clothes were provided, and many prams had no mattresses or bedclothes. The environments largely missed an important element in building children's curiosity and motivation, i.e. using order as a promoting element. According to Kaplan and Kaplan (1989), coherence and legibility of an environment help to understand the environment and to orientate towards what is expected. Although the home corners had many cues affording play, the cues, i.e. different objects to play with, were carelessly thrown into boxes without any clear order. Moreover, although meaningfulness is built with a variety of different objects and paraphernalia, in all except one centre the props for play were mainly manufactured toys, while creative multipurpose materials were missing.

Thus, it seemed that the full potential that play offers for children's being, learning and development had not been utilised within the planned spaces (see e.g. Martin 2008; Moore 2002). In particular the environments did not support long-lasting play, as play in these centres happens in the areas that have to be cleared for other purposes, such as for eating or sleeping (see Brotherus 2004).

Children's opportunities for exploration were connected to various constraints. Some of the constraints in the study centres were linked to the definition of the *weak and strong potential* of affordances. Part of the observed cues in the environments provided only weak potential for affordances, and thus, these affordances would unlikely become actualised. However, if other research methods, especially observation, had been used in the present study, the view of strong and weak potentials could have been

different. If adults creatively plan activities that exploit the environmental opportunities, they can in many instances turn the weak potential for affordances into a strong potential.

The disorganised play environments within the present study centres strengthened the image of non-supported play that has been visible also in other studies. Research in the Finnish context has shown that adults have not exploited the opportunities provided by play as children's activity. Neither have environments been used enough in supporting children's play (Hakkarainen 2002; Kalliala 2008; Mäntynen 1997).

14.3 Opportunities for and constraints on (independent) mobility

One of the most important elements related to affordances is the opportunity for independent mobility (Kyttä 2003). Independent mobility in an ECEC centre is dependent on constraints. As Kyttä argued (2004), constraints determine which of the perceived potential affordances will be actualised. One of the difficulties in depicting constraints in the photographs is their nature of being in each of the different physical, social, and socio-cultural contexts of children and their environment. If the constraints are not in the environment's physical context, it is practically impossible to detect them in photographs. The visual cues in the environments as observable in the photographs revealed many aspects of children's opportunities for mobility, but the cues provided only limited information about whether children have opportunities for *independent* mobility. However, there were some cues at the physical level of the environment in the photographs that rather clearly showed constraints, such as restricted access to certain places. Moreover, utilising the contextual knowledge about the Finnish ECEC and the related activities as well as the information received from the photographs, one can draw a number of conclusions about children's opportunities to move independently.

Risk-taking and safety

The Finnish ECEC culture provides many opportunities for children's risk-taking by allowing independent mobility especially outdoors. According to Laris (2005), children need opportunities to test their limits and skills. They need an environment with a risk level appropriate to their skill level, and to have opportunities to tumble, fall, experience accidents and occasional pain. Otherwise they will miss an invaluable stage in their development.

Outdoor environments are fundamental in different kinds of rough-and-tumble activities that demand a large space. In the study centres, six outdoor playgrounds were rather well equipped with a variety of appropriate apparatuses for children's activities (see Table 19). The research data shows that potentially the environments had many affordances for play and exploration and especially for physical activities on the playground. Hyvönen (2008), whose research was about the potential of playground equipment and design, found that purposefully designed play areas enable much independent mobility, child participation, and actualised affordances.

Among the most discussed elements concerning the potential and constraints in day-care centres is the *safety* of the physical environment. There are a number of regulations outlining the framework for safe playground equipment in Finland. The guide to Finnish day-care safety planning (Saarsalmi 2008) instructs on how to identify the hazards and risks indoors and outdoors, as well as in the nearby environment. It defines certain basic factors for the quality and placement of equipment, including fences and other elements helping to keep an eye on children while having outdoor time. The study centres had paid relevant attention to this issue. Restricting children's risky play in the environment is common also elsewhere in day-care settings (e.g. Little, Wyver & Gibson 2011). The *restrictions on mobility* like fences and gates, were typical ways to prevent children from wandering off the premises indoors or outdoors. A characteristic feature in many Finnish day-care centres is that children under three years have a separate fenced playground area. This was also the case in five of the study centres.

In the study centres, outdoor playground facilities provided many potential affordances for children to explore and to test their skills. However, for children under three years, in many cases these could be defined as weak potentials, since most of the affordances in the centres were in the big children's playground area. In the fenced areas for children under three years the number of cues supporting affordances was much smaller, and the skill requirements of the equipment less demanding. On the one hand, educators can allow children more independent mobility in the fenced area. On the other hand, the environment may be uninteresting and as such does not always motivate children to look for affordances. At worst the Finnish climate reduces children's affordances if only a small space with limited equipment is provided. Images 58 and 59 illustrate the situation in one of the centres. First snow had just fallen and the ground was frosty. Usually in winter times children do not use the swings, but have equipment for winter play. On this particular day there was practically nothing to do on the playground. A frozen ground did not afford digging or sand play, the small amount of snow did not afford typical winter play, the swings were out of use, and the size and topography of the playground did not afford rough play.

In relation to children's independent mobility and potential affordances, the definition Kyttä (2004) referred to as "glasshouse" provides an interesting reflection point

Image 58

Image 59

on the small children's fenced areas. In a glasshouse type of an environment the source of affordances is rich. However, due to restrictions in independent mobility, children's awareness of affordances is based on second hand information, i.e. they cannot explore the environment due to constraints, which creates a feeling of being in a glasshouse. The FFA and the FPA are inside the fenced area. Children see to the big playground but it forms an FCA for them, the fence being the borderline for their independent mobility.

According to the information received during the photographing, children under three in the study centres were given access to some extent also to the big playground (see Table 19), which increased their opportunities for exploration. Although five centres had a separate fenced area for children under three, in Centre E the gate between

the two playgrounds was kept open and some of the younger children's playground equipment was situated in the big part. Hence, although the fenced area had been designed for the younger children, the centre staff had made the decision for all children to have free access between the two playgrounds. In four centres children were allowed into the big playground only occasionally. Most of the weekly outdoor time was spent in the fenced area, while the big playground was considered something special. There seems to be only one occasion when some of the younger children systematically have access to the big playground in Finnish centres. This is in the afternoon, when most children have already been taken home, and the last to be picked up are gathered in one place.

Separating children of different ages during outdoor time is mainly justified by safety reasons. Control and surveillance are easier in a limited space. Older children are considered rough in their play, which may cause risky situations for the younger ones. Researchers interested in children's opportunities in a variety of outdoor environments talk about "surplus safety" (Wyver et al. 2010). In the fenced areas, playground equipment (the slides, climbing frames, and swings) are designed especially for children under three. All this decreases the adults' supervisory work in the playground and as such is related to the functionality aspect.

Day-care centre fences serving the purpose of safety have been much discussed in Finland during recent few years. The discussion has been mainly about the height of the fence. The fence in Image 91 represents the traditionally used fence in the Finnish day-care centres. From the point of view of safety, the fence works well for some children, but for the most agile children it in some circumstances is too low, especially in winter when there is a lot of snow.[5] Yet, one has to keep in mind that although height is an important factor, it has to be considered with the other qualities related to fences, i.e. the construction and the location of the fence. Fences have also much importance in the visual quality of outdoor environments, especially in the form of transparency. This issue will be discussed later.

Although the most frequent cues potentially affording climbing were not taken into account, climbing was rather well supported by a number of cues in the studied day-care centre settings. However, climbing is one of those affordances adults feel compelled to constrain in general, because it always includes an element defined as risky (see Hansen Sandseter 2007). Even though the child's physical and intrapersonal context and the physical context of the environment would be favourable for climbing, the interpersonal context of the adult–child interaction or the socio-cultural context in the form of the centre rules would not necessarily allow it. The criteria for the strong potential in relation to climbing facilities outdoors, like stairs on slides or climbing frames, is that the equipment is located in the fenced areas. The potential

5 The basic instruction concerning the height is at least 120cm in the "Finnish guide for the day-care safety design" (Saarsalmi 2008).

for actualisation when the equipment is located in the big playground is weaker than in the small fenced areas. Often climbing is restricted by predetermined rules or situation-specific control.

Images 60–62 show constraints for climbing indoors in the analysed centres. In three of the seven centres architects had designed loft areas with staircases. The educators had created an FCA by prohibiting the use of the stairs in each of these centres. While stopping children from actualising the affordance of climbing, the educators also prevented children from finding new potential affordances in the loft. This was proved by photographs taken in the loft areas, which had not been used by children, but only as storages.

Although the interpretation for running and jumping showed 15 hits outdoors and 15 hits indoors, especially in connection to children's opportunities for independent mobility, the outdoor affordances were much more likely to become actualised, and as such had stronger potential. Long corridors and large rooms inside provided potential affordances in six centres. However, usually the centre rules prevent running and jumping indoors on the grounds of safety. Especially running indoors can cause collision with other children or with opening doors, and is thus seen as too risky. The educators' tendency to constrain children's rough mobility indoors is supported by other research. In Puroila's (2002) study the adults felt they needed to con-


Image 60


Image 61


Image 62

trol situations. One of the non-written rules was that indoors children should move calmly.

According to Setälä (2012), children perceive and interpret space by moving and controlling their body movement. Being able to explore their environment is fundamental for children. Only in Centre D did children have free access to all spaces regardless of age, including the long corridor. In fact, in that specific centre all doors were removed to allow children as free independent exploration in the whole centre as possible (Images 63 and 64). In many of the centres doors between rooms were kept closed so that children could not start "running about" from one room to another. On the other hand, two of the centres had utilised the long corridors. In centre E the corridor was blocked by gates at both ends so that children could safely use the space in between for pushing prams and carts, and for different types of play needing a large space. Running was not encouraged, though.

Four of the centres had a hall free to use for activities needing a large space. These halls had a lot of potential for a number of affordances, and also many aesthetic elements (see Images 65 and 66). In one centre the hall was also used as a dormitory for children over three years (Image 66).

Centre D had created a rough-and-tumble –room that was freely accessible for all children (Image 67). Except for different kinds of mattresses, the room was empty, thus affording running, somersault, and other action-packed activities. This kind of a polymorphic space (see Kyttä 2003) potentially affords also long-lasting play by enabling play to be continued later.

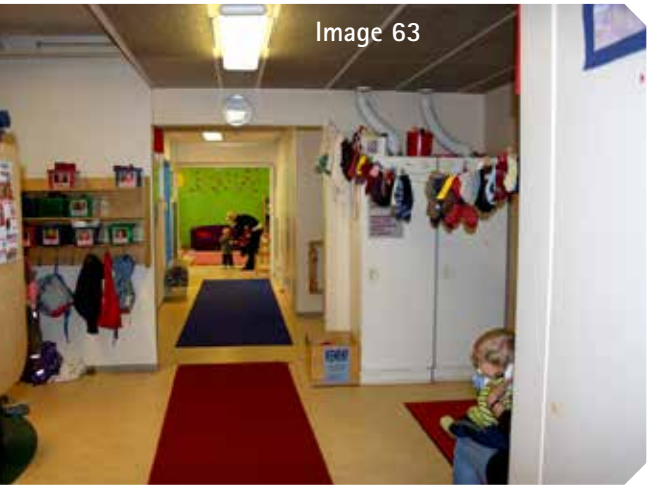


Image 63


Image 64


Image 65


Image 66


Image 67

Nature and mobility

The natural cues in the study centre playgrounds afforded mobility and child-initiated exploration. Two of the large playgrounds could be described as exciting or attractive. In Centre G the natural playground environment was especially versatile. There was a large wooded area and the topography was varied including many exciting elements, like ditches and large tree roots winding on the ground that afforded exploration of many kinds. This yard also had many natural elements (trees, shady areas) supporting the potential affordance of restoration. Unfortunately, the fenced area for children under three was small, flat and boring.

In all seven centres the playgrounds that were separated by a fence for children under three had only a limited amount of natural qualities. Diversity in topography was also narrow. The outdoor environment in Centre C lacked basically all natural elements except sand.[6] The affective appraisals one got of the fenced areas for children under three were mainly boring or unstimulating. These areas had no natural obstacles for children's mobility. In fact, they had no obstacles at all except the sides of the sand pits. These results are supported by a survey for day-care staff and parents in one of the northern regions in Finland (Palosaari & Saarsalmi 2006), which revealed that especially outdoor environments for children under three were considered too small and lacking in play equipment. Natural elements providing obstacles can, however, be concerned as important promoters of children's gross motor development (see e.g. Fjørtoft 2004). They are also very important in promoting child initiated creative play and exploration.

In spite of the deficits in natural components, compared to many countries (see e.g. Kernan 2010; Penn 2005) the researched playgrounds and the time children spend outdoors can be considered as extraordinary. However, Finnish ECEC relies significantly on outdoor time and from that point of view the limited number of natural elements in the outdoor environments was noteworthy. In this sense Finland should be compared to the other Nordic countries. For instance, in a study focusing on the outdoor environments of Norwegian kindergartens of children under three, there was a large variety of different natural elements, and 70% of the researched institutions (N 133) offered also climbable trees (Moser & Martinsen 2010).

