

A story to tell

How to provide meaning in architecture for pre-school children

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Introduction

Architecture and the built environment create the setting in which we live, move, work, play and undertake our daily routines. Hence they acquire significance as they impact the quality of our everyday life. It has been argued that we live a fuller and richer life when we are able to read the physical environment and see the beauty in it (Dögg 2006; Cold 2001). But also from a non-aesthetic point of view it seems essential that each person, already from an early age, takes responsibility for creating an environment that is experienced in a positive way (Eriksen and Smith 1979). The active participation of pupils in our society is the main goal of *Kunnskapsløftet*, which is the Norwegian government's most recent primary and lower secondary education reform (KD 2006B). By gaining visual aesthetic competence children should be able to partake more easily in democratic decision-making processes (UFD 2005). To help achieve this aim visual communication, art and architecture and design have become independent subject areas in the curricula and syllabuses for each grade, and children are introduced to architectural topics from the very first year of their education. The question of how to introduce architecture to pre-school children will be focused on in this article. The discussion will emphasise the educational role of architecture and the educational skills of the competent child grown-ups should support and follow. As part of the learning process, architecture should be approached as part of everyday life, which makes the construction of meaningful experiences possible.

G. B. Vico states that children have the ability “(...) to take inanimate objects in their hands and, to amuse themselves, make those objects talk as if they were living persons” (Veca 1998:144). They are able to “give sense and passion to senseless

things”, which Vico compared to the “most sublime work of poetry”. In architecture, poetic features are often used as either a source of inspiration or part of the actual design. The importance of poetry in architecture was underlined by Sverre Fehn (1999:17): “It is true. We work with letters, an alphabet, we write a story.” Thus, the question that should be raised is: how is it possible to tell a story in architecture that provides meaning and significance in pre-school children's daily lives in their day-care centres?

The educational role of architecture

Architecture plays a manifold role in the educational institution that the day-care centre is. The content of the *Kunnskapsløftet* establishes what pre-school children are to learn. Moreover, it forms the background for all educational activities and is an active part of the process in its function as the day-care centre's third educator.

Knowledge Promotion

As part of the new curriculum the Ministry of Education and Research has released a new *General plan for the day-care centre's content and responsibilities*, which comes into force in the autumn of 2006. As defined by the Act (Barnehageloven §2 Barnehagens innhold), the day-care centre shall provide children with basic knowledge on relevant and current topics. The general plan organises these themes into seven subject areas¹ which describe the day-care centre's content. The area of *art, culture and creativity* focuses on children's experiences in art, culture and aesthetics, and their reflections on them, by expressing themselves in different artistic ways. Architecture is mentioned directly as one possible mode of expression. When working creatively, the children's curiosity, creativity and exploration is to be stimulated and supported, while their interests, knowledge and skills are also to be taken into consideration. Thus the day-care centre becomes a platform for the creation and communication of culture in which children have the possibility to “(...) create their own culture based on their own experiences”² (KD 2006A:36).

Although architecture is mentioned directly only as part of the aesthetic subjects, it can be related to all subjects in a more or less obvious way. The *number, space and form* subject area, for example, obviously focuses on the architectural elements of “space” and “form”, where the child is to learn through experiments, exploration, play and everyday activities. In the *nature, environment and technique* subject area the connection to architecture, while less clear, is still present. Children are to be supported in their experience of phenomena in the physical world, which includes

¹ 3.1. Communication, language and text; 3.2. Body, movement and health; 3.3. Art, culture and creativity; 3.4. Nature, environment and technique; 3.5. Ethics, religion and philosophy; 3.6. Community and society; 3.7. Number, space and form (KD 2006A).

² my translation

not only nature but also architecture. According to this reform, the seven subject areas should overlap and each topic should be seen in relation to each other.

Architecture is part of the day-care centre not only as a topic in the curriculum but also as a setting for all educational activities. To discuss architecture's relation to education more thoroughly two questions need to be raised: Can architecture support educational activities? Can architecture even educate itself?

