# Changing Areas, Spaces and Places in Kindergartens for More Playing, Learning and Exploration

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## Abstract

The opportunities for exploration, playing and learning is essential for children in the kindergartens. Urban kindergartens have limited spaces available. This article discusses and analyzes various aspects of the possibility for change and development of the physical environments in the kindergarten. How areas are used and limited in the kindergarten is important for children's daily life, playing and learning. The findings are derived from data based on the method "Walking Alongside" using Clark's Mosaic Approach (Clark, 2001, 2010) on outdoor spaces in two kindergartens in the city of Oslo. Our findings show that large areas in the kindergarten are not in use, used for other purposes, or regulated with various rules that minimize the use of the areas. This work is important because better use of the areas in the kindergartens will give the children more opportunities for creative playing and learning and exploration.

Key words: Kindergartens outdoor area, Clark's mosaic approach

## Introduction

We need more knowledge and competence in planning of the areas in the kindergartens to make them better for the children in their daily life, playing and learning. Our experience from previous research is that kindergarten-staff need tools to change and develop the areas that do not serve the purpose. The staff called for methods to examine, reflect and establish larger variations in spaces and places for playing and learning (Fønnebø & Rolfsen, 2014). Many projects presented in the research network "Children's spaces and places" (Becher & Evenstad, 2012; Sandseter, Fasting, Nordtømme, & Evenstad, 2014) visualizes that children's way of thinking space is essential to understand what the environment can offer children. In an earlier project: "Children's social participation and creative transformation in changing places and spaces" (Fønnebø, 2011; Huuros, 2011), younger children is changing spaces created of recycled plastic materials in ways that the staff had not expected or seen as possible. If children are allowed access to act with various materials, they will design places and establish spaces in new different ways. The best possible kindergarten planning is important to meet children's physical exploration. In earlier research of "Urban" kindergartens, we have seen challenges related to limited areas between high-rises located in backyards which prevents full utilization of existing spaces (Fønnebø & Rolfsen, 2014). On the basis of the findings and conclusions we reached, we performed a new urban project. We based the research on Alison Clark's theory of Mosaic Approach (Clark, 2001, 2010), combined with "Visual Mind Mapping" and "Walking Alongside" in two new kindergartens. Ethnographic methods as "Walking Alongside" and "Visual Mind Mapping" are methods adapted from participatory approaches used in international development, known as "participatory appraisal". Such methods are devised to enable non-literate communities to communicate their local knowledge of an area and engage with the development process (Johnson, Gordon, Pridmore, Ivan-Smith, & Scott, 1998). "Visual Mind Mapping" is a mind map where the participants reflect by drawing a plan together. The drawing points out what is important for the group according to form, colours and words. This visualizes the overviews of the outside areas of the kindergartens. This method is developed by Fønnebø & Rolfsen (2014) and is built on the theory of visual identity by Bjørn Rybakken (2004). "Walking Alongside" is a field method where researchers, staff and children observe the areas inside and outside of the kindergarten. The method is frequently used in kindergarten research, especially in ethnographic studies. Anne Myrstad and Toril Sverdrup (2016) used the method in studies of the youngest child interaction with the environment in kindergartens.

We involved the third year students from two current bachelor programs: Civil Engineering - and Early Childhood Education to unwind their knowledge and understanding three months before leadership in the kindergartens or as engineers participating in planning of new kindergartens. We also involved the staff in two "Urban" kindergartens and conducted ethnographic studies to develop educational tools, particularly taking into account the materials, and children's creativity and innovation. The overarching goal was to create opportunities for in physical environments of the outside areas of the kindergartens. We added theoretical perspectives to Clarks Mosaic Approach connected to research that challenges the relationship between humans and non-human materiality. The research question is: How can Clark's Mosaic Approaches and ethnographic studies such as "Visual Mind Mapping" contribute to a greater emphasis on quality in the physical environments of the outdoor areas in the urban kindergartens?

