Much More Than Refurnishing! How Leadership Matters When Transforming Physical Environments for Play

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Abstract

This study investigates aspects of leadership in projects intended to improve the physical indoor and out-door play environments in kindergartens. The study is based on 16 interviews with head teachers and peda-gogical leaders in eight kindergartens across Norway, focusing on their experiences as leaders during these projects. The kindergartens and the authors are involved in the research project *EnCompetence* (Sandseter, 2017). The purpose of this study is to highlight aspects of leadership that are crucial when transforming phy-sical environments for play and to identify the challenges and success factors in such processes.

Analysis of the interviews demonstrates that improving a physical environment involves a series of com-plex and demanding processes directly affected by leadership. Moreover, it shows that physical changes involve not only environments and materials, but also basic pedagogical issues. The results are discussed related to theories of leadership, learning organizations and leadership for change.

Keywords: *leadership; physical environments; play; transformation*

Subject editor: Carola Kleemann

Introduction

This article is based on a research project in which eight kindergartens participated with the aim of improving the kindergartens' physical play environments. Further, the project has developed new knowledge about the importance of the physical environment for chil-dren's play and how to create play-promoting environments. The physical transformations

included complex and demanding processes, and the kindergartens succeeded to varying degrees in achieving the desired improvements. We therefore wanted to investigate how leadership matters when the goal is to improve the physical play environment. In accordance with Bush and Glover (2003, p. 8), we see leadership as an influencing process that leads to the attainment of desired goals. To our knowledge, the importance of leadership is lacking in research on the physical environment of kindergartens.

Over the last few decades there has been an increasing interest regarding the physical environment's influence on play and quality in early childhood education and care (ECEC), (Berti et al., 2019). The Reggio Emilia approach has inspired teachers across the world with their ways of working with the physical environment as an integrated part of the pedagogy. The interdependence between the child as the first teacher, the teachers/staff as the second, and the room as the third teacher is emphasized within this philosophy (Carlsen, 2021).

Nevertheless, many researchers describe the physical environments in Norwegian kindergartens as uninviting for play, and teachers need competence on how to improve the physical environments (Evenstad & Brennhovd, 2020; Krogstad et al., 2012; Nilsen et al., 2022; Sandseter & Storli, 2020). Uninviting physical play environments exist in different types of buildings and organizations (Dahl, 2020). Materials for play are often placed in high cabinets, stored out of sight or in special rooms (Bjørnestad & Os, 2018; Evenstad & Becher, 2015). There is a strong need for empirical research on physical environments in kindergartens, but also research that provides insights into institutional change processes (The Norwegian Ministry of Education and Research, 2018, chapter 5). The aim of our study is to bring knowledge to the ECEC sector by linking research on physical environments to aspects of leadership. Our research questions are as follows:

> *Which aspects of leadership matter when improving physical environments for play?*
> *During the physical transformations, what challenges and success factors can be identified?*

Leadership in Norwegian kindergartens

In Norwegian kindergartens the staff consist of a head teacher, pedagogical leaders, and coworkers/assistants. The head teacher is the formal leader of the organization. A pedagogical leader is a kindergarten teacher and the formal leader of one department or class in a kindergarten, with 8–20 children and 2–4 coworkers/assistants. Both head teachers and pedagogical leaders are required to have a bachelor's degree in kindergarten teacher education and are accountable for ensuring that kindergartens follow the law and the regulations. There are no educational requirements for coworkers/assistants. According to Lund (2021), creating a unified and responsible team with shared values and understandings is a vital aspect of leadership.