The day-care centre as educational activity (KD 2006A:15)

At first glance, architecture and education seem to be two very different fields. Nevertheless, both focus on the human being and issues relating to him/her, which means that to some degree they have similar concerns. We can see another close relation between architecture and education when talking about day-care centres. Although perhaps coincidental, the same word, “day-care centre”, is used to describe both the physical building and the educational institution. The built environment of a day-care centre is usually understood as a framework that opens for and supports children's well-being, and their experiencing, learning and development. It “... should give children the possibility of play, life development and meaningful experiences and activities in safe and at the same time challenging surroundings”³ (KD 2006A:16). However, it is important to ask if architecture can be more than this. Can it actually be an active part of and content in children's activities, experiences and learning rather than only forming a backdrop? Is it possible for architecture to be educational, providing young children with meaningful experiences as it is assumed in the *Reggio Emilia* approach to preschool education?

Loris Malaguzzi started the pedagogy of Reggio Emilia in northern Italy in 1963. He included architecture as an active and integrated part of the day-care centre's learning process. Thus, the physical environment should provide a variety of possibilities rather than forming one perfect solution. The existing spaces were not only to function as a setting for children's creations and activities, but should also inspire and stimulate their explorations and adventures. Architecture and space adopt the role as third educator.

Affordances

The educational skills in the physical environment form one of the basic ideas in James Gibson's ecological perceptual psychology. Gibson (1979) defined the concept of *affordances* to describe qualities and possibilities in the environment that are available to both animals and human beings in different ways.

³ my translation

As children find affordances in an environment, they perceive that environment as an interesting and challenging place of adventure and exploration that inspires them to move around and find even more affordances. (Kyttä 2003:12)

Potential affordances are found in the environment and are used when they are found to be meaningful in certain situations. This type of perception is part of an immediate experience which is directly connected to an activity that searches for functional meaning in the environment. “Children of different ages perceive affordances that correspond to their bodily qualities, to the functional demands of ongoing activity, and to their current intentions” (Kyttä 2003:50). By finding and using a diversity of affordances, more possibilities appear. They stimulate the children in their further exploration and open for new actions and ways of using the physical environment. Subsequently, the children's learning about their environment can be described as functional, dynamic, interactive and transactional. It is a relationship in which both parties – the children and the physical environment – play an active role.

An example that illustrates how an element of the physical environment can be used and perceived in different ways is a piece of furniture I have observed being used in one of the day-care centres during my fieldwork.⁴



I have chosen to call this item of furniture a *step-table*, which basically describes what it looks like. It is a small table with a step on one side which makes it easy for children to climb up. The children tend to do this to reach the parent's mail and messages rack, which hangs on the wall next to the step-table. Another possibility is to sit on it – either on the big surface on top, or the small step on the side. When used in this way, either a group of children are gathering on, under and around the step-table to chat or discuss the next activity (for example: “we're definitely not going to play tiger!”), or one child alone who needs a place for withdrawal but still wants to observe the ongoing activities is using it. The most popular place for retreat is the space underneath the step-table. Here the children have a bit of privacy while lying on the floor and having a break. “It's nice to rest a bit,” I overheard one of the boys saying to himself when lying down there and letting out a sigh of relief. Once, one of the girls discovered a new affordance when lying in the same place. She started to use the step as a pillow for her head, which enabled her to look along the whole length of the corridor and see everything that was happening there. However, the step-table was not only used as a place for resting but also for all kinds of activity. The children climbed up and jumped down from it or crawled around, underneath and through it. On some occasions the step-table gained meaning as part of an ongoing activity's content, and then it played an active role (From my observations).

⁴ In the course of my research on *pre-school children's experience of the physical environment in their day-care centers* I spent four months in three day-care centres in Trondheim, Norway.



The short summary of the activities with, on and around the step-table demonstrates a variety of affordances that can be part of a single piece of the physical environment, and how the different ways of using it can result in the creation and perception of new possibilities. It also illustrates the mutual and transactional interaction of children and the environment. Children live and act in a real and imaginary world at the same time (Rinaldi 1998), and it is necessary to understand their activities as part of the sociocultural context in the day-care centre. The physical environment plays an important educational role in this holistic setting and is closely connected with the other educators that are there.

Follow the child

Children are competent, unique and critical human beings. As “knowing individuals” they participate actively in the ongoing learning processes, which are characterised by the children's endless willingness and capacity to learn – their “absorbent minds”. Pre-school teachers are to follow the children and provide educational contexts in which children can learn and teach in their “hundred languages”.