## Theory

To answer the question we have combined Alison Clark's (Clark, 2001, 2010) Mosaic Approach with methods and theory of materiality, architecture and design as active part of children's lives (Taguchi, 2010). In this context, we are particularly concerned with active materiality in relation to materials, workshops and spaces and the use of Clarks mosaic method in ethnographic approaches (Barad, 2003, 2012; Clark, 2005; Larsen, 2005; Nordtømme, 2016). When materiality is seen as active in urban kindergartens, everything in the environment will directly affect the daily life there. By connecting nonhuman aspects of pedagogic space analysis, we attempted to develop new methods or tools to urban planning to contribute to better terms for children's exploration, playing and learning. The scientists that we referred to above represent various ways of entrances to active materiality. The physical environment places and design are acting on us and are influenced by us. By connecting these perspectives to Alison Clark's theories, we reinforced the change and development possibilities for leaders and educators. When all, both humans, nature, artifacts and places are acting, this affects the children in the kindergartens. Then it is important how we can create the architecture. Alison Clark introduced the Mosaic Approach in 2001:

The mosaic approach is a multi-method framework, which combines the traditional methodology of observation and interviewing with the introduction of participatory

tools including the use of cameras, tours and mapping. Other tools such as drawing and role-play can also be added. Each tool forms one piece of the Mosaic. In Stage two these pieces are brought together with parents and practitioners comments to form the basis of dialogue, reflection and interpretation. The mosaic that is made, is a form of documentation, co-constructed by the children and adults. (Clark, 2001, p. 334).

Three to four-year-old children were asked to take photos of their favorite places and places that were important for them. Later they selected some of the photos of favorite places. Dialogues with kids was an important part of the mosaic approach (Clark, 2001). A large visual plan was made together with them, including photographs. The study took place in a kindergarten between January 1999 and June 2000. The discussions took place:

- Between children
- Between practitioners and researchers
- Between children and researchers
- Between parents or parents and children and the researcher
- Between practitioners' groups and children

Later Clark (2010) divided the spaces into four areas of change:

- Places to be kept
- Places to be expanded
- Places to be changed
- Places to be added

## Method

The case study approach has been chosen since it allows for exploring "sticky practice based problems where the experiences of the actors are important and the context of the action is critical" (Benbasat, Goldstein, & Mead, 1987, p. 370). Using students in research is quite common. "Field trips give students the opportunity to convert theoretical knowledge into practice." (Rydningen & Rolfsen, 2016). Alison Clark's (2001, 2010) theory of Mosaic Approach was used as a foundation to go further into the survey. Previously in the article "Area used to creative play, learning and exploration in the kindergarten" (Fønnebø & Rolfsen, 2012, 2014), Clark's methods were used in five kindergartens in Oslo. Clark's method was developed into a wider perspective to be able to work with better tools, understanding and flexibility in improving the physical areas We expanded Clark's elements to include discontinuing places, materials and workshops:

- Places, materials and workshops to be kept
- Places, materials and workshops to be discontinued
- Places, materials and workshops to be expanded
- Places, materials and workshops to be changed
- Places, materials and workshops to be added

(Fønnebø, 2014; Fønnebø & Rolfsen, 2014)

We continued using this method in this paper where the projects took place in 2012 and 2015:

- 57 students in 3rd year in Specialization in art, culture and creativity at Department of Early Childhood Education, 2012
- 49 students in 2nd year, Department of Early Childhood Education 2015
- 30 students in 3rd year Civil Engineering in the course Architecture and Design at Department of Civil Engineering and Energy Technology, 2015

Before performing the analysis, students at both departments were asked to note down ten sentences about the quality of the kindergarten's physical environment. We asked them to note the first that occurred to them and gave as little as possible leading instructions. Afterwards they discussed the lists one by one and then two by two, and groups of four made a list of ten priority points. The groups from Early Childhood Education students, made a "Visual Mind Map" based on these points as colorful drawings, continuing discussions on qualities in outside spaces (Figure 6-10).

The engineering students moved into kindergartens to explore the quality of the outdoor spaces. They used a similar method as Clark's but this time the students used cameras, sketches, and drawings in "Walking Alongside". They surveyed the areas' potentials and limitations as:

While students, staff and researchers surveyed the areas, kids were playing, this gave the students opportunity to observe their movements in the outside areas. The staff told them where the children used to play and talked about their wishes for better utilization of cramped outdoor spaces.