Leadership in Norwegian kindergartens is often described as inclusive and non-authoritarian and is characterized as relation-oriented (Wadel, 2008). Social pedagogical

ideals and democratic values emphasizing equality, dialogue, and participation are deeply rooted in Norwegian kindergartens (Gotvassli, 2019; Spurkeland, 2017). The Norwegian Government white paper *Time for play and learning—Better content in the kindergarten* (Meld. St. 19 (2015–2016)) stresses that a head teacher must be a visible leader who fosters his or her staff's professional needs and is involved in pedagogical work. Despite this, researchers have described Norwegian kindergartens as organizations with periodically invisible leadership (Gotvassli, 2019; Larsen & Slåtten, 2014). For decades, qualified teachers have been in the minority in kindergartens. Head teachers typically delegate most responsibility for pedagogical content to pedagogical leaders and are primarily involved in administrative and structural tasks (Bøe, 2016; Heikka & Waniganayake, 2011).

The workplace culture in Norwegian kindergartens is often described as a flat structure or lay culture (Løvgren, 2012). This means that all staff members, regardless of their formal competence, perform similar work tasks according to the duty system, rather than their ability and skills. This may indicate that common sense rather than professional knowledge dominates interpretations of laws and regulations (Larsen & Slåtten, 2017; Thun & Johannessen, 2023).

Collective learning in learning organizations

As this article explores change processes involving all staff in kindergartens, we have emphasized theory focused on the kindergarten as a learning organization. According to Senge (2006, p. 14), a learning organization is an organization that is continually expanding its capacity to create its future. The ability to change and learn is one of the most important leadership tasks and draws attention to a pedagogical culture and common learning processes (Senge, 2006). Wadel (2008) regards the carrying out of professional development and change processes as a main aspect of pedagogical leadership.

Ways to implement pedagogical improvements and organizational change processes in kindergartens are described in different models that require time to evolve and become established (Bøe & Thoresen, 2012; Ertesvåg & Roland, 2021; Kvistad & Søbstad, 2005; Mostad et al., 2021). Most divide such processes into three phases: initiation, implementation and, finally, continuation. Ertesvåg and Roland (2021) claim that in the first phase, it is necessary to understand the need for change, and how it will affect everyone. The important questions *what* should be changed, *how* should it be done, and *who* does what must be clarified. The second phase of implementation is about competence-building and making changes. Finally, the continuation phase is often described as the most demanding phase, where changes must be consolidated into the kindergarten's further work (Ertesvåg & Roland, 2021). Different models for change processes all emphasize the time aspect and the necessity of ensuring ownership.

Yukl (2006, p. 80–81) states that resistance can arise when people do not acknowledge a problem or they ignore it, or if their values are challenged. Kvistad and Søbstad (2005) hold that lack of knowledge and information may cause resistance. Even when people

recognize problems, they tend to make minimal or no adjustments to processes. Negative reactions to change can include uncertainty, anxiety, reluctance, and stress. Resistance can be expressed directly or undercommunicated and silent (Eik et al., 2016). However, change processes can also promote motivation, initiative, and job satisfaction (Gotvassli, 2019, p. 297). To apply resistance as a creative force, it is important to discuss changes with everyone involved, i.e., to learn about their concerns and their ideas about the best course of action (Yukl, 2006). Ownership and participation are found to be success factors in organizational changes (Serrano & Reichard, 2011).

Pedagogical documentation exemplifies a method of collective learning (Dahlberg et al., 2013; Rinaldi, 2005). Rinaldi (2005) suggests pedagogical documentation as a useful tool for observing, evaluating, and planning for changes. Pedagogical documentation may sharpen the ability to observe and listen and may lead to a practice whereby teachers learn from children's learning. Åberg and Lenz Taguchi (2006) describe how pedagogical documentation is used to learn about children and evaluate how they use the kindergarten space: What works well and what does not work. Thus, with the use of pedagogical documentation, teachers and coworkers can plan for new changes (Becher & Brennhovd, 2010). A variety of pedagogical documentation was used in all of the kindergartens associated with the project.