Table 19 provides an overall impression of the playgrounds in the study centres. One can see that generally the playgrounds for children over three had more diversity and natural elements than the younger children's playground areas.

In the study centre environments it seemed that especially in the fenced playgrounds of children under three the deliberate playground design was based on manufactured equipment. The equipment available on the playgrounds, like swings, sandpits, slides, and climbing frames seem to be in line with standard playgrounds in other countries (Fjørtoft 2004). However, all the playgrounds offered some natural elements, even if only sand. These elements change in accordance with weather and season. For exploration and play, sand, mud, snow, and water provide a good number of potential affordances for children. This is possible when children are encouraged to spend a lot of time outdoors, which is typical in the Nordic countries (see e.g. Niklasson & Sandberg 2010). One of the features not visible in the present study is the Finnish centres' common habit to utilise also the surrounding nature with varying intensity. It is common that day-care centres have nature walks on a weekly basis.

6 One should keep in mind that the Finnish outdoor environment has its natural changes in accordance with seasons, which increases its diversity. In the playgrounds snow supports a number of affordances during winter.

TABLE 19 The outdoor environments in the seven day-care centres

Centre	Size and topography	Equipment	Natural elements	Playground for children over three	Access to the big playground
A	a small flat area	slide, climbing pole, a boat for climbing and as a hut, swings	a few trees, sand, a few stones	only one common playground	
B	a large separate fenced area with a small natural corner	slide, swings and rocking horses, a tunnel to climb in	trees, sand, stones, a small hill	a large flat area with a goof variety of swings, climbing facilities, slides and huts	sometimes
C	small flat separate fenced area	swings, a rocking horse, a sand pit	sand	a large area with a big sand pit, and a climbing frame with slides	sometimes
D	a rather small area, partly flat, partly uneven	swings, a slide, a climbing frame, a hut	sand, large stones, a fallen tree trunk	only one common playground but older children have regularly full weeks in a camp made in the forest	
E	a small flat separate fenced area	a slide, a rocking horse, a sand pit, a hut	a few trees, grass, sand, some bushes	a large area with a diverse topography, and a good variety of equipment for activities	sometimes
F	rather large flat area with a separate smaller fenced part	swings, climbing frames, slides, rocking horses	sand (snow), some bushes	in practice one common playground	gate open, children have free access
G	a small flat separate fenced area	swings, a rocking horse, a sand pit	sand, some small trees	a large area with a diverse natural environment and topography, and a good variety of equipment for activities	depends on the group

Some practical solutions

Some solutions to increase the functionality of the environments provided also potential affordances for children's mobility. Image 68 provides an example of how sensible solutions can increase children's mobility. The washbasin was located on an appropriate level for an adult, but equipped with a step-ladder for children to climb up to the basin. This solution also afforded adult functionality by providing an ergonomic way for washing children. Probably the reason for this solution was the ergonomic requirements of the adults, but the children also benefited from the result with increased opportunities for mobility.

There were also other examples of functional and non-functional architectural solutions promoting or inhibiting children's independent action. Children's coat racks were slightly too high in most of the centres. The reason for this was probably nothing but practical: children's winter overalls are long and need enough space. However, there was often a bench in front of the coat rack, so by climbing on the bench children

Image 68

could reach their coats or overalls at least partly independently. Yet, mittens, hats and other smaller clothes were out of children's reach, since the shelves were far too high.

Brief conclusion

Children's opportunities for mobility, especially independently, are connected to different constraints in the environments. Most of the study centres had a good number of affordances for mobility both indoors and outdoors, but there were also many constraints for their actualisation. Especially access to the cues on the playground of children over three years was restricted in most centres.

Outdoor environments are fundamental in day-care centres, because they enable more vigorous activities and more independent mobility. In addition to providing affordances and opportunities for independent mobility, the playgrounds in the day-care centres are also important from the point of view of visual quality. All centres had some natural elements in the playgrounds, but only very little topographic variance. The number and quality of potential affordances is functionally important, but to perceive affordances children must also find their environment meaningful and tempting. The affective appraisal forms an important frame of reference for the child's motivation to use an environment. There has to be a link between information and feelings to meet the needs of the child (Kaplan & Kaplan 2009). According to the ex-

planation by Kaplan and Kaplan (1989), to be meaningful and motivating the environment must be understandable, but at the same time inviting the observer to explore. Thus, the lack of diversity in the natural environment in the researched day-care centres was not only a question of children's opportunities to find affordances. It was also about the visual quality of the environment, especially from the point of view of children's affective appraisals, and of their place preferences.

14.4 Visibility of language: books, documentation, material, and organisation of space

Although language is divided into two categories in the VASU-model, i.e. oral and written language, the nature of language makes these categories interrelated. In the model the emphasis is on visual written language, and language that has to do with using visual material. Very likely there are many more and different cues supporting oral language in the evaluated environments than those presented here. Most oral language affordances are related to verbal communication, and as such do not necessarily form cues in the environment. They would need documentation based on video or audio recording. However, the interpretation revealed that the centres had not fully utilised all the opportunities environments have *visually* for providing language-related affordances.

Opportunities for discussion and expression

The centres had many *cosy places* for listening to stories and for having intimate discussions. These were formed by fenced peaceful corners, sofas (Images 69 and 70) and "soft areas" like mattresses and pillows on the floor (Image 71), or an armchair in the dormitory for an adult to read a bedtime story (Image 72). Also the different *small group rooms* provided good opportunities for having story times with small groups of children. The armchair in Image 72 is a familiar sight in Finnish day-care centres. A common habit is to read a story for children or sing lullabies during naptime. In addition to giving the opportunity to familiarise children with a variety of stories, rhymes and songs, this habit is important from an affective point of view. It makes naptime a pleasant and warm experience for children and thus also increases children's interest in language. According to Suojala (2009), a well-organised peaceful reading corner with a good selection of books and a variety of toys and small objects related to the stories can support the child's interest in literature.

Many of these cues signalled that reading and having discussions with children were seen as important activities during the day. These cues provided a potential affordance for children to be involved in intimate small groups together with adults and


Image 69


Image 70


Image 71


Image 72

other children. When actualised, this affordance in fact creates also other affordances for children, like those related to emotional well-being. Providing children opportunities for warm, interactive and calm reading sessions is seen as an important quality indicator also in the ITERS-R (Harms et al. 2006).

Potentially many of the researched environments had affordances for oral language. The cue *visual images to discuss* had a large number of hits (113). In addition to forming cues for affordances, v*isual images to discuss* bring the elements of visual quality into discussion in an interesting way. The number of hits is only one indicator of what the environments afford. In relation to having visual images for children

to discuss placed on walls, it is significant that the images are big enough and on an appropriate level for children to see them. Observations during the decoding process showed that there was either a complete lack of pictures on the walls, or the pictures were too small for children to see them and possibly had been placed on a level invisible for children (e.g. like in Image 72). So, despite the large number of images on walls, the visual experience of the day-care centres reflected a certain emptiness.

The small number of *photographs of activities* (8) was a deficit concerning also language-related affordances. Talking and memorising common activities can be much promoted by documentation, especially by photographs of events. This kind of a procedure is very common in the Reggio Emilian schools for young children. Documentation makes learning and teaching in general reciprocal (Rinaldi 2006, 100), and thus also enables verbal reflection. The additional naturally occurring data revealed the strong potential that documented activities have for promoting talking and discussion. The collage in Image 73 was placed in the entrance hall low enough for children to see the photographs, and a soft mattress in front of it for children to stand or kneel. During the photographing session I saw children coming in from their outdoor play gathering together to discuss the images and to memorise the events they had participated in.

Opportunities for expression through theatre, singing, or recitation are important features promoting oral language in ECEC environments. This was not, though, particularly visible in the study centres. One of the reasons is the nature of these affordances. Especially singing and using rhymes can be activities utilised daily in many

Image 73

different situations without leaving any cues in the environment. Especially recitation and singing are much exercised in Finnish day-care centres. There were some visible cues, like *theatre corners* or built stages for children to use, and playground equipment with a TV-set-like construction. In principle, these elements create potential affordances for acting and for dramatic play. Especially outdoors the equipment has potential, but demands that adults direct children's perception to these constructions and help them discover the affordances. With the youngest children these outdoor elements can be used especially for interactive play with the adults, e.g. playing kiosk or shop, peek-a-boo, or hide and seek. (See Kyttä 2003.)

There were *puppets* visible in one centre (Image 74), but their location being high on a corridor wall made them practically inaccessible for children. Likewise, the gate in the image can be interpreted as a restriction of children's independent mobility, which works as a constraint for children to independently perceive the puppets as an affordance. However, providing that the puppets are taken down for children to explore and to perceive in a meaningful way they form many potential affordances for language and play. Suojala (2009) emphasised the importance of equipment and props to inspire children to play and to tell stories. This can be an effective way to boost children's language especially when linked to books and stories told by adults.

In four of the centres dress-up clothes were provided, in three of which they were located in a place visible for children. Only in two centres were these clothes also independently accessible for children. A basket full of clothes as in Image 75 provides potential also for many other affordances than those related to language.

Image 74

Image 75

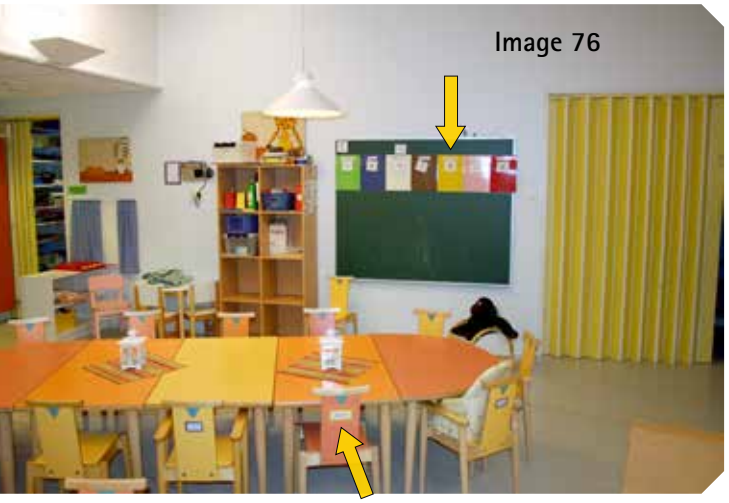
Music instruments can also work as cues supporting children's oral language by encouraging accompanying singing. According to Ruokonen (2011), singing and language development go hand in hand in early childhood. The number of visible music instruments in the study centres was small. Of the altogether seven visible cues, two were independently accessible for children. This result reflects the culture of common adult-directed music sessions for a whole group or many groups of children at a time. Four of the music instruments were only for adult use (3 pianos and 1 accordion). From the point of view of children's opportunities for exploration and expressing initiative the result gives an image of lacking potential. However, if the adults create sessions where children can explore musical instruments independently, and also in guided activities, children may find many language- and music-related affordances. Moreover, when promoting singing, opportunities to play the instruments are not crucial. Children's language skills vary a lot and in some cases concentrating in exploring the instrument could even work as a disturbing factor for singing. In that case, though, exploring the instruments could support talk in a meaningful interactive situation.

Non-used environmental opportunities for supporting written language

The first impression one receives about the visibility of written language in the environments was an image of emptiness. A careful interpretation of the photographs revealed that the environments were not completely empty of words and letters. In fact, there were 42 hits for *words and letters on display* other than books in the data. These included words somehow related to children and activities (e.g. months of the year, or children's names), single letters displayed for children to see, and also many words seemingly for adult purposes, e.g. labels of different storages.

Just counting the hits for cues is not enough to provide an image of how children perceive affordances related to written language in the environments. For children the cues of written language have to be meaningful. And what is meaningful for one child can appear totally differently to another. Trying to define potential affordances one can only pay attention to certain existing or absent visual elements that may finally provide a deeper view into what the environments afford.

First of all, one has to ensure that children are able to see the letters or texts. There were only a very few written elements in the environments on a level and of a size visible for children. When this aspect was taken into consideration in the interpretation, the number of hits related to written language in the images dropped from 42 to 13. In accordance with this principle, for instance in Image 76 the child's name behind the chair was counted, but the names of months on the blackboard were not. One can also ask whether the child's name in Image 76 is inspiring enough for a child under three to raise an interest towards written language. Although it is on an appropriate level for



a child, it is rather small and has no other elements (like colour) to attract the child's attention. My interpretation is that the tags are mostly meant for adults.

Meaningfulness is largely about excitement (e.g. Nasar 2000; Kaplan & Kaplan 1989). It is, therefore, not enough to have just any letters or texts in the environment. To be inspiring for a child and to be able to raise the child's interest, the texts have to connect with many other elements in the environment. Kaplan (1988, 61) argued that the aspects in the environment that a person finds most interesting are likely to become processed in the system. Similarly, affordances closely related to a person's interests will have the most potential to be found and actualised (Heft 2001). Thus, the affective appraisal of the linguistic environment for the child should not be boring, but have elements that the child can find exciting and stimulating. Texts should form a meaningful context for children.