Children as knowing individuals

Maria Montessori started her pedagogy in Italy in the early 1900s by working with children from poor families. She used children's educational skills as the point of departure for her approach, which is based on and expresses what the children have given her when she studied them. Therefore, “follow the child” (Olaf 2004) is one of the main principles in her educational philosophy. Her voice can be heard in the following text:

Supposing I said there was a planet without schools or teachers, where study was unknown, and yet the inhabitants – doing nothing but living and walking about – came to know all things, to carry in their minds the whole of learning; would you think I was romancing? Well, just this, which seems so fanciful as to be nothing but the invention of a fertile imagination, is a reality. It is the child's way of learning. This is the path he follows. He learns everything without knowing he is learning it, and in doing so he passes little by little from the unconscious to the conscious, treading always in the paths of joy and love. (Olaf 2004)

The principles of Reggio Emilia, develops many of Montessori's ideas, but there are also some key differences. However, if we focus on the similarities of the two pedagogical approaches we find that they form the basis for understanding children as “knowing individuals” who make their own decisions and choices (Rinaldi 1998). Children are individual and unique human beings rather than pint-sized adults. They are competent, active and critical, and make their own decisions – both on a small and large scale. Children are creators and co-constructors of their childhoods, environments and identities, and participate actively in the construction of social practices. They have a great ability to tell and educate, and enjoy teaching others the knowledge and skills they have already gained. Their creative work and actions provide a great deal of stimulation and include aspects not only peers but also we grown-ups can learn from – provided we are willing.

I said a competent child. Competent because he has a body, a body that knows how to speak and listen, that gives him an identity, and with which he identifies things. A body equipped with senses that can perceive the surrounding environment. A body that risks being increasingly estranged from cognitive processes if its cognitive potential is not recognised and enhanced. A body that is inseparable from the mind. Mind and body, it is increasingly clear, cannot be separated, but from a single unit with reciprocal qualification. (Rinaldi 2005:181)

Children learn about the physical environment by exploring it actively and directly with their body and all their senses. Body and mind work together in the dynamic interplay with the environment, which forms the context for children's development (KD 2006A). Children participate actively in their own and other's learning and use their bodies not only for exploring but also for expressing and telling about their experiences and feelings (KD 2006A; Warming 2005).

Children's hundred languages

In the pedagogy of Reggio Emilia children are understood as being born with a *hundred languages*,⁵ incorporating social, intellectual, moral, and emotional features (Edwards et al 1998). Children should be able to use all the languages when sensing, experiencing and exploring different situations, expressing themselves in creative activities and experiments, and reflecting on them through thinking, communicating and exchanging their viewpoints and feelings. Thus, pre-school teachers must consider children's interests, skills and abilities, and provide a variety of settings in which children can be, act and work. To make children's creative work with pictures, texts, music, movement and architecture possible, proper working spaces must be provided in which the children have free access to materials, tools, instruments, pictures and books (KD 2006A).

⁵ *The hundred languages of children* is also the name of an exhibition about children's creativity that was arranged in 1980. Since then it has travelled around the world in different languages and updated forms.

The day-care centre must take children's ways of communicating into consideration and provide support for the manifold expressions of their thoughts and opinions. For this to occur, pre-school teachers must listen beyond what is said and focus on children's unspoken words, their body movements and their emotional expressions (Clark et al 2005; KD 2006A). Such a “pedagogy of listening” (Rinaldi 2005) describes the active use of children's hundred languages that pre-school teachers are learning about and listening to. The Ministry's general plan underlines the importance of hearing and understanding children's voices. Children have the right to voice their point of view and should participate actively in the planning, decision-making and evaluation of the day-care centre's activities (KD 2006A). Pre-school teachers should take a back seat, follow the children and support their different ways of communicating, as well as their learning processes and exploration (Delfos 2004).

Children's absorbent minds

According to Montessori (Wikipedia 2006B) children have an “absorbent mind”, which describes their endless curiosity and motivation to learn about the environment by exploring it. Children improve their skills, their understanding and their competence continuously by questioning and looking for experiences in their own learning arena (KD 2006A), which I will illustrate through the following example from my empirical data.