Data analysis: We divided the results of the Civil Engineering students into Findings 1 and the Early Childhood Education students into Findings 2. The 10 most important points are sorted and presented for each. In the discussion we compare the different results. Further on in findings 1 and findings 2 we present the results of the students "Visual Mind Mapping".

## Findings 1

The Civil Engineering students were introduced to Clark's "Mosaic Approach" with the new elements, and used "Walking Alongside", photography, film and drawings. They visited two kindergartens each, the first to gain ideas and the second to actually develop better solutions for the outside areas. The discussion took place in the "Visual Mind Mapping" in drawing-workshops and "Walking Alongside" situations in the outdoor areas:

- Between student groups and staff
- Between staff and researchers
- Between students and researchers

A summary of the Civil Engineering students' most important points for the outside area of the kindergarten is:

- 1. Safety.
- 2. Good overview, so that the staff can see the children.
- 3. Possibilities for creative play and learning.
- 4. Stimulating playground equipment that could involve most of the children.
- 5. Playground equipment for climbing with soft and safe ground beneath.

- 6. Areas for common activities like sharing time and common play.
- 7. Separated areas for younger children and older children.
- 8. Natural and varied vegetation.
- 9. Area with sun and areas without sun.
- 10. Variation of colours on the fences and on the walls.

The observations of children's play underlined the importance of separating the places for the youngest and the oldest children. The students pointed out that the sandpit and the swings area were too small. These were the most important places for the youngest. The older children told the students that the possibilities to hide and play was important. The students suggested more secluded areas through trees, hills, small huts/ shelters and corners to play undisturbed. This would also reduce noise from surroundings, which was a problem.

The staff had already divided the play-area by building a climbing structure, an artificial sand-hill and a pirate boat in the sandpit to divide the areas. The students divided the area further up. One group suggested that roads for the tricycles could contribute to creating places for small groups and shielding for the youngest. Below in figure 1 and figure 2 we have two photos of kindergarten 1. Later we would look at kindergarten 2.



Figure 1. Kindergarten 1. Area between apartment buildings indicates noise problems for neighbors



Figure 2. Kindergarten 1. Outside area from another direction.

The students proposed a new plan for kindergarten 1, (figure 3). They moved the pirate boat to the sandpit and put a climbing frame with a slide there. They made roads for the bikes and suggested a water drain to play with. Area for the youngest children is the sandpit to the left in the drawing, and the playground equipment to the right in the drawing.



*Figure 3.* Sketch-proposal of how the area of Kindergarten 1 could be more divided into places screened for the youngest

In figure 4 we see a photo of kindergarten 2.



Figure 4. Outside area of kindergarten 2

The engineering students made new sketches and drawings of the kindergartens outside areas based on Clarks and our extended method. Figure 4 is a photo of kindergarten 2. Figure 5 and 6 shows the solution to the outside area of kindergarten 2.



*Figure 5*. Civil Engineering students` proposal (sketch) of how the outside area of kindergarten 2 could be changed and developed



*Figure 6.* Civil Engineering students proposal of how the same outside area of kindergarten 2 could be changed and developed.

Figure 6 visualizes the students' transformation of kindergarten 2 into eight places with various activities:

- 1. Grass lawn where carpets could be placed for the youngest surrounded by a low timber fence to balance on. This area would also contain a small cottage and a tunnel and bridge to play over and beneath.
- 2. Quiet place. Area for outdoor sleeping time for the youngest.
- 3. Eating area with a possibility for sheltering in case of rain.
- 4. Sandpit with climbing frame, pirate ship and with a bridge to the swings.
- 5. Swings.
- 6. Elevated terrain with slide and possibility to slide on the snow in wintertime.
- 7. Open area between the playing areas, this is operated as a road where the older children could run.
- 8. Nature area with trees, bushes, birds houses and natural terrain with a tunnel for area 1