From this point of view the data does not provide many examples. There is one example (Image 77), in which children's names in large enough block letters have been written behind images of their faces. I see these hanging faces and the names of the children the closest to an exciting way of supporting written language in the research data. It thus seems that the intentions to support written language-related affordances have not been reflected upon to any great extent. To have children's names written in the environment is more important than one would think. In their classical study, Ferreiro and Teberosky (1982) found that one's own name is among the first texts a child can recognise in the environment, and can thus have an important effect on children's emergent literacy (see Korkeamäki 1996).

The lack of meaningfulness regarding books was visible in all the centres. The data revealed a variety of books and rhymes (24 different selections altogether, 23 of which consisted of books) for children to browse through or to look at. As discussed before, the total number of these selections in the data was much bigger (38). However, the affordance being related to written language here, it was important that children could

as freely as possible browse through the books, i.e. also *see* written language. Books are not important only for the sake of stories that adults read for children. They can offer meaningful affordances to browse, to look at pictures, and to discuss with other children. One of the ways is what Korkeamäki (2011, 47) described as children's "*pretend reading*". Children love to listen to the same stories over and over again, and start learning them by heart, "reading" them to themselves and to their peers. This pretend reading is the result of an active thinking process. In pretend reading the child uses words and structures of language that are not yet in her/his active use.[7]

Hence, the criterion in this context was that the books had to be independently accessible to children to encourage their independent reading (Korkeamäki 2004). In many cases the books were placed too high for children to reach them, or access was restricted in some other way. As extreme examples, in one centre all books were placed in the staff room (Image 78), and in another centre behind a class door in a cupboard on the corridor. From the images one cannot conclude whether children had free access to these spaces. However, this kind of displaying does not support young children's spontaneous use of books. To compete with other affordances books must be visible and inviting, and have an element of excitement (see Kaplan 1988). In many cases the selection of books had dwindled to a couple of books carelessly placed on a table corner, or books in a basket (Images 79 and 80).

Meaningfulness in the environment can be increased also by creating exciting places, such as *cosy reading corners*, which in turn increases the child's involvement (e.g. Nasar 2000; Kaplan & Kaplan 1989). The environments in the present study had many potential places for children to retreat with a book, but the limited selection of independently accessible books weakened the potential of these places as affordances.

The arrangement of books in Images 78–81 does not indicate a goal-oriented approach to language-related affordances. To support the affordances for language and learning the contents of the books, the display of books becomes an important element. Books must be presented in a tempting way, and in a meaningful context. Displaying books as in Image 81, children see only the back of the books, although the elements that are most inviting and can fix children's interest are the book covers. Another aspect is the message about the meaning and the importance of books given by the display. If books can be thrown in a basket or on the floor, children receive the impression that taking care of books is not important, i.e. books are not important.

An interesting question is whether observing children would have changed the interpretation. It is, of course, possible that the educators in the centres actively place books within children's reach to raise their interest. Working that way they would also have the opportunity to purposefully choose books with different topics, images, and style, thus ensuring children get acquainted with a good variety of books. Howev-

7 This pretend reading is a similar process to play for the child, in which the child is working on the zone of proximal development (see Vygotsky 1978).

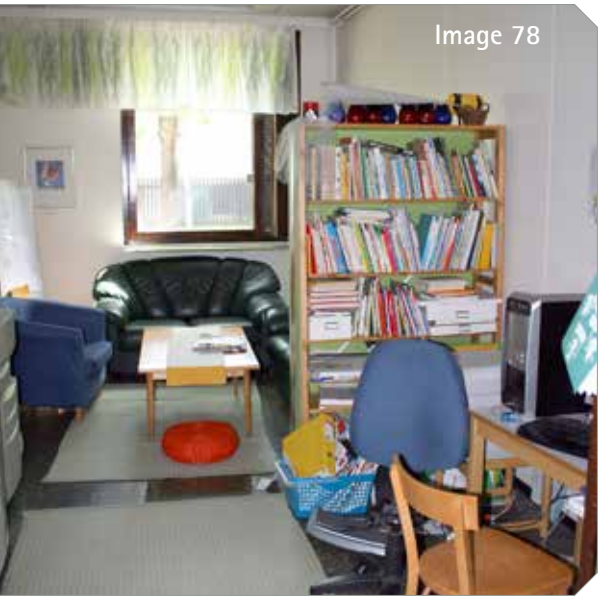


Image 78


Image 79


Image 80


Image 81

er, that would not change the image the photographs provide of the rather negligent way of presenting the books.

Even if promoting literacy is not an explicit goal in the ECEC of children under three in Finland, it forms an important part of children's "emerging literacy" and language skills in general. This notion includes the idea of bringing the world of letters and words into reach of children to raise their interest towards written language. Emergent literacy suits well with the idea of holistic pedagogy by combining written language with oral language and social interaction situations (Korkeamäki 1996). Therefore, finding solutions so as to increase meaningfulness related to the linguistic environment is crucial in day-care centre environments for children under three.

Charts 3 and 4 illustrate a combination of selected cues supporting language-related affordances in the seven researched day-care centres. There are three cues supporting verbal expression: *theatre corner*, *puppets & clothes*, and *music instruments*. The first chart shows the situation opened up in Chapter 13, i.e. the hit rates of all the cues depicted in the photographs. Chart 4 shows the situation after the discussed qualitative elements have been taken into account.

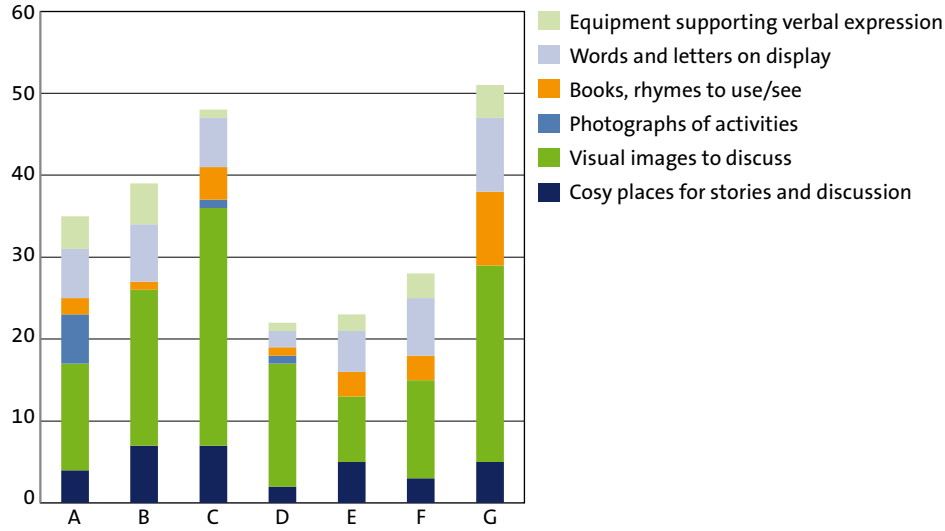


CHART 3 Hit rates of cues related to language affordance

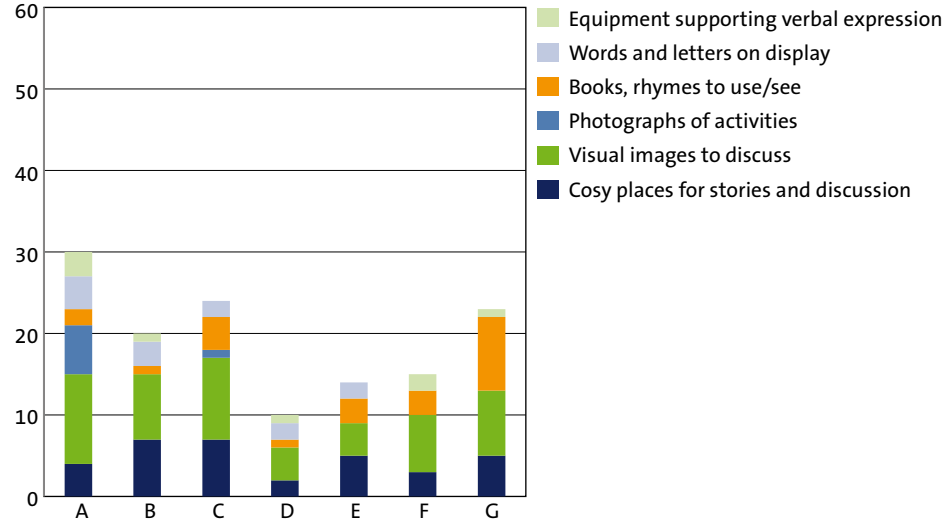


CHART 4 Hit rates of cues related to language, when cues are visible and accessible for children

In Chart 4 the differences arise from *visual images to discuss*, *equipment supporting verbal expression*, and *words and letters on display*. These are all cues that have to be visible and accessible for children in order to support the language-related affordances. Although it is impossible to define an ideal situation for the linguistic environment, Chart 4 presents a guiding image of how little attention that designing environments to support children's literacy has received in the studied day-care centres.

Brief conclusion

The environments in the study centres had not been intentionally designed to support children's language related affordances. In relation to oral language, certain emptiness was recorded in many of the photographs. However, the interpretation brought interesting perspectives on how especially written but also oral language could become visible in the environment. One of the often-heard claims is that especially oral language cannot be depicted in the visual environment. Despite this, the image received through the data in the present study implies that lack of cues may signify deficiencies in the multi-faceted use of language-based pedagogical activities. Since young children are in the sensitivity period for language, all possible potential for enriching their language should be utilised. Even if a rich oral language was not easily visible in the environment, at least the lack of material related to written language should be given attention. Certain language elements as invariants do have to exist in pedagogically high-quality ECEC environments. The affordances and visual quality in the model are not randomly chosen. Pedagogically they represent the viewpoints argued in VASU and, as such, should have visibility in the environment.

Language is used all the time. Within the context of ECEC it means the goal-oriented use of language, e.g. in the form of stories, songs, rhymes, and using other expressive arts, and the natural interaction between children and adults. Language is used in a variety of situations daily, and as such the picture provided by the environmental interpretation is imprecise. For instance, Korkeamäki and Dreher (2012) found that educators in the day-care centres were rather well aware of the potential that daily routines have for children's language learning. However, there is much variation in how much language is emphasised, and what kinds of means to support language are used with children. Puroila (2002) found that the level of adults' engagement in the activities was connected to the amount and to the ways in which they interact with children. Therefore, the lack of language-related affordances could be a sign of deficient engagement. At least it signifies that the importance of environment in language acquisition and in creating meaningfulness has not been reflected upon. The visible emptiness concerning many of the presented cues created an image of missing affordances, especially in connection to children's opportunities for independent exploration.

The deficient visibility of books and the constraints on children's independent access to books were among the most prominent deficits concerning both the oral and the written language environments. There was a rather good selection of books in each centre, but their visual potential was not utilised. Although language and reading to children has always been central in the Finnish early childhood pedagogy, it did not seem to have much effect on the visual environment. The role of books and rhymes to provide opportunities to read with children, to work as incentives for children to learn, to use language in versatile ways, and to understand the role of books in all learning were invisible in the environments.

One of the important aspects not researched in this study is the type, quality, and variety of books. This would have required other methods than the type of photographing used in the present research. The adults' task is to create new interests that would otherwise not be found or would only be within some children's reach (Korkeamäki 2011, 48).

14.5 Belonging to community

Day-care centres run by municipalities are public institutions in Finland. Hence, they should be openly part of the surrounding community. Enabling participation for parents and the whole family is an important part of belonging within the community. One of the elements in early childhood environments not largely discussed is the ECEC environment's relation to the surrounding community. Much of this has to do with environmental transparency. To belong in the larger community is a central aspect in the day-care centres in Reggio Emilia (Ceppi & Zini 1998). Also in Finland, this aspect has been an important and much valued part of the daily pedagogy, especially in the form of outings to the surrounding community and environment (see e.g. Raittila 2008).

Entrances as creators of first images of the day-care centres

Parental participation in the daily activities of day-care centres is not yet an established practice in Finnish day-care centres (Puroila 2002; Tiilikka 2005). As parents need to know about their children's activities and life in the centre, documentation becomes an important aspect also in the collaboration between parents and the centre. Documentation helps parents' to "feel at home" in the centres, and is thus crucial in the process of educational partnership.

The architectural design in most of the study centres' entrance areas potentially supported the parents' feeling of being welcomed to their child's day-care centre. With the exception of Centre A, which did not have a separate entrance hall for chil-

dren under three years, the entrances in the centres were rather spacious and well-lit, many having also natural light. Centre F had an excellent large and well-designed entrance hall. In Centre A the entrance was a little area fenced by shelves from the activity room. However, in that centre the openness of the full area of children aged below three years provided an opportunity for parents to see and to enter the facility (Image 83). Most of the entrance halls in the centres also had seats suitable for adults. This potentially increased the parents' feeling that they do not have to drop in on their children, but are encouraged to stay longer when they so wished.

Tiilikka (2005) has described the parents' need to feel belonging. In her research the atmosphere was seen as an important element in supporting the feeling of being part of and not outside of the ECEC community. In Finland the cultural code of the centres (see Estola 2003, 30) openly invites parents to enter the facilities. This makes the entrance area important in forming the parents' first impression of the place. The entrance is the first contact with the centre's working culture and the values behind it.