One day in the morning a big box was suddenly standing in one of the day-care centre's rooms. It was the new printer that had been delivered and some days passed before it was unpacked and installed. Thus, the box was standing in the corner for several days. Although it was not meant for playing, the box attracted a lot of attention amongst the children. They used it in different connections and ways and learned about it by exploring it actively. Once, one of the younger boys started to find out about the box's form, size, weight, material and position in space by walking around it, touching it, trying to get into the gap between the box and the wall, and finally by trying to move it. This was difficult as the printer was quite heavy. The boy did not give up though, and tried from different positions again and again. Eventually, he managed to move it by using the wall for support. Now he had created enough space to climb up the box from this side, which he did after various attempts. Finally on top he seemed to enjoy his new position higher up in space. He was then able to look over the rest of the room, and at the same time he could be seen and heard by everyone around. He used this opportunity straight away and celebrated his triumph by screaming as loud as possible. Then, he started to wonder about what he should do on top of the box. Immediately he had an idea and started to look at the stars one could see from the raised position, which seemed to be the most natural thing to do (From my observations).



Children gain knowledge by constantly challenging themselves and the content of their learning. They question and explore with an open mind, which, one would expect, results in more information and possibilities. “Just as children need to construct their own knowledge, exercise their skills and become aware of their learning, so the very same is true for adults” (Edwards 1998:135).

Pre-school teachers should follow children's learning processes and support their immense willingness and capacity to learn (Delfos 2004; Edwards et al. 1998) and encourage them in their “natural joy and zest for life and learning”. They should create educational contexts that open for and facilitate children's learning, and develop their skills and competencies. Rinaldi (1998:117) underlined the importance of the educational setting and pointed out that “(...) children's competence and motivation can be either enhanced or inhibited depending on the awareness and motivational force of the surrounding context.”

Architecture as part of everyday life

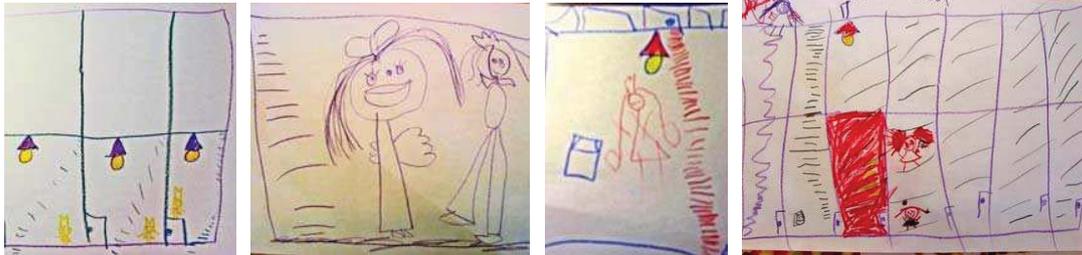
Architecture as well as educational activities in general should be approached by considering the sociocultural context in the day-care centre. Thus, the content of children's learning becomes part of everyday life that can be related to various aspects of children's life and environments.

Contextual approach to architecture and education

Architecture and the physical environment cannot be considered as isolated phenomena, but should be understood as part of a totality that is closely related to its sociocultural context (Kyttä 2003; Laike 1995; and Küller 1991). The same applies to children's (or human beings' in general) interaction with the environment. Rikard Küller (1991) developed a model of child-environment interaction which describes four levels of influence: the physical environment, social network, ongoing activities and the child itself. The physical and the social settings provide stimulation that is adjusted by the ongoing activities and the child's personal attributes. Küller's model was used and strengthened by Thorbjörn Laike (1995) in his research on *the impact of home environment and day-care environment on children's emotional behaviour*, in which he underlined children's interactive relationship with both what exists and what happens around them.

The contextual approach to architecture and its interaction with children should be kept in mind when discussing children's learning processes. Children consider a whole range of things in their direct and immediate experience of and reflection on their environment (Cele 2005). This can be seen in the children's drawings of their day-care centres, which was part of my fieldwork. They included physical elements as well as people, current events and personal preferences.

One afternoon, when the children were playing outdoors, something ended up on the day-care centre's roof, and one of the pre-school teachers fetched a ladder and climbed up. I did not see the event myself as I arrived a bit later, but heard about it immediately when I arrived (“Andy was on the roof!”). The children started to talk about the current event over and over again, and nearly all of them reflected on the episode by including a ladder in their drawings of the day-care centre, which they made later the same day (From my observations).