## Findings 2

The Early Childhood Education students received this instruction: "Note spontaneously the most important key qualities for the quality of the «ideal-kindergartens»". A summary of 106 students' priority points is:

- 1. Competent, playful and committed staff
- 2. Playground equipment for climbing with soft and safe ground beneath
- 3. Possibilities for creative play and learning.
- 4. Natural and varied vegetation. Trees (don't remove trees)
- 5. Outdoor kitchen and cook, vegetable-garden, compost.
- 6. Sheltered workshops and places for construction and varied materials
- 7. Place for sensing and bodily play for the youngest
- 8. Hiking spots near kindergarten
- 9. Meeting -space and public spaces for dance, music and theater
- 10. Good overview
- 11. Safety.

They visualized the priority points through "Visual Mind Mapping" and loud discussions led to adjustments. They used Clark's Mosaic Approach and new ideas were created and led to critical reflection about quality in the outdoor spaces. The drawings highlighted the wishes from the students' individual experiences after three years practice-periods in kindergartens in Oslo. The students discussed places, materials and workshops to be expanded and established.



*Figure 7-10.* Students working with "Visual Mind Mapping" to develop and establish exciting places in the nursery.

They were inspired to include new items in a future-oriented kindergarten. Twelve groups worked intensively, the discussions were loud, especially concerning essential qualities in the outside areas. The drawings included symbols, words and showed areas for meetings, water exploration, climbing spot, horticulture, dance, forest, workshops or Land Art. Many of the groups were concerned about sustainability, recycling and compost bins. They said that it was often unclear to the children what was expected in the various areas. They suggested clear areas with distinct materials and workshops, venues and physical activities.



*Figure 11-13.* "Visual Mind Mapping" of future visions for changing of the physical learning environments, with clear areas with distinct materials and workshops, venues and physical activities.



*Figure 14-15.* The different colours visualizes the areas for materials, workshops, aesthetic experience, drama, music and art.

## Discussion

The survey revealed that the relationship between humans and nonhuman materiality in kindergartens, must be connected to the quality of the outdoor of the kindergartens related to what the environment can offer the kids (Nordtømme, 2016; Taguchi, 2010 and Barad, 2003). Our intention was to move the prevailing discourses as stationary to more moveable in outside spaces. As stated in selected post-human understanding and theory, we connected an active understanding related to materiality. The students experienced how everything is fitting together, both human and non-human elements (Barad, 2003, Larsen, 2005; Taguchi, 2010; Nordtømme, 2016). After implementation of Clark's Mosaic Approach, "Walking Alongside" and "Visual Mind Mapping", we believe this could contribute to a greater emphasis on the quality of the physical environments of the kindergartens, which often have limited spaces in backyards.

From the findings we could see that both student groups prioritized varied terrain, lots of nature and woodland, which we interpret as a focus on overcrowding and loss of nature in many kindergartens. Common points are:

- 1. Playground equipment for climbing with soft and safe ground beneath
- 2. Possibilities for creative play and learning (but a distinction in how)
- 3. Natural and varied vegetation.

Early Childhood Education students' specific points:

- 1. Competent, playful, active and committed staff
- 2. Outdoor kitchen, vegetable-garden, compost and orchard.
- 3. Sheltered and clearly workshops, places for meeting, construction and varied materials

Civil Engineering students' specific points:

- 1. Safety
- 2. Good overview, so that the staff could see the children
- 3. Possibilities for climbing and several swings. Stimulating playground equipment that could involve most of the children.
- 4. Playground equipment for climbing with soft and safe ground beneath.
- 5. Areas with sun and shadow.
- 6. Variation of colours on the fences and on the walls.
- 7. Universal Design compared to visually impaired and other special needs.

As we can see, safety and overview was central for the Civil Engineering students, probably because this is expected to be central to the planning and construction of public buildings and design. Other important points is universal design, climbing, sandboxes, bikes and roads with signs and traffic lights.