From this point of view the importance of the entrance areas had not fully been discovered in the study centres. My interpretation of the cultural code is that the entrance areas were made functional, and part of the functionality is that parents' have a place to sit while taking their children in and out. Another part of this functionality is the use of information boards on the walls for parents (Image 82). However, the study centres had only partly utilised the possibility to make the work and activities of children visible for parents.

In the Reggio Emilian context documentation is seen as a fundamental means to increase parents' participation. By following the "children's footprints" parents can participate in the interpretation process mutually with the educators. So, documenting children's work and their activities intensifies family participation and gives it new meanings (Rinaldi 2006, 19-130). Even without a deep contribution to the interpretation process, documentation offers parents at least the opportunity to be connected to the work and activities of the centre. Thus, part of the usefulness of documentation


Image 82


Image 83

is to show the parents, and according to Vecchi (1993) to the public in general, what is taking place in the centre. A good opportunity to increase the openness would be having regularly changing displays easily visible for parents that shows the work. Also, by beautifully displaying children's work it is possible to show that children are valued, and that their work is appreciated in the centre. According to Ceppi and Zini (1998, 41), "*An entrance that provides information on the school and its activities, [is] a place for welcoming and greeting.*" In the study centres nine different collages of children's work were visible in the entrance halls of four centres. Photographs of children's activities were displayed in the entrance area only in Centre C, which is in line with the other results concerning the limited number of photographs of activities. Due to the described limited space of the entrance area in Centre A, it did not enable much decoration, but the access to the centre was open and many displays of children's work and of photographs were easily visible in the other parts of the centre (Image 83).

It is not irrelevant what kinds of cues the parents observe in forming their image of the centre. The image parents receive from a fully loaded information board, like in Image 82, differs from the one received by looking at photographs of children's activities. Thus, although parents must be informed about important issues, the information boards in the entrance areas could be at least partly replaced by other means. In Tiilikka's research (2005) parents wished for the use of new technologies, like email, as informative channels to provide more information related to children's activities and life in the centre. Many municipalities in Finland already utilise e.g. digital portfolios in collaboration with parents, thus enabling practical communication of messages (see Kankaanranta 2002).

Especially when children are very young their ability to tell about their day may still be limited. Through the use of versatile documents – such as children's interviews hanged on corridor walls, a written story of children's visit to a place told by the children, or a collection of photographs of children's play (see Keskinen & Lounassalo 2011) – parents become much better aware of their children's activities and social life in the centre. In her study Kernan (2005) found that parents who viewed children's activities through photographs were provided a window into their children's experiences. This was a reassuring experience for parents who usually felt like outsiders. It made the invisible visible for them. A similar result was gained in a development project in the Helsinki capital region. Photographs of children's activities placed in the entrance areas and in other parts of the centre increased interaction with the parents, and especially the opportunities for children to interpret for parents what had been done (Ruokojärvi & Luukkonen 2011). Documentation thus decreases children's pressure to work as a connecting link between two important environments, home and day-care centre, which increases the parents' experience of belonging in the ECEC community of their children (see Kaskela & Kekkonen 2006). Similar results have been found in research conducted in Danish day-care centres (Klausen & Grangaard 2000).


Image 84


Image 85

Naturally, the entrance areas are just the first point of contacts with the centres. However, because parents are often too busy to spend time in their child's day-care centre, the everyday contact with the centre frequently takes place in the entrance area. As Estola mentioned (2003), parents have the opportunity to enter also the other parts of the centre if they so wish. Image 85 illustrates how simple elements such as sofas can create a welcoming feeling at the facility. This is especially important in centres where the entrance area does not allow such elements, e.g. due to lack of space (Image 84). One of the common features in all the centres was that sofas provided both functionality and cosiness for adults and for children.

Discussing the role of the environment in parents' participation and in situations related to the educational partnership of parents and staff, one has to acknowledge that the influence of the environment extends only to certain issues. The most important issue in educational partnership is to create a mutual, listening, respecting, and trusting dialogue (Kekkonen 2012). In the actual dialogic situation, place is in a marginal role. However, the previously described environmental aspects can support the trust needed to build this mutual partnership.

Transparency and joining the surrounding community

According to Jilk (2005) educators in ECEC want to maintain control and often the physical space is created on the principle of surveillance. Transparency is an important factor in this.

This surveillance task was clearly visible in many of the study centres. As a fixed feature element, the group spaces were formed basically of one or two large rooms. The interior design and some practical solutions worked as semi-fixed features supporting surveillance in the centres. In five of the centres, shelves or other obstructions

dividing the rooms were at children's level and did not hinder the adults' view. In centre A children had more freedom to move between rooms, and in centre D children had free mobility in the whole centre. The entrances to loft areas in three of the centres were blocked, and thus, the lofts being in the FCA for children, transparency from the point of view of surveillance was not a problem. In three of the centres the surveillance task was aided with windows offering transparency between different spaces. Surveillance outdoors was helped by small fenced areas meant for children under three in five of the centres.

Belonging to the larger community is the main issue of transparency, as mentioned in a number of studies (e.g. Kernan 2010). Transparency as an element of belonging to the larger community has traditionally been incorporated in the Finnish day-care centre's architectural design. All centres in the present research were well visible to the community. The buildings could easily be identified as day-care centres and, the buildings were located in residential areas, and the attached outdoor playgrounds were openly visible to outsiders (Images 86 and 87).

The indoor–outdoor connectedness (see Kernan 2010) in Finnish day-care centres is usually good, because most centres have originally been designed as day-care centres and have a natural connection to the outside community through large windows at an appropriate level for children. The studied day-care centres had also some special qualities in terms of architectural design related to the outside view that children have in their facilities. In Image 88 the wide window sills that afforded children's sitting in front of the large window also afforded being part of the neighbourhood community. In Image 89 the large hall had many big windows at different levels, creating an airy and light atmosphere. Having this kind of transparency is not self-evident everywhere. Kernan (2010) studied children's possible contacts with the outdoors in


Image 86


Image 87


Image 88


Image 89

four Irish ECEC settings. There was an indoor–outdoors connectedness only in one of the centres. In the other three centres, the windows were either high above children's eye-level, or the view from the window was towards a concrete wall.

Transparency formed by large windows also has an important meaning in the affective appraisal of the ECEC environments. Being able to see what is happening outside of the centre can make the environment in general more exciting and stimulating for the child. Large windows can also offer a view to the centre from outside, and thus help children as users of the centre to adapt into the environment. Read (2007) found that natural light and transparent visibility into a centre increased children's sense of the place of their day-care centre. Sense of place is linked to the meaning that a place has for a user, and to the emotional stability a place can offer.

In Centre F, children's access and visibility to the outdoor environment is increased during summer. Each group space has a specific workshop with a sliding wall, thus enabling direct access to the terrace surrounding the centre. The centre's practice allows children to move freely in and out during outdoor times in warm weather.

One of the most visible elements in the researched environments supporting or blocking transparency was the construction and design of fences outdoors. In Images 90 and 91 the two fence types represent rather typically the Finnish solutions. The wooden fence in Image 91 is a more traditional one. In all but one centre the fences were opaque with wooden building material. The constructions varied slightly, being nevertheless more or less solid. Although the fences were not very high, the smallest children's visibility to the world outside the centre was hindered more than in the case of a transparent metal fence. The transparent fence in Image 90 represents well the newer fences that have been built during the last couple of years in many municipalities. For instance, all new fences in the City of Helsinki are of that type. By its con-

struction and height, this type of fence clearly fulfils the safety aspects recommended by the Ministry of Social Affairs and Health in the *Day-care Safety Design* (Saarsalmi 2008), yet it also enables visibility from both sides, and similarly to large windows, provides an image of the day-care centre as being part of the surrounding environment and community.

The fence as a cue in the outdoor environments has many meanings. The denotative meaning is to fence the day-care centre's area, and thus help the educators in their task of surveillance. Another denotative meaning is to provide safety for the children by restricting their independent mobility and by restricting outsiders' access into the centre. Each of the centres had some car traffic nearby, and a parking area for day-care centre visitors formed a clear risk factor.

Fences also have many connotative meanings. The construction of a fence can cause different associations, depending on the perceiver, and even strong affective appraisals (see e.g. Rapoport 1982). A transparent fence in Image 90 has a connotation of belonging to the neighbourhood community. It is almost invisible, and as such enables children a good view to the outside woods. Children can have a feeling of being part of the larger community, not of being in a separate institution. Likewise, the day-care centre is openly and visibly part of the local community as seen from outside the centre. A transparent fence and an open view to the playground signal that there is nothing to hide. And yet, the fence is high enough and the construction is such that it foils children from running off the playground. (See Nasar 2000.)

A wood area surrounded the playgrounds in three of the study centres, thus allowing the feeling of being part of a larger natural environment. In the other four centres the playgrounds had a connection to the surrounding neighbourhood by being placed in a residential area. During outdoor time, children could watch what is hap-


Image 90


Image 91

pening around the centre, and people going around the centre could observe the playground activities. All this potentially increased the children's feeling of belonging to the surrounding community. According to Ceppi and Zini (1998), [school] architecture and design should embody a close relationship to the surrounding environment – as osmosis with the surrounding aesthetics and culture, forming a pedagogy of relationships.

Brief conclusion

Although looking at the visual features in the environment provides a more or less biased perspective to parents' participation in their child's ECEC, environment no doubt matters. In the present study it seemed that environments had not been thought of as having of importance in collaboration with parents, and thus the potential of the environments had not been utilised.

All the study centres had some elements in the entrance areas that supported parents' feeling of being welcomed into their child's ECEC community. The functionality of the areas, with sofas to sit on, supported parents whose children were entering or leaving the centre. Documentation as an important part in the educational partnership with parents had not been sufficiently taken into consideration.

Transparency is an important quality factor in ECEC, giving important messages about the centres to the surrounding communities. The elements concerning transparency in the researched environments were mostly related to the fixed features and based on architectural solutions. This makes the educators' possibilities to decide over issues concerning transparency rather marginal.

14.6 Typology of "home"

Viewing the photographs over and over again has strengthened my image of the Finnish day-care centre typologies. Typologies in general provide new understanding of historical and cultural aspects, as described by Berndt and Hilla Becher (Lange 2007). In the context of the present study, these typologies have formed a cumulative image of several issues in the study centres. A selection of photographs (92–99) of the group rooms in all the seven centres shows that the day care centres have recognisable similarities.

The strongest typology in the study centres, and visible in the photographs was that of "home". It was not a typology of somebody's home, but a selection of cues reflecting ideas of home. Five centres had a structure based on home areas for children, and also the other two centres had similar elements in the rooms. Small tables and chairs dominated the rooms in all centres. The representation of home was strengthened with rugs, curtains, and small decorative elements (Andersson 1980; see also Brotherus 2004, 95; Puroila 2002, 120).


Image 92


Image 93


Image 94

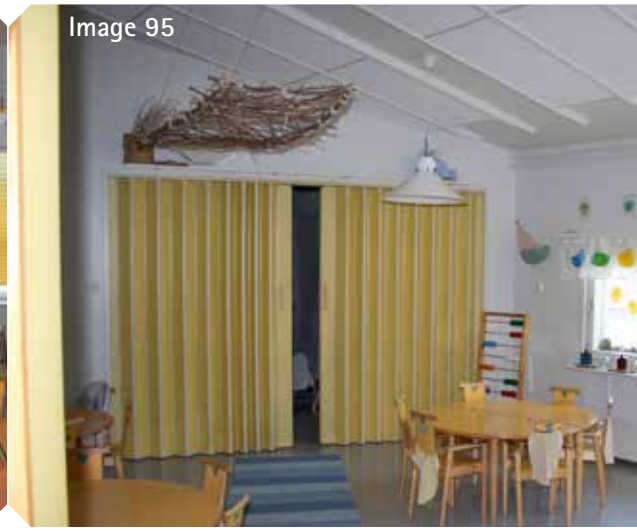


Image 95


Image 96


Image 97


Image 98


Image 99

The denotative meaning of these group rooms is to act as a space for eating, playing, and for different activities like adult-guided drawing and handicrafts. The basic structure of the rooms is similar: the rooms are rather simplified and spacious, the colours are light, the walls mainly white. The tables and chairs are child-sized, and the furniture and other materials are natural, such as wood and cotton.

My affective appraisal (see Russel 1988) of the rooms is that they are rather uniform. The environments are pleasant, and more sleepy than arousing. Calmness comes from natural light, warm colours, and natural materials. There are no provocative colours to break the harmony, so the environments could also be portrayed as peaceful or serene. The rooms could be described as pretty, with matching curtains, lanterns on tables, and small ornaments on windowsills. Everything seems to be well designed and aesthetic, at least from the adult's point of view. On the other hand, the rooms could also be described as boring, lacking any specifically stimulating or exciting elements. The emptiness, especially the lack of interesting material, makes them more inactive than active.