Leadership theories and concepts

Leadership is a broad theoretical and empirical topic, discussed in a range of different theories and perspectives with relevance to ECEC (Børhaug et al., 2011; Gotvassli, 2018; Hujala, 2004). Leadership in ECEC encompasses both administrative and pedagogical functions (Douglass, 2019). When transforming the physical environment in kindergartens, leadership has proved to be significant in multiple ways. Thus, this section presents different theories and concepts that complement each other and emphasize different aspects concerning ECEC leadership that are reflected in our study. Although many issues are presented, the unifying focus is on change and transformation processes.

Pedagogical leadership may be defined as directing pedagogical work, based on the mandate for kindergartens (Eik et al., 2016). Pedagogical leadership must be based on professional knowledge and the ability to establish professional goals, to monitor and actively participate in pedagogical work, to provide professional feedback, and to ensure systematic competence development among the staff (Mordal, 2014). Moreover, pedagogical leadership is exercised by both head teachers and pedagogical leaders.

Distributed leadership (Spillane, 2005) describes how leadership functions are shared. Heikka and Waniganayake (2011) point to the connections between pedagogical leadership and distributed leadership to emphasize the importance of collective reflection on roles and responsibilities. Heikka (2014, p. 38) identifies three core elements in *distributed pedagogical leadership*: a) Several people are involved in leadership; b) it is exercised in a kindergarten context; and c) it stems from mutual dependence in practice.

Hybrid leadership is a further development of distributed leadership in a pedagogical context. Distributed leadership is a form of leadership that either limits privileges to an individual leader or distributes them. Gronn (2009) suggests that those aspects may be mixed. Furthermore, Bøe and Hognestad (2014) demonstrate that hybrid leaders in kindergartens use four leadership approaches: Providing professional guidance; acting as role models in work performance; turning words into practices; and supporting desired teaching practices. Finally, Bøe (2016, p. 63) suggests that hybrid leadership more effectively values professional and pedagogical knowledge because it regards individual professional competencies as an aspect of leadership.

Transformational leadership is often seen as the most efficient leadership strategy in pedagogical studies involving change (Ertesvåg & Roland, 2015). Martinsen (2019, p. 156) perceives transformational leadership as more than making changes; it involves profound changes in the attitudes, motivations, and efforts of the staff. Bass (1990) characterizes transformational leaders as those who have charisma, act as models, motivate others by inspiration, ask questions about a situation, encourage new thinking, and consider the individual's specific needs.

Transactional leadership is sometimes positioned as the opposite of transformational leadership because it is linked to efficiency in everyday tasks and administrative functions. However, according to Bass (1990), both shared and clear goals and practical daily challenges must be considered as necessary aspects of leadership when implementing transformative processes, as confirmed by our empirical data.

Design, methods, and analysis

This article is based on interviews with 16 leaders in kindergartens. The data were collected as part of the *EnCompetence* project, in which both authors are researchers. The project is a collaboration between Queen Maud University College (QMUC), Oslo Metropolitan University (OsloMet), the National Competence Centre for ECEC and three ECEC owners: Espira group, Læringsverkstedet, and Trondheim Municipality, as well as an architect and a landscape architect. *EnCompetence* is a four-year interdisciplinary project funded by the Research Council of Norway (Sandseter, 2017). Its main objective is to contribute to higher competence in planning, designing, and developing play-friendly environments. The project involved a process in each kindergarten whereby an existing play environment was documented, analyzed, transformed, and reanalyzed for a period slightly exceeding a year (2017–2018). The kindergartens were strategically selected by the researchers to include different types of private and public kindergartens, of different sizes, quality, and types of buildings. All kindergartens had rooms with several play zones designated for certain activities and large common rooms with tables and chairs. The ways in which a total of 80 children utilized their physical environments were videotaped and analyzed before and after interventions to explore how these environments influence children's play.

Each kindergarten assigned a pedagogical leader to be a *coresearcher* in the project. Each coresearcher served as a link between the researchers and the individual kindergarten and, together with the head teacher, they were essential for maintaining the project in the kindergarten. The researchers and the architects discussed the findings from the video and photo documentation with the entire staff in each kindergarten as a basis for environmental improvements. Thus, pedagogical documentation has been used as a tool throughout the whole project.