A part of everyday life

Children learn about the physical environment by relating it to other aspects of their everyday context. They are “open to exchange and reciprocity” and “negotiate with the social and physical world – with everything the culture brings to them” (Edwards 1998:129). Thus, architecture becomes a part of everyday life, where children grasp their learning, their experiences and their relationship to others by participating in an active way. The importance of daily life was underlined by Marketta Kyttä (2003) in her research on child-friendly environments. She used the word *Bullerby* (*noisy village*) that Astrid Lindgren had used in her stories about a small, remote village in Sweden⁶ to describe a perfect setting in which children are part of daily life. In Kyttä's opinion the holistic approach of providing children with all sorts of experiences (positive *and* negative) is an important part of their growth and development.

By approaching topics as parts of everyday life, children's learning processes become an integrated part of their daily activities and the sociocultural context in the day-care centre. During my fieldwork such a method was chosen when focusing on art. After a lively introduction by the pre-school teachers, which inspired the children's curiosity and fantasy, Edvard Munch's painting *The Scream* became the content of many conversations and play activities the children initiated by themselves. Thus, it does not seem to be a question of content but of communication that should be considered in the discussion on how to enable and support children's joyful way of learning.

⁶ Astrid Lindgren was a Swedish children's books author, whose books – among others *Pippi Langstocking* – are very popular with children, especially here in Scandinavia. She wrote a series of books about six children's lives and adventures in the small town of Bullerby, which Kyttä refers to as a child-friendly environment.

Learning as construction of meaning

Experiences that are related to various aspects in children's everyday life support the creation and communication of meaningful stories, which are important in children's learning processes. Architectural elements are experienced as meaningful when providing quality in the daily context children can identify with.

Meaning in architecture

Architecture should support the creation of “metaphors of knowledge” in a “process of ‘becoming’ which is the basis of true education” (Rinaldi 1998:114). Children tend to ascribe meaning to the content of their experiences when telling about them. In Reggio Emilia the communication of so-called “stories of meaning” is understood as an important part of the children's learning process (Rinaldi 1998).

The question lies in how many possibilities there are for the individual child and the group of children, the protagonists of the experience, to have a story, to leave traces, to see that their experiences are given value and meaning. It is the question of memory, narration, and documentation as a right, and as that which embodies the vital quality of the educational space. (Rinaldi 1998:119)

The definition of learning as a process of constructing meaning raises two questions for discussion. Firstly, what is it that pre-school children experience as meaningful in their everyday environment? And secondly, how is it possible to tell a story in architecture that provides such meaning in the day-care centre's daily life? To answer both questions, I again turn to my empirical data. I do this because the lessons one learns from children should be the direct point of departure of any discussion on children's way of experiencing, understanding and being in the physical environment.

Santa Claus window

As part of my fieldwork I asked the children to draw their day-care centre so I could find out which elements they focus on when thinking about it. Christmas was just around the corner, and its significance could be seen in the children's drawings, which contained seasonal motifs such as Christmas trees, parcels or Santa Claus. However, there was another element that all the drawings showing the day-care centre from outside had: it was the elliptic bay in the roof and its half-round window. Being an architect, I was very excited when I saw that the children had noticed this special part of the building. But I also have to admit that I was a bit surprised and wondered why exactly this element was significant to them.



The mystery was revealed another day when I was fortunate enough to observe a situation which explained the meaning behind the half-round window. As usual in the afternoons, everybody was outdoors on the day-care centre's playground. I was still indoors, packing my things to leave for the day. Suddenly I noticed that the children had started to gather in front of the building where they were standing and looking up at the roof. Nothing happened for a while, until the children – first one by one and then all together – started to shout: “Santa Claus!”, “Santa Claus!”, “Santa Claus!” Unfortunately, nothing happened, and the children, disappointed, went back to their activities on the playground. At that moment I suddenly understood the meaning of the half-round window, which was later confirmed by one of the pre-school teachers. During the pre-Christmas period, the children could see Santa Claus appearing behind the half-round window once a day⁷. This was the daily highlight during these weeks, and time and again the children looked forward to it with great excitement. In this way, the half-round window had become a meaningful architectural element in the children's everyday environment (From my observations).

The example of the Santa Claus window demonstrates some of the points I have already underlined and shows how a simple act such as the appearance of Santa Claus can attract children's attention. It illustrates how individual, social, cultural and physical features come together and create one holistic meaningful experience, which is part of children's everyday life. In their direct and immediate way of approaching things the children reflected on the daily event straight away, which showed its significance at that time. It is quite possible that the children's drawings would show a completely different situation during the summer, but what seems to be most important is the way in which the significant character of certain architectural elements can be achieved.