I interpret these visual environments as emotionally safe for a young child. The emphasis is on the visual because, finally, the suitability or the atmosphere of the environment is always a combination of factors, never simply the planned space (Langston & Abbott 2001; Paju 2013; Rinaldi 2006). This affective appraisal is compatible with the rather dominating perspective of the ECEC of children aged under three in Finland. The needs-perspective based on children's individual differences is strong (e.g. Siren-Tiusanen & Tiusanen 2001). The spaces reflect the aim to provide a harmonious, safe, and stable environment for children, with named chairs and transparency being recognisable features in the day care centre typology.

The room in Image 99 has slightly different meanings from the other rooms, although the denotative meaning is similar. The space is rather small, which makes it look a little crammed. The walls are light but not completely white. The environment is rather colourful, mainly due to the many pieces of visual documentation. One can interpret this room as more stimulating and exciting than the other rooms in the images. This is especially so because of the personalised elements of the room for children.

The room arrangement and the visual aspects in photographs 92–98 gave emphasis to a certain type of activity culture (see Rapoport 1982). On the other hand, in centres that had this "feminine touch", other types of activities were excluded. A neat and clean space organised with rather fixed elements, such as large tables, shelves and rugs, without much empty space, suggested working carefully by a table, and not messing up or supporting vigorous activities. The explorative nature of VASU was not visible in these environments. Therefore, instead of being a supportive and restorative element, this kind of homeliness may work as a constraint on children's activities (see e.g. Kaplan 1983a). This interpretation is supported by Norwegian research. Løkken (2000) found that constraints like locked doors or tables with chairs around it restrict children's agency, while large, empty room space encourages children to explore and form meaningful relationships (see also Strandell 1995).

Emotional safety within all functions, including the environments, as emphasised in VASU can be achieved by providing certain recognisable elements for children, e.g. pictures of their families and familiar things, and documentation of their work, as in Image 99. Emotional safety is not about building a substitute home. Instead, it is about children's belonging and participation. This does not prevent the provision of cosiness through the use of soft elements or the building of intimate corners for children to retreat. In some cases, it can also provide an image of home, especially if that image is linked to emotional safety and a good person–environment fit (see Paju 2013, 86). Even with the youngest children, the environment should involve children from early on, and thus provide an inspiring place where children can feel belonging. Interestingly, for instance in the *English Birth to Three Matters* –framework (Langston & Abbott 2005, 71) the design of the environment is defined as dynamic and constantly changing to reflect different kinds of families and children. The resemblance to home is not mentioned.

Many of the study centres had flexibility in the design, where the spaces could be organised differently from the traditional Finnish typology. In the environment of children aged over three years in Centre E, the original home areas with the group rooms and the small activity rooms had been designed for small groups (about 10–15 children), and the hall served as a dormitory for all children who needed rest. In the research of Puroila (2002), similar flexibility had been achieved by arranging one of the group rooms into a common dormitory used by all children in need of rest dur-

ing the day. This, however, seemed to be a less utilised opportunity within the context of the youngest children in five of the study centres. Another type of flexibility in the centres was the creative use of the spaces in general, such as in the utilisation of corridors, washrooms, or staff premises as children's play and activity spaces. Reorganising spaces is probably the most typical way of attaining flexibility. Research in a Norwegian context has shown that children find their secure places also in polymorphic spaces. These places can be outlined in large rooms by rugs and movable furniture or even in a forest environment by means of natural elements such as stones or bushes (Høyland & Hansen 2012). So, should the spaces of children aged under three years be less structured and less adult-designed? At least flexibility in the environment provides more potential affordances (Kyttä 2003). By observations and discussions it is possible to see children's interests and thus direct their attention to look for affordances.

Brief conclusion

The idea of a substitute home is strong among the educators working in Finnish centres, although homeliness as such is not a requirement for centre environments in the Finnish documents. Homeliness is not mentioned in VASU. Nor is it mentioned as a prerequisite in the former documents. The idea of "home areas" is written in the RT-80-card, as an instruction for architects. This is analogous to the Finnish term "day home" [päiväkoti]. However, the only mention of home is the definition that a day-care centre should *supplement* the child's home. According to the document, supplementing home means building centres close to where families live in the residential areas. Furthermore, the architectural design should be compatible with the rest of the design in the area, i.e. the previously defined transparency. Otherwise the RT-80-card has emphasised flexibility and diversity in the planning.

The centre environments being designed like homes in Finland is one of the issues Nummenmaa and Karila (2005) talked about in their research concerning different metaphors of ECEC work. Ways of talking about day-care and centres are so established that the same basic metaphors prevail from generation to generation. One of the metaphors of day-care centres is that of another *home* – a safe home with many children. This aspect becomes visible in research concerning ECEC practice (e.g. Puroila 2002).

Homeliness is often seen as part of the necessary aesthetics. However, I interpret that the rooms presented in the typology (Images 92-99) provide a clear message for children: sit nicely, do not mess up, and do not initiate long-lasting play. This message is especially strong in images where the table constructions dominate the whole room. The dominative role of the table-groups has not been questioned in the Finnish

ECEC culture. However, these have many connotations that one should think about. According to Paju (2013), the placement of tables in the group rooms, i.e. small tables and chairs for children, and adult-sized tables for educators, provides an image of the strong adult–child separation in the centres. Karlsson (2000) described the differences between a dialogical and a democratic discussion of an adult and a child, and an assessive interaction based on the adult's questions. In her description, she visualised the differences through images where the child and the adult either sat on the same level, or the adult was on a higher chair, thus looking down at a child. Hence, the non-questioned very basic elements of the homely environment in fact have a strong definitive role for the different relationships in the environment.

Homeliness is especially contradictory today, when Finnish society becomes more and more diverse. Whose home should day-care centres resemble? Centres have children from a variety of families. It is important to recognise the different contexts and also the different values of contemporary children and families. Moreover, although the different multicultural elements in day-care centres were left out of the present study's focus, cultural diversity in Finland is growing and should have an effect on the ECEC environments.

14.7 Emptiness in the environments

There was a certain unclear emptiness in many of the centres (Image 100). In one of the centres all lower shelves were empty (Image 101) in the children's group rooms.

To some extent emptiness can be a conscious choice in the Finnish ECEC. There is a certain scarcity in Finnish architecture and interior design in general, relying on


Image 100


Image101

rather clear lines and functionality (see e.g. OECD 2011). These same elements apply to the design and material of furniture and textiles, and to the displays on walls. In this respect the visual quality found in the day-care centres, including a certain emptiness, is understandable. According to Day (2007), visual minimalism has clarity and calm that can, at least for adults, be aesthetically appealing. But is it appealing and interesting for children? What is the point at which the clarity and scarcity become cues for dullness? Day argued that sterile environments do not feed children's senses.

Emptiness is not a simple issue. In day-care centres a certain emptiness can be an advantage. For instance having enough empty wall space, or a large open floor space can increase transformability and flexibility in the setting. It leaves more opportunities to develop the environment with children as part of the pedagogical activities (see e.g. Jilk 2005). According to Ceppi & Zini (1998), the environment should lend itself to manipulation and transformation by its users. The day-care centre should be able to change during the day and during the year. If the setting is too "ready"[8] it leaves no space for children's own design and transformation processes. In this respect, emptiness can be created purposefully by pedagogical designers to provide children with opportunities to transform the environment. It means that during the year the environment will change according to activities. In early autumn, when a new group of children is starting in the centre, for instance wall spaces can be empty. However, in the course of the year the results of activities should become visible and be part of the mutual design of spaces. The space should be, like Rinaldi (2006) has argued, a "living organism" that changes, grows, and transforms. The transformation process increases the environment's personalised meaning for children.

Two of the centres were photographed towards the end of the term, in summer, and the rest of the centres in autumn. Hence, each of the seven centres had run the child groups long enough to produce a lot of different material with the children. Likewise, the adults could have selected material for display. It seemed that the educators had had the intention of displaying children's work and other images, because there were a large number of different kinds of images on display. Looking at Images 102–105 it seems instead that the impact of emptiness in the ECEC centres had not been fully recognised. Yet, the visual effect of much of the wall space was emptiness can be sensed in the images. Many of the displayed images were small, like the ones on the blackboard in Image 103. Some of the rooms were rather spacious and the used colours were light, which increased the sense of emptiness.

8 According to Kalliala (2008), an often-heard claim in the Finnish ECEC is that environments should not be designed as too ready for children. However, she criticised that the claim "not too ready" has been misinterpreted to mean that adults can relieve themselves of paying attention to the design and improvement of day-care centre environments.


Image 102


Image 103


Image 104

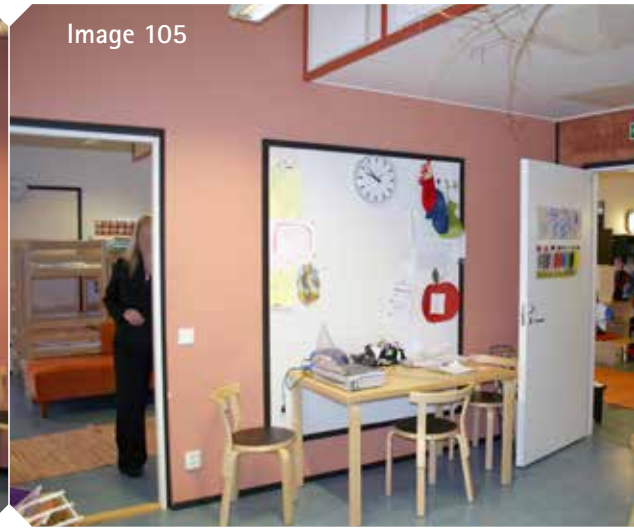


Image 105

Another aspect of emptiness in some of the settings was the lack or limited number of toys, materials, and equipment visible in the environments. Although there were plenty of cues related to play and other activities in the centres, many of these cues were placed out of children's reach on upper shelves or in cupboards and storage rooms. Images 100 and 101 visualise this kind of emptiness.

The rooms in Images 100 and 101 had a certain adult-oriented functionality, which becomes visible in a variety of cues: paints and handicraft materials have been placed out of children's reach on the top shelves or in the large cupboard that only adults have access to (there is an informative note for adults on the door, Image 101), and the lower shelves were completely empty.

Why is it then so important to have games, books, colours and paper, or toys visible, if children know that they exist inside the cupboards? And why is it important to have children's work on display? As already argued, both visually, and from the point of view of affordances, there is a huge difference if objects, material and children's work are visible or not.

First, even if children had the freedom to fetch things by themselves from cupboards, or if adults gave them what they wanted, the visual effects in the environment would be different. Second, the possibility of discovering new information is the defining characteristic of perceiving (Heft 2001). Even if children remembered what was inside the cupboards, they should rely on a mental image instead of direct perception. Heft argued that perceiving is much more an open-ended process than experiencing a mental image. Perception, especially with independent mobility, creates new possibilities for further exploration. This is especially important concerning children under three, who can be characterised by the will to explore, and who do not yet have enough experiences and formulated images of the spaces and their meaning.

Third, there is a difference from the visual point of view, i.e. what kinds of interpretations the environment allows. I understand the empty shelves in the researched environments reflect a control aspect, which is often justified by the safety factor. Visually these empty shelves indicated that objects or materials that children were not allowed to fetch independently were placed on upper shelves, and the lower shelves remained empty. Empty walls reflected deficient visual documentation, which may indicate a poor level of actualised affordances. From an associational point of view emptiness in general may create a feeling of a deficient or deprived environment, e.g. as in Image 100.[9] The affective appraisal in empty environments is easily described as boring and unstimulating. Emptiness in the environment may turn the space into a wasteland (see Kyttä 2003, 93) type of an environment for the child, where the child's independent mobility only reveals the dullness of the environment.

One of the most often heard claims from the ECEC staff about the premises is that the basic architectural design, the indication of which is the typology, impedes flexible design and use of the space. However, the impeding factor in the deficient use of space in the study centres was not necessarily the architectural design. Image 106 shows a large information board that could well have provided a good space for children's art, e.g. a changing exhibition, but it seemed to be a totally useless element, providing a large and empty wall space. This information board, which has been specifically de-

9 During an EU development project in Romania (RO2005/IB/OT 05 – TL) I visited about 20 Romanian crèches of children under three. Environments were clean but usually empty. The two reasons interpreted to be behind this were that the financial resources for these centres were minimal, and that the activities were based on a health orientation. Some of the environments resembled more hospitals than places meant for children's early education and care. In these places the members of staff were dressed in white uniforms; there were basically no toys, games or other material for activities, only a few pictures on walls and definitely no traces of children's own work (Lindberg 2007).

signed as a space for displays, fixes one's attention on the emptiness of the wall.