It surprised us that *overview* and *safety* were not adequately prioritized by the Early Childhood Education students. Safety was mentioned only by eight of the 106 students. Engineering students had this as their first priority point. Kindergarten students prioritized instead staff competence and presence, attendance, participation, active care as number one. Despite the fact that the task was to set up the list of architecture, design and physical environment, their focus was more on staff's qualifications, with education and knowledge of children's creative processes and expression. Human resources was highlighted as crucial to whether it was possible to change and develop the overall materiality.

Only one of the Early Childhood Education students pointed out *good overview* of the play-area, as the most important. Overview was the second most important point for the engineering students' lists, while competent kindergarten staff were not mentioned. The engineering students' list did not contain workshops, scenes, meeting-places, horticulture, or outdoor kitchens. But the engineering students' lists had points that the Early Childhood Education students did not mention, as divided areas for younger and older children. It reflects the discussions of how the architecture and design could initiate production of knowledge and critical reflection (Kolle, Larsen, & Ulla, 2010).

Students at the Early Childhood Education claimed that they needed more focus on theory of materiality and architecture during their study. Critical reflection on how the design and decoration of rooms and locations directly affects the children and staff, evolved through discussions about "Visual Mind Mapping" of the ideal kindergarten. When human and non-human materiality is seen as part of an equitable and responsive relationship, it may create a difference in our view of materials, objects and physical conditions (Barad, 2003; Odegard, 2015). By initiating discussions and academic conversations about knowledge of the topic, design and places we also used the possibilities to bring the theory of how architecture affects children and how the design of spaces affects the content (Taguchi, 2010). These perspectives constitute to the essence of our research. Recent research shows that children's wellbeing is directly influenced by the environment (Nordtømme, 2016). In 2010 Randi Evenstad and Aslaug A. Becker concluded with the following statements on the basis of research into the knowledge of architecture and design: "We need more knowledge about the coincidence between the physical structure and pedagogic environment" (Evenstad & Becher, 2010). They also concluded with that Early Childhood Education need to educate pedagogics with the competence of physical environment:

We need kindergarten teachers that can create exciting and richer daily life in different kinds of buildings, in large and smaller rooms. They must be able to contribute to constructive interdisciplinary collaboration with architects and builders on design and furnishings of good and functional kindergarten buildings. Research on spaces to play and learning, architecture, materials and pedagogics is necessary to establish such competence (Evenstad & Becher, 2010, p. 32).

Our survey in 2015-2016 shows that the issues are still relevant. We need more knowledge about how architecture and design affect the child's play, learning and exploration in the kindergarten. We must increasingly combine different methods and connect understanding of physical environments to theories of materiality. This will reveal how the learning environment is affected by everything: things, people, materials, locations and space.

## Conclusion

The students' "Visual Mind Mapping" of future visions for the educational and physical environments are their *footprints* to creating a complex and rich learning environment area in the kindergarten where children's playing and learning is important. Our study has visualized and uncovered how Early Childhood Education students and Civil Engineering Students have gained a better understanding of the use of the areas in the kindergartens. We have some challenges and incipient understandings in order to respond to the research's question: How can Clark's Mosaic Approaches and ethnographic studies such as visual mind mapping contribute to a greater emphasis on quality in the physical environments of the outdoor areas in the urban kindergartens?

Our conclusion is that architecture, design and physical environments in the kindergartens can be understood as an "active and moving" approach. This is important for a more flexible use of the areas. In relation to Clark's approach (2001), which was originally adapted to two, three and four year old children's ways of visualizing together with the researchers. Clark listened to their thoughts and perspectives and selection of favorite places. In our case, staff and students changed and developed spaces and places. They used "Walking Alongside" to explore a better tool that the staff later could use together with the children in the daily playing and learning. In the field studies and the critical reflection of the architecture we can initiate processes that could change the architecture. Then we would achieve a variety of solutions to offer a rich learning environment where favorite places could be constructed in the kindergartens.

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#### The authors' contributions

The study presented here was developed in collaboration between the authors. BF was main author while CNR contributed significantly in the article. BF and CNR defined the research question and designed the methods. BF and CNR conducted the field studies. BF and CNR analysed and interpreted the data (analyst triangulation). Both authors (BF, CNR) have contributed to, reviewed, and approved the manuscript.