Identity of place

Drawings were also used as one of several methods in a research project in Stockholm, Sweden, which focused on children's experiences of their local environment (Cele, 2005). When illustrating their routes to school the eight and ten-year-olds did not only include objects of the physical environment but also aspects that were important because of their social and emotional meaning. The number of meaningful features varied according to the children's age, where the younger children were the ones to focus most on elements with which they associated an experience. In general, the children had difficulty explaining why they had considered certain elements when asked to describe their drawings. In Cele's opinion it was most likely that these parts of the environment “(...) contribute to the identity of a place, or ease orientation” (2005:164). She pointed out that children experience the identity of a place by using all their senses rather than focusing only on the visual impression and the way to use it. Identity also includes the way a place smells, the way it feels to the touch, its sound and the single elements of its spatial organisation. Children explore all these aspects by interacting directly with the environment, as described above. Cele also underlined the importance of

⁷ The space behind the half-round window is part of the pre-school teachers' work area. Once a day one of them appeared behind the window wearing a Santa Claus costume, which the children could recognise through the window, when looking up from the playground.

understanding the physical environment as interacting with the social and cultural elements around it. In this way, the experience of the identity of a place forms a holistic event that provides meaning in children's (as well as adult's) everyday lives.

A feeling of identity

A place can be meaningful both through its own identity and by supporting or producing a feeling of identity in the person using it. This was an important aspect in the design of one of the day-care centres. The architects' intention was to give each group a different identity by using a certain colour for special elements, such as the doors or the columns next to the entrance. The idea of using colour as an aspect the children can identify with seemed to function well. When drawing their day-care centre, one girl was especially aware of the fact that the group's colour was red. In her drawing she used the "colour of identity" not only for small elements but also for colouring the whole space, which made it the most significant part. In general though, the children's choice of colour was more individual rather than based on rational fact. However, the children discussed colours and experienced them as significant in their daily environment. In conversations about their homes the children used the colour of the house to describe where they lived: "I live in yellow", "I live in red", "I live in several colours!" According to these episodes one can conclude that the architects have succeeded in their attempt to create a feeling of identity by using colour as an element that provides meaning in architecture.

Conclusion

In the discussion on how to provide meaning in architecture for pre-school children we find four apparently essential points:

- The educational role of architecture
- Follow the child
- Architecture as part of everyday life
- Learning as construction of meaning

Architecture should be closely related to the day-care centre's educational activities in which it is an active part of children's activities and experiences. The aim is to offer a variety of possibilities and educational contexts and to support the continuous collaboration and communication that is part of the interactive learning process. Real education is not necessarily what is taught by an adult but a natural process of an individual's development. Children's continuing willingness to learn, their curiosity and exploration, as well as their "hundred languages", should be supported and followed to achieve positive and joyful learning experiences. By understanding architecture as part of its sociocultural context, learning becomes a holistic experience and part of everyday life where children play an active role. In an endless cycle of grasping and producing meaning children create individual metaphors and stories, leave their personal traces and share their experiences with

others. The content of the learning, which can be a topic as well as a place or an architectural element, gains significance when the children are offered qualities they can identify with. In this way it should be possible to tell a story in architecture (as well as in any other subject) that provides meaning in pre-school children's daily lives.

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Sammendrag

Arkitektur og læring skal være tett tilknyttet hverandre for å bli en integrert del av barns aktiviteter og opplevelser. Målet er å tilby en variasjon av muligheter og læringsomgivelser som støtter kommunikasjonen i barnehagen. Gjennom en helhetlig tilnærming basert på sosiokulturell kontekst, blir arkitektur forstått som en integrert del av hverdagen. Læring omfatter ikke bare undervisning fra voksne, men forståes her også som en naturlig prosess i individets utvikling, inkludert barns lek; positive og morsomme opplevelser der barn er aktive deltakere. Barn søker og skaper mening kontinuerlig, lager fortellinger, etterlater sine personlige spor, og deler sine opplevelser med andre. Deres nysgjerrighet, vilje til å lære og utforske, og deres "hundre språk" skal støttes og følges. Dersom innholdet i det barna lærer har kvaliteter som barn identifiserer seg med, får det betydning. På den måten er det mulig å "fortelle en historie" gjennom arkitektur som skaper mening i barns hverdag i barnehagen.