Image 106

In order to be fair to many of the empty environments in the study centres one must add that, even in empty environments, children can find affordances if allowed enough independence mobility and exploration. Kyttä (2003, 54) provided a definition for "*nested affordances*" that enable a perceiver to use one affordance and perceive another through it. For example, if a child finds opening a cupboard door as an affordance, by finding paper and pens inside she/he may perceive the affordance of drawing. The nested affordance perspective is especially applicable if materials and equipment that are hidden behind doors are still on a level reachable for children. Whenever the children have to ask the adults for help in fetching things, the independent mobility perspective decreases and the adult control aspect becomes stronger. Even if material and equipment would be visible but too high for children to fetch them, the nested affordance perspective becomes irrelevant. In general, the nested affordance is a complex notion in relation to the youngest children, who are not yet familiar with the opportunities the centre environment provides, or are not yet courageous or skilled enough to ask. Kalliala (1999) claimed that a tacit rule in centres is that children should not have to ask adults to give toys or equipment. All the study centres had plenty of materials and toys stored out of children's reach. Thus the emptiness in the centres did not necessarily reflect a low activity level in general, but was merely a sign of adult orientation and constrained independent child exploration.

Brief conclusion

The results made visible a certain emptiness in the environments, i.e. almost all of the rooms in the study centres had many empty shelves, empty walls, and emptiness in general. To some extent emptiness can be seen to reflect constraints in the environments, i.e. restricting access to materials. It was difficult to see whether materials and equipment had been placed in a cupboard for the reason of safety or for functional-

ity. Placing materials on the top shelves out of children's reach is often argued on the basis of safety, i.e. children might swallow small particles. The reason might as well be the adults' wish to constrain children's free exploration, since it might cause a mess.

Although functionality and a certain neutrality (see OECD 2011) seen in the study centres seem to be particular Finnish choices, they are also more universally a trend in ECEC centre architecture. Looking at the examples the OECD (2011) offers of ECEC centres in various countries, it seems that some scarcity and functionality are aspects of contemporary architectural design. There are also many examples of "spacious emptiness" that provide many potential affordances for children's mobility. So, emptiness can also be advantageous. Traditionally, and especially in the English-speaking countries, diversity and colour have dominated the spaces, sometimes too much. These are aspects that make the pedagogical and value choices visible. Like Musatti and Mayer (2011, 208) claimed, "*both the educators' activities and the arrangement of the setting in its components (spatial arrangements, furnishing and availability and type of play materials) are all expressions of the centre's educational program*."

Observing the images I got the impression that mostly the emptiness had not been reflected upon, and thus was not a conscious choice. Perhaps the educators did not recognise their tacit ways of working and did not see their environment in the sometimes hectic everyday context?

Conclusion

15 BACK TO THE RESEARCH QUESTIONS – STILL ON THE HERMENEUTIC CIRCLE

I return here to the research tasks and questions to describe what the process has revealed so far. My aim has not been to provide answers that exclude other answers or terminate future processes of knowing (see Koro-Ljungberg & Barko 2012); interpretation has here meant providing viewpoints. The hermeneutic research process of this study has moved back and forth on an open-ended circle as illustrated in Figure 9. My understanding has changed in accordance with the observation of the data and its interpretation. The theoretical perspectives of the study have affected the interpretation. The VASU-model has provided a reflection tool during the process.

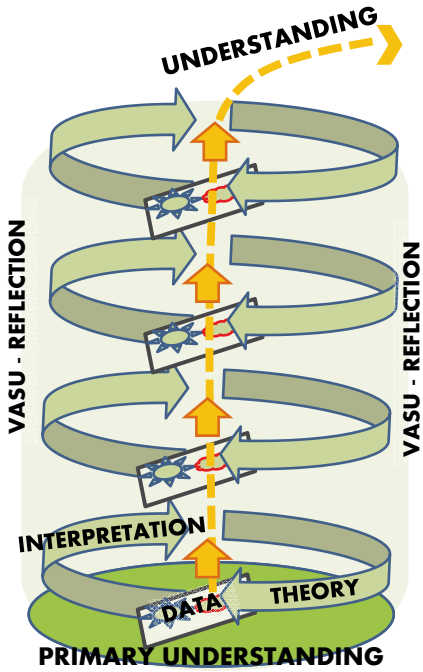


FIGURE 9 The research process as a hermeneutic circle

The subjectivity of interpretation has been a driving force of the study. An essential question concerning qualitative research is whether we are interested in specific outcomes or processes that generate certain types of answers (Koro-Ljungberg & Barko 2012). In this study my interest has been on the interpretation process. Therefore, my own understanding of the environments, their visual quality and affordances for children may be different than for instance those of someone working in one of the study centres. However, in a hermeneutic tradition there are no correct answers to the research questions. Instead, different researchers might find "[...]*multiple, situated, contextual, and even conflicting answers to their research questions that can all be true depending on different epistemologies, theoretical perspectives, individual and collective experiences, discourses, values, and beliefs*" (Koro-Ljungberg 2008, 985). This does not mean extreme relativism in which no truth can be found. Hermeneutic ontology recognises structure in the world but at the same time notices that individuals may experience and interpret this structure differently (Patterson & Williams 2002, 15). Siljander (2002) argued that one has to distinguish generalisability, objectivity, and truth from each other. Although hermeneutic interpretation does not look for generalisability, it can be objective. Objectivity means that the information provided by the research target has to be truthful. As a researcher I am responsible to the readers of this study to describe my interpretation, i.e. what I have seen in the data, and how I have understood it. Hence, the moral principle "*do not lie*" (Aguinis & Henle 2002, 35) is important. I have followed the moral principle in my description of the hermeneutic research process, and by providing examples and material for the readers to make their own considerations.

Qualitative research means making choices that start at the level of theoretical paradigms. In the choice of data and its interpretation it is important to expose the arguments one has for the choices made (Eskola & Suoranta 1998). Kalliala (2008) provided an illustrative example of the subjective nature of interpretations. She described how an interpretation of a play situation could have two more or less opposite conclusions depending on the researcher. She herself saw a situation presented in a video clip as rather frustrating for the children who were the research targets, while the researcher who analysed the situation as part of her research data interpreted the children as having freedom to express themselves. The different interpretations of the situation took place because both researchers reflected what they saw into their own interests and background arising from different paradigmatic points of departure.

Paradigms influence facts, and how evidence is collected, analysed, used, and understood (Penn 2005). Hughes (2001) defined paradigms as a way to organise and see the world. Therefore, "*what we learn about the world will depend on how we see it; and how we see it depends on our choice of paradigm*" (Hughes 2001, 31). I have described my frame: the paradigmatic choices of this research, the theoretical and methodological approaches, and the different contexts. These formed the basis of my choices

about the topic, the data, the method, and the interpretation, which I have opened to the scrutiny of others to increase the validity of the research (Walsh & Gardner 2005). Some of the alternative interpretations have been discussed in the description of the results. However, due to the subjective nature of interpretation, I have remained faithful to presenting my own views, and let the readers find their own versions.

In the present study, validity is not seen as provided by external devices that manage and control, and reduce knowledge and data into controllable elements, fragments, and predetermined structures. Instead, validity is seen to benefit from continuous and radical re-conceptualisation, creating strong, compelling and alternative arguments (Koro-Ljungberg 2010). Knowledge is created in a process that has different participants. In the present study it means the researcher and the readers of the study. Therefore, it has been important to provide enough photographs for the readers to become involved into the hermeneutic learning process of the research (see Holroyd 2007). All knowers are equally engaged in the construction of the knowledge created through the research (Koro-Ljungberg 2008).

In qualitative research there is always more than one interpretation, similar to how each piece of art is unique. "*Each creation is a free process whose source is the interplay of faculties unique to each artist. The author thus follows a procedure which cannot be mechanically reproduced inasmuch as every artistic product is a singular and inimitable achievement*". (Abulad 2007, 22.)

Following the analogy of Abulad, the present study can be seen as my unique description tied to my own choices. Interpretation is always tied to the contexts of the observer, because hermeneutic epistemology argues that neutral observation is not possible (Patterson & Williams 2002). Therefore, I have left knowing as open-ended, inviting alternative interpretations and new understandings that may promote social dialogue and areas for future research.

15.1 Reflecting on the results

One of my pre-understandings when starting the research was that environment is a neglected and undervalued area in the Finnish ECEC. The thorough interpretation of the seven day-care centres strengthened this image. Although the architectural design of the centres was basically of high quality, the overall importance of the environments had not been fully recognised. Categorically, the results showed that the meaning of the visual environment had not been interpreted as having importance.

My interpretations concerning the environments in this study may seem critical. However, the researched seven day-care centre environments had strengths I will here briefly summarise:

- Architecturally many of the buildings were of high quality, having much daylight and aesthetic design, enough space for different activities, and appropriate space to provide functionality in everyday routines.
- Although in some centres the outdoor space was small, all centres had their own yard with several items of playing equipment. All outdoor spaces also had transparency, allowing them to belong to the surrounding community.
- All centres had some artwork made by children displayed on walls, named furniture, and some photographs of children to increase their sense of belonging. There were a number of aesthetic displays of children's work.
- All centres had a number of different toys and objects in children's independent reach, books and other written materials for children to see and to use, and materials and equipment for art and craft work for children to use.
- The environments were safe with appropriate child-sized furniture and equipment, and with transparency allowing supervision.
- All centres provided parents with an appropriate space to enter the centre with a place to sit.

I will now once more discuss the four research questions, and hence make visible what this study has contributed to each of them. It has already become clear in the previous chapter that the results overlap. For instance, the number and quality of potential affordances are important in the definition of meanings and visual quality. Likewise, the cues that emerged during the process of creating the VASU-model support the inquiry of affordances in the environments.

What kind of visual quality in the day-care centres is revealed in the photographs? What kind of meanings can be interpreted?

Visual quality and different meanings in the environments has been interpreted in Chapter 14. In each of the researched environments one could sense that children were valued and were well taken care of. The basic elements defined in the legislation and in other normative documents, e.g. concerning building regulations, were mostly in place. On the whole, spaces were appropriate and safe both indoors and outdoors. The premises were bright and clean, and furniture was undamaged. Each child was noticed by named chairs, beds, and lockers.

The affective appraisals of the spaces were peaceful and relaxing, and no unpleasant or distressing elements could be detected. On the other hand, only a few elements provided excitement through diverse materials or variable outdoor spaces. Moderate complexity, as described by Nasar (2000) was missing in most environments. In many of the centres the affective appraisal could be defined as dull, or even boring (see Kaplan & Kaplan 1989). The meaning of the emptiness in the environments for an adult could be interpreted either as an element related to safety, or as an adult

functionality aspect, i.e. it was easier for adults to constrain the use of certain objects and material than allowing more potential affordances by building an FPA demanding more supervision and support. More materials can also cause more mess (see e.g. Helenius & Mäntynen 2001). Although emptiness can be an aesthetic choice, in the observed centres this seemed not to be the case. My interpretation is that for a child emptiness provided less potential affordances and enhanced the dullness of the environments.

There has to be a link between information and feelings to meet the needs of the child (Kaplan & Kaplan 2009). According to the explanation by Kaplan and Kaplan (1989), to be meaningful and motivating the environment must be understandable, but at the same time inviting the observer to explore. The rather rigid design of the group rooms, i.e. fixed beds and large table constructions, made the spaces comprehensible for children, but at the same time constrained many child-initiated activities needing independent mobility and exploration. With these firmly fixed elements the flexibility of the environments decreased. The homeliness of the environments was a dominating perspective in most of the centres. This seemed to work as an element that increased the non-flexible organisation of space.

In the light of VASU what kind of potential affordances do the day-care centres provide for children aged under three?

The potential affordances in the centres were inspected by using the VASU-model. The cues in the model formed the concrete elements onto which I focus during the interpretation. According to the final version of the model, the number of potential VASU-related affordances in the centres was 50. These have been analysed and interpreted in Chapter 14. I will here reflect on some of the results from the perspectives of the visibility and invisibility of affordances.

The analysis demonstrated that some affordances are easier to locate in the visual environments than others. Some of the results fortified my pre-understanding of the visual environments, such as the social affordances being more difficult to uncover without observing children's behaviour. However, there were also many unexpected results, such as the weak status of play. One of the core values in VASU is to provide secure, healthy environments that allow children's play and exploration. Although play has a fundamental role in VASU, especially role-playing was surprisingly invisible in the environments. Long-lasting creative play seemed more or less underrated in the visual environments.

It would have been interesting to compare the environments of children aged under three to the environments of children older than three. A quick look at the photographs taken from the environments of children over three years showed a different kind of image. An aspect of the environments of the under 3-year-olds seemed to be

a kind of negligence of children's interests and needs. Toys and objects used with children under three years and their meaningful organisation had not been given much attention. After the thorough interpretation of the seven day-care centres, similarly to Kalliala (2008, 60), I am tempted to ask whether the development of the play environments had been at all deliberate. For instance, research in Norwegian kindergartens revealed that children need a lot of different materials to manipulate and large unfinished materials for forming the play environment. The concept "*room in a room*" emphasises the importance of having large flexible furniture in open spaces for children to build their own play areas. (Eggesbø 2012, 253.) Nothing like this emerged in the analysed photographs.

An interesting result was the importance of documentation in revealing a number of affordances. Documentation proved especially relevant in the context of affordances based on the social aspects of the human environment interaction. Social affordances do not necessarily leave any visible cues in the environment, but they can be made visible through systematic and regularly visible documentation, mainly in the form of photographs or visible texts. Therefore, documentation was a fundamental means in the present study to make visible a number of socially oriented affordances, although the use of photographs as visual documents of social activities was very limited in the researched environments.

What kind of cues in the day-care centre environments emerged in the process of creating the VASU-model?

This research question was answered by a detailed scrutiny of the cues and their importance in the environments in Chapter 13. This inspection helped to understand how elements or details one has not considered important might form cues to interpret the environment.

During the process a prototype of a model to help finding, exploring and interpreting cues supporting affordances in Finnish day-care centres was formed. To arrive at the version of the VASU-model presented in Chapter 11 required transformation throughout the whole process. By observing the photographs I was able to define cues and affordances used in the model. The model helped in the interpretation, and the increased understanding helped to modify the model. Therefore, the final number of cues in the model was reached after the full interpretation process. As such the model can be considered one of the results of the study.

In which ways do the environments reflect the ethos defined in VASU?

After looking at the visibility of VASU in the researched environments, it is obvious that the process of translation from the framework into the material environment has not been very successful. The contents and the other argued elements of VASU had not moved into the visible environments in the study centres (see e.g. Kalliala 2008; Korkeamäki & Dreher 2012). The explicitly argued factors concerning the ECEC environments in VASU are few and they are on a general level. One keeps pondering whether this is one of the reasons why the visibility of VASU in the centres was deficient. Another possible explanation with strong links to the first one is the lack of reflective skills in the educator communities.

Environments that are in accordance with VASU cannot be static or purely age-related, but should be flexible, participatory and encourage learning. The argued emptiness in the study centres, and the rigid structure of the group rooms, provided only little flexibility. Day-care centres are institutions, and as such should take advantage of all the functional possibilities institutional environments can provide for children. Different characteristics of these environments should be negotiated mutually with all the significant actors – children, parents and educators. Trying to achieve a resemblance to home, as was apparent in most of the study centres, impedes part of the functionality called for in VASU.

Kjørholt & Tingstad (2007) argued that the discourses of childhood affect the design of day-care centres. The change from fixed standards based on children's needs perspective only to flexibility in the design based on the users' wishes and expectations is visible in Norwegian kindergartens. This can be seen, for instance, in the design of centres that have traditionally been based on units comparable with the group rooms in the Finnish context. The discourses of "*new kindergarten buildings*" (Kjørholt & Tingstad 2007, 179) allow more flexibility in the design. Instead of designing around units, the settings have more common spaces and smaller base-type areas defined for a particular and fixed child group. There has been an animated conversation concerning the design of kindergarten buildings in Norway during recent years. Evenstad (2010) summarised some of this conversation as a conceptual confusion. It is interesting that this kind of argumentation has basically been missing in Finland.

15.2 The ethos of VASU and the role of the educator communities

The emphasis in VASU is on the educator community, not on individual educators. The importance of mutual collaboration creates pressure for pedagogical solutions to be decided together as a reflective community (see Välimäki 2013, 187). As argued, in this respect the framing nature of VASU is both a strength and a challenge. The OECD review processes in the beginning of the 2000s (2001, 2006) showed that the educational level and the quality of the staff have an impact on the nature of a national curriculum and other steering elements. One aspect of quality is the level of focus on developmental and pedagogical knowledge of children under school age. It is presumed that when members of staff are competent in the area of young children, they do not need manual-type documents. Instead, documents are frameworks that should work as guides showing the correct direction. The task of the educator communities is to reflect upon the documents at the practical level.

In international terms the education level of the ECEC staff in Finland is good (see OECD 2006; UNICEF2008), although the multi-professional nature of the staff has to be observed critically. According to Finnish regulations, each key staff member in day-care centres has a qualification. However, in reality there is a lot of variation between municipalities in the staff structure and in the qualification level of the staff (STM 2007). In this context researchers (e.g. Kalliala 2008; Karila 2008) have been worried about the actualisation of the rather ideological definitions of pedagogy in VASU, because to concretise the ethos of VASU on the practical level needs a skilful and reflective staff.

The skill to reflect is a much researched and discussed area in the educational disciplines. According to Mezirow (2000), before being able to make interpretations of experiences and situations one has to become critically aware of one's own tacit assumptions and expectations and of those of the others involved. So, reflection includes both the actual experience and the tacit beliefs and presumptions (Ruohotie 2000). To open these tacit elements needs a lot of discussion and dialogue. Are Finnish educators capable and willing "to lift the cat onto the table"?[1] Respecting the ethos of VASU, the educator communities should reflect upon the VASU principles. The result of this should become visible in the environments. During the present study the methodological choice of having photographs as data has brought valuable information about reflection processes. One of the central advantages in relying on visual images is that the process very concretely brings the environment into focus. Based on the present study, I suggest that photographs could work as a reflection tool for early childhood educators. Often, having an outsider's perspective helps in discovering new

1 A Finnish idiom that means to start talking about difficult issues.

elements in a familiar context (see e.g. Lindberg 2010), and in questioning the habits that have been taken as self-evident.

Without commenting on the working methods and the pedagogical practices in general, looking at the results of the present study it seems that educators have not yet fully understood the importance that environment has for children's learning, development and well-being. Despite the strong emphasis on environment in VASU, educators do not take environment as part of the planning process. However, research has shown that people feel more attached to an environment they have helped to design (Horne-Martin 2006). This is crucially important, since in ECEC environments it applies also to the professional staff as to children and their parents.

The designing of an ECEC environment should be a holistic pedagogical process, in the words of Carlina Rinaldi [...]*"first and foremost, creating a space of life and of the future*" (2006, 80). This is not possible without the participation of all parties: children, educators, parents, and the neighbouring community. To adapt this kind of a working culture requires strong pedagogical and didactical knowledge and skills (Brotherus et al. 2002). This is challenging in the current situation, as research has shown that the tendency within the multi-professional ECEC culture has unfortunately been towards less educated staff's skills (Karila 2008). Secondly, to feel and to identify with the ethos needs a lot of time for discussion and reflection within the community of educators. The results of the present study show that the most important element not reflected upon is the absence of collaboration between children and the professional staff. *Nothing becomes visible in the environment without the conscious effort of the educators*. So, most of all, a rich environment where children and activities are visible reflects a co-constructive pedagogy between children and the educators (see Dahlberg & Moss 2005).

To successfully concretise and implement a national framework curriculum would require building up the pedagogical competence of the staff in general. In addition, this would require strong pedagogical leadership, which seems to be problematic in a number of municipalities in Finland (STM 2007). Experiences in the French-speaking community of Belgium have shown that in order to improve the quality of the practices in accordance with general guidelines, accompaniment of the educational practices has to be a long-term process, where there must be an inter-professional partnership, families must be involved, and the reflective skills of staff and conditions to enable reflection must be ensured (Pirard 2011). Strong belief in the power of reflection in the implementation process of VASU in Finland has proved to be too optimistic.

16 SYNTHESIS AND FURTHER APPLICATION

I will conclude with a synthesis that will contribute to the definition of Finnish day-care centres' visual environment and affordances. The synthesis discusses three aspects for consideration in the development of meaningful day-care centre environments for children below three years of age.

Looking through the eyes of a child opens a new perspective!

16.1 To provide many potential affordances one needs to look through the eyes of a child

The analysis of the photographs revealed that much of the design in the researched environments had been done from adults' perspective. However, to build meaningful environments for children the adults should be capable of looking through the eyes of a child (Kyttä 2003). This means a new perspective, both physically and mentally.

The affordance concept is new in the ECEC context, and especially so in Finnish day-care. Traditionally spaces that are rich with a variety of materials and equipment have been defined as stimulating environments (see e.g. Kalliala 2008; OECD 2006). Affordances are different from stimuli causing actions, because they have a strong connection to meaningfulness (Gibson 1986). Adults that design children's environments need to be aware of what is meaningful for each child. Kalliala (2008, 60) emphasised the importance of having skills to read the environment. Educators have to recognise shortcomings in the environment and have know-how to initiate improvements. In this the adults need the previously discussed reflective skills. After all, only adults have the power to decide over the environment. Depending on the reflective skills, these decisions are made either intentionally or randomly.

From the point of view of VASU this is an important factor, since building an environment in accordance with the child's ways of acting should be an attentive action by the educators. Moreover, designing an environment always means making choices. By enhancing certain affordances one possibly excludes others.

Children find potential affordances differently compared to adults. Seeing is relative, and dependent on many aspects. Even if adults were prepared to see through the child's eyes, and created a rich environment, they could never be sure what children saw. Setälä (2012) noticed that sometimes children see a lot, like cigarette butts or drains, and sometimes nothing at all. Hence, even in a well-designed environment with a good number of potential affordances, the finally actualised affordances are dependent on the many contextual factors referred to before. A child does not necessarily perceive the environment or its visual aspects the way adults expect. Only through observations and discussions with children is it possible to see their interests and consequently direct their attention to looking for and finding affordances. On the other hand, building rich environments creates for children more potential affordances, as demonstrated by Kyttä (2003).

Placing images on walls forms an illustrative example of how to design environments intentionally. First, one has to reflect upon the situations in which children watch the images, and then decide on an appropriate place and height for the images. For instance, in some cases it is natural for children to stand in front of the images when exploring them. In another situation they might sit on the floor (Imag-

es 108-110). There are many different purposes related to pictures, e.g. being a part of the interior decoration, in which case the pictures can be placed differently. However, the reasons should always be explicitly thought of and argued for by the staff working with the children.

Image 108


Image 109


Image 110

16.2 Opportunities for independent mobility increase meaningfulness

The findings of Kyttä (2004; 2003) have demonstrated that opportunity for independent mobility is crucially important in the process of perceiving potential affordances in the environment. Independent mobility has importance also in the child's development. The present study has revealed that day-care centre environments have many constraints that restrict children's mobility and exploration. Allowing independent mobility requires a lot from the adults, especially a positive and encouraging attitude towards children's exploration. Children need independent mobility to develop an awareness of injury risk. They need risks to develop their sense of danger. Opportunities to take risks are also fundamental in children's brain development and in the development of their perseverance and finding ways to face challenges in general (see e.g. Kyhälä, Reunamo & Ruismäki 2012; Stephenson 2010).

Setälä (2012, 179) argued that the environment of children today is increasingly seen from a risk perspective. Children live, like Kyttä (2004, 9) defined, in a glasshouse. "*Risks are not managed but avoided in every way*" (Setälä 2012, 177). For instance, safety regulations seldom set age limits on the use of equipment. A large climbing frame could well offer a climbing affordance for a child at the age of two, if the child is capable or willing to practice, and motivated. Sometimes this becomes possible only with adult guidance and supervision.

Ensuring safety should not mean building a boring and unchallenging environment, which makes the adults' role crucially important. Avoiding hazards is not about avoiding risks. Moreover, eliminating all risks in children's environments is incompatible with the previously discussed learning perspectives emphasising the child's opportunities for independent mobility and exploration. According to Setälä (2012), a child familiarises within a space by moving and by controlling his/her body. Too protective adults restrict the child's own functions and activity to become an active user of the environment. A well-designed, complex space attracts the child to move and to act, and helps to develop the child's skills to manage risks.

Children need spaces of different size to develop their spatial awareness. It is known that children use different strategies to explore, to interact with and to solve problems in spaces of different sizes. Scale is also an important variable in spatial research concerning cognition, development, and decision-making. (Bell 2006.) Therefore, the size of children's "territory", for instance on the playground, does matter. It is also developmentally important that children have opportunities to explore nature environments and environments with a variable topography (Fjørtoft 2004).

There is a lot of research evidence that environment affects children's physical activity. Bower et al. (2008) found that children in centres with supportive environments chose vigorous physical activities over sedentary activities. According to the study of

Gubbles, Kann & Jansen (2012) children were significantly more active indoors if they had access to a variety of equipment, encouraging different physical activities. In fact, one of the relevant issues in Finnish day care centres is the use of the indoor environment in general as a means to increase mobility. According to Kyhälä et al. (2012) the Finnish ECEC centre environments provide potentially many opportunities to children to utilise the environment, but to put these opportunities into practice requires adults to change their attitudes towards tolerance of uncertainty, and patience (Kyhälä et al. 2012, 254). Puroila (2002) came to a similar conclusion. Her research showed that although the adults recognised children's need to run and move vigorously, they wanted to prevent any possible disorder and chaos indoors. Therefore, the adults tried to maintain a harmonious and stable atmosphere through a number of rules and norms. Daily time outdoors was meant for calming children down. (Puroila 2002, 89-92; 97.)

16.3 Personalisation fosters the feel of belonging

"This is my place, our place!" Personalised environments create a feeling of belonging for children. To create personalised environments means to allow transformation of the environments. In day-care centres transformation practically means opportunities to change the semi-fixed feature elements of the environment, where the transformation process can be taken as part of the daily pedagogy. To enable a transformational perspective, children must be involved in the design of their spaces. Designing of the environment has to be a co-constructional activity between the adults and the children (see Dahlberg et al. 2013).

There are many ways to involve children in transforming environments. Bringing family photographs into the centre, as seen in some of the study centres, could be part of this process. From the point of view of individual children it may be as important as any other method for helping children feel the environment as their "own". Another way to personalise environments is to allow children to bring their own secure objects and materials into the environment (see Paju 2013), as could be seen in the form of children's own bedtime toys in each of the study centres. Most importantly, children can be involved in decorating the centre with self-made pieces of work, and thus displaying children's work has relevance also from this point of view. In addition to bringing personalised meaning and as such increasing the feeling of belonging, being part of the displaying process raises children's awareness of environmental aesthetics (as in Images 111 and 112). Good display also conveys that children, and what they do, is important. Having a role in the design of the centre is crucial also for children's participation.

The important questions are whether children aged under three years should be able to participate in environmental planning in ECEC, and how. Even if they have


Image 111


Image 112

preferences, ideas, or wishes about the environment, most children under three years cannot verbally express them. There are examples of development projects where all children, including the youngest, have had opportunities to express their place preferences as the starting point of developing spaces. The youngest children had the opportunity to express their place preferences by placing balloons at their favourite places (see Helsingin kaupunki 2004). One of the problems in approaches involving children in this kind of a design process is that children assess the environment as it is. But what if that environment does not have a good range of affordances and the visual quality is poor? There is research evidence that children seem to prefer environments they are used to (Pramling Samuelsson & Sheridan 2003, 77). An important question is how children could be provided opportunities for participation in the design process from very early on. The problem often is that children do not have enough prior knowledge needed in the design process. To be able to fully participate one needs to have experiences. This puts great responsibility on the adults to enable children to have many kinds of experiences. Another question is whether adults can see their own attitudes – e.g. how they restrict or support the use of the environment by creating the fields of free, promoted or constrained action. Therefore, one of the most important issues again is the reflective skills of the adults, i.e. how adults see the role of the environment and how they support children in their exploration.

Creating personalised environments requires flexibility in the use of different spaces. Basically this means that spaces should be more polymorphic than in the study centres. Increasing the use of multipurpose material is an easy way to improve the personalisation of the environments, e.g. by allowing children to build a room in a room (see Eggesbø 2012) through large flexible furniture, or with recyclable material such as cardboard boxes. This is easy to carry out and does not cost much!

17 LOOKING FORWARD

> [...] we "write a room", "read a room", or "read a house". Thus, very quickly, at the very first word, at the first poetic overture, the reader who is "reading a room" leaves off reading and starts to think of some place in his own past. (Bachelard 1994, 17.)

Environment matters

The way Bachelard in the above quote emphasised the importance of places in a person's life puts great responsibility on people working with young children. The places we *read* in our childhood may have an effect lasting for a lifetime. Hence, it is important to admit that environment matters.

When visiting ECEC centres in many countries, one of my favourite focal points has been the visual environment. During these visits I soon realised that the view of the child and the family, beliefs of what well-being consists of, the ideas of what good education is, and the staff's enthusiasm or boredom towards the work in centres are the defining factors for children's activities and opportunities to be heard and seen. All these have a tremendous effect on the environment. In many places in different countries, the underrating of the youngest children could be sensed in the early childhood settings. Day-care centres were located in spaces with hardly any natural light. Outdoor spaces did not exist, or they were solely for fresh air, not for play or exploration. I have even seen children eat from pieces of brown paper in a wealthy country. On the other hand, in some places I could see and feel children's joy of learning and exploration in beautiful, bright and functional environments. The educators' role in creating the atmosphere and children's opportunities for participation in all these places was crucial.

Pre-understandings are important in a hermeneutic research process. In this study the *feel* of the importance of environments was a crucial point of departure. This alone can be considered a significant rationale for the study. However, a personal interest is not enough to answer the question of why this study had to be conducted. It is ethically and morally important also to question who benefits from it and how (Koro-Ljungberg 2008). Hence, the reasons have to be connected to a broader context of children's well-being and rights, and of ECEC in general.

Finnish ECEC is at a crossroads, with the years from 2013 being historical. In January 1st 2013 the ECEC system was moved from the Ministry of Social Affairs and Health to the auspices of the Ministry of Education and Culture. This move had been planned for years, and was finally decided in the Government Programme.[2] The first important task of the new administration is to reform the legislation concerning ECEC. Since legislation is on a rather general level, as such, its direct effect on day-care centre environments is marginal. The currently still valid Act on Children's Day Care (36/1973) refers to environment on a very general level, basically stating that the physical environment has to be appropriate and promote children's health and well-being. According to the formulated draft act, the definition level will be rather similar in the future. However, a number of definitions can be expected that will have an indirect effect on the environments.

2 http://valtioneuvosto.fi/hallitus/hallitusohjelma/fi.jsp

Although the contents of the newly proposed Act have not yet been finally confirmed, guidelines for the new legislation have been actively discussed throughout the whole 2000s, especially in the National Committee on Early Childhood Education and Care. The Committee's final report (STM 2007) proposed the most urgent measures to be included in the new legislation. One of them with particular importance from the point of view of the present study is related to the qualification and competencies of the ECEC staff. There are great expectations that in the now processed Act, a long-term development view of staff qualification will be provided. The present study has revealed deficiencies in staff competencies. Especially the professionals' reflective skills to interpret information from a framing level to concrete practice are inadequate. Other studies have similar findings (Alasuutari and Karila 2009; 2010; Korkeamäki & Dreher 2012).

In the new administration the next important review will most likely be the revision or complete new drafting of the national framework curriculum, the current VASU. This forthcoming framework has already been laden with many expectations and wishes. Contrary to the normative core curricula given by the National Board of Education, the role of VASU in the administration of the Ministry of Social Affairs and Health has been non-normative. This has been seen as problematic (see e.g. Alila 2013), and thus the expectation is that VASU will receive a more binding role within the forthcoming legislation.

One of the critical issues concerning the current VASU is its general nature. In the present situation having multi-professional staff with arguably insufficient competencies to translate a framing curriculum into the practical level, many questions emerge. How should one solve this problem of both having general instructions and a lack of competencies of the staff to transform them into practice? Should the forthcoming curriculum be more specific than guidelines, thus providing descriptive and detailed instructions for ECEC educators? For instance, Alila (2013) criticised the fact that VASU does not open the different quality factors, but leaves finding them to the readers. She brought the quality factors in VASU into daylight and claimed that it would have been possible to define criteria for each of the factors, and thus help to form an intersubjective[3] interpretation of VASU-based quality. She also claimed that by making explicit the theoretical perspectives of the expert group working as authors in VASU would have made the framework more understandable for the readers. (Alila 2013, 77; 268-269.)

I do not believe that a more explicit view to the theoretical perspectives in VASU would solve the problem. Benchmarking VASU with the Finnish core curricula for pre-school education and for primary education shows a similar approach towards

3 An intersubjective quality paradigm acknowledges that the subjective and objective definitions of quality can be compatible. Quality is always tied to certain subjective aspects and has an intersubjective element tied to the contexts of time, space, and culture (Parrila 2002, 44).

the theoretical basis. Likewise, a review of the ECEC curriculum guidelines in the other Nordic countries (see e.g. Skolverket 2010) as well as the OECD (2004) outline of five different curricula both reveal that the theoretical aspects in these documents remain implicit. Hence, having explicit references on theoretical backgrounds seems not to be part of the curriculum tradition. Moreover, experiences from the ECEC practice have taught that the multi-professional staff are not necessarily motivated enough to read theoretical work or detailed manuals. Consequently, it seems that the most important means to make the pedagogical framework more effective are to increase the competencies of the staff and to improve their reflective skills in general. The results of the present study can in this respect contribute to the legislative process by emphasising the need for professional development, and thus strengthening the findings of other studies, and the propositions made by the Advisory Board for Early Childhood Education and Care Sub-committee on development of staff education and skills (STM 2007). To develop the visual environments in centres, reflective elements like those provided in this study can aid in observation and in deciding the focal needs for improving the visual and functional environment.

The significance of this study is not in its generalisability. Having focused on seven day-care centres it can provide a selected view on the Finnish day-care centre environments. However, its strength is in the argumentation of the results reflected what is known about the importance of environment into children's lives in general, and into their well-being, development and learning. It also elicits the importance of the *visual* in the environment. Especially by discussing the significance of the environment's associational aspects it provides new perspectives to be reflected upon in day-care centres. The associational elements we face in our perception and experiences of space and place stem greatly from our memories. Our understandings of space and place are always connected to our previous life experiences and as such are not only important for children here and now, but have far-reaching consequences. Children must be able to gain positive experiences in order to build for themselves a solid basis to experience their future spaces and places. Also, children's understanding of themselves is developed through their experiences and memories of various environments (see Christensen and Prout 2003). Moreover, children's interaction with the environment and their opportunities for independent exploration are fundamentally important in their well-being, learning, and in all areas of their development (Korpela 2002; Musatti & Mayer 2011; Stephenson 2010).

This study has been my engagement in a dialogue looking for ways to develop the ECEC environments of children aged under three years. It needs to be seen in a rather practical light. Through illustrating what kinds of cues are important, how they provide potential affordances for children, and what affects the visual quality has in the environment, this study contributes to the ECEC quality discourse. One central contribution of the study is the VASU-model. It provides a concrete way to assess chil-

dren's visual environments both in a practical context of ECEC and in research. A logical next phase to study would be to explore the second filter through which the grand total potential of affordances approach towards actualisation. This filter is formed by the practices employed in the day-care centres. Observation or activity analysis could reveal the different levels of actualisation of affordances, and thus provide further knowledge about the role of environments in ECEC.

I have not closed the hermeneutic cycle, but opened many opportunities and challenges for future research. "*We would like to encourage qualitative researchers to think about answers to research questions as multiple images of beginnings, entry points, as an entrance to the ongoing dialogue, not an exit or the ending of research*" (Koro-Ljungberg & Barko 2012, 264).

I hope the presented views will work as entry points into a fruitful discussion about ECEC, and the meaningfulness of environments designed for children aged under three years.

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APPENDIX

Brief testing of the VASU-model

Before starting the actual interpretation using the VASU-model, to strengthen the research quality a brief testing of the model was conducted. The testing was made by a group of ECEC experts, who provided a second opinion on whether the VASU-based categories, their affordances, and the cues supporting the affordances could be revealed in the photographs. Given the vast number of photographs, it was not feasible to use the full data in the test interpretation. Instead, a selection of 15 photographs was chosen. The test consisted of two parts – a group-discussion and the test interpretation.

The test-group consisted of four long-term experts in early childhood education who have initially been trained as kindergarten teachers at the end of the 1980s.[1] All four have for many years participated in a variety of development work in ECEC. They have also been involved, to varying degrees, in day-care centre building and design -processes.

Part one: Group discussion

The first part was a group discussion in which all four experts participated. The aim of the discussion was to prepare the group for the test interpretation. I introduced the interpretation model by opening all the categories, affordances and cues that support the affordances. This was done side by side with five illustrative photographs from the data. Viewing the photographs together was important in order to form a common understanding of what to observe, i.e. what the cues are. One of the aims of the group discussion was to share our knowledge and impressions about day-care centre environments in general. After that the group had an opportunity to express their first thoughts and impressions about the model.

In addition to preparing the group for the test, the discussion also proved to be a fruitful beginning for my own interpretation. The photographs awoke a spontaneous, passionate, and critical discussion about Finnish ECEC environments, and hence, provided some very useful information for my image interpretation.

1 At that time, kindergarten teacher education in Finland was a three-year, upper secondary degree.

Part two: Test interpretation

In the second part the experts were asked to test the interpretation model with 15 photographs. Three of the four experts participated in this part. The photographs were grouped in accordance with the space/room they represented: five photographs from an activity room in Centre A; four photographs from the outdoor environment in Centre B; and six photographs from the play room/dormitory in Centre C.

By grouping the images into clusters I also wanted to increase the contextual validity (see Prosser 1998, 106) of the photographs. The experts had not been to the centres, and thus did not have a prior impression of the places. They had to rely solely on the visual information the pictures provide. As each photograph contains only a limited amount of information concerning the space it represents, by grouping the photographs I could provide a fuller image of the spaces for the experts. However, it is good to remember, that all the experts had excellent contextual knowledge of Finnish ECEC and day-care centres in general.

The instructions for the test interpretation were in accordance with the appropriate use of the VASU interpretation model. After having received the experts' marked charts I compared their results with my own markings. One of the experts made the test alone, and two of the experts tested the model together as a pair.

Across all 70 affordances in the VASU test-model,[2] there were a total of 145 indicators.[3] There was agreement on 86.6% of all indicators given by the test-group. Highest level of indicator agreement was 100%, and the lowest level of indicator agreement was 43.3%. The item with the lowest level of indicator agreement was "material and objects of geometrical shape" – a cue supporting the affordance "exploring shape", in the category "mathematical orientation". There were several items with a 100% indicator agreement.

Although the conducted test cannot be considered as reliability testing, it showed the potential of the model in this kind of an environmental interpretation.

2 The model was revised during the procedure of my analysis, i.e. after the testing situation. Thus, the final model used in the analysis differs to some extent from the test-model (e.g. the number of affordances and indicators are slightly different in the final model).

3 Indicator = cue supporting the affordance