Indoors, due to limited possibilities, many kindergartens focused on improving the conditions for functional play. Play corners were created with soft building blocks, mattresses, cushions, carpets, and balance boards. Outdoor environments were enhanced using undefined loose objects (Nicholson, 1972) that could stimulate symbolic play, which rarely took place outdoors. Fences and small corners were erected to protect play, along with additional kitchen facilities, carpets, and natural materials.

Most interventions were intended to expand the number of available materials and to present materials and equipment that were more inviting for play. In sum, the primary purpose of the interventions was to create more complex and inviting areas for play with limited budgets. According to Laike (2002), a high level of complexity and unity in a physical environment is beneficial to children. Thus, the staff, researchers, parents, and local businesses assisted with gathering materials. Most of the practical interventions were carried out by the staff during working hours and on a single practical working day without the children present.

Figure 1. Play area before intervention (Photos: Randi Evenstad).

Figure 2. Same play area inside after intervention.

Data collection: Interviews

At least seven weeks after the interventions, the head teachers and coresearchers were interviewed about their experiences as leaders. Different researchers involved in the project conducted the interviews with the leaders based on a commonly designed semi-structured interview guide containing open-ended questions. The interviews lasted for a maximum of one hour. The interview guide included questions about children's play inside and outside, how the children used places and materials, the staff's competence, and the transformation process in each kindergarten.

The interviewees consisted of 15 females and one male, aged 34–59, with 11–28 years of work experience in kindergartens. Eight of them were head teachers and eight were pedagogical leaders/coresearchers in the study. All interviewees provided informed consent, and the study was approved by the Norwegian Centre for Research Data (2022).

Analysis

The interviews were transcribed and analyzed using a qualitative hermeneutic approach that focused on the leaders' perspectives (Johannessen et al., 2010; Kvale & Brinkmann, 2009). As the interview guide was structured to include a variety of aspects of the transformation

process, the data focusing on experiences concerning leadership were merged. The eight kindergartens were anonymized, and the informants were coded as 'head teacher' or 'core-searcher' numbers 1 to 8. We wanted to gain an insight into the leaders' experiences and perspectives and used a conventional thematic analysis (Hsieh & Shannon, 2005) because it gave us the opportunity to identify, analyze and describe patterns in the data material. The results are interpreted and discussed in the light of theories about leadership and organizational theory.

The interviews were summarized and analyzed individually, before cross-cutting topics and patterns. Recurring keywords in the data were 'ownership', 'resistance', 'motivation', 'time', 'resources', 'attitudes and values', 'knowledge and competence' and 'the head teacher's importance'. An open manual coding generated inductive themes from the interview material. The authors separately analyzed the material to identify patterns involving leadership, ultimately reaching a consensus on five representative themes.

The themes represent the content in the interviews and contribute in different ways to answer the research questions: *Which aspects of leadership matter when improving physical environments for play? During the physical transformations, what challenges and success factors can be identified?* All the themes are relevant for leaders, regardless of their positions in kindergartens, except the last one, which is directly linked to the role of head teacher.

Results and discussion – leadership, challenges, and success factors

The five themes encompass challenges and success factors and highlight different aspects of leadership. The themes are presented with illustrative quotes from the interviewees and linked to the presented theories and research. We also summarize our findings and draw some conclusions regarding the research questions.

1. Ownership and resistance: *It is all about motivation*
2. Time and resources: *It simply takes time*
3. Changes in attitudes: *The need to re-evaluate*
4. Knowledge and competence-building: *A never-ending story*
5. The role of the head teacher: *Hands-on leadership*

Ownership and resistance: It is all about motivation

The results show that ownership of a project was important to successfully make changes. Head teacher 5 expressed the primacy of such ownership: "First and foremost,

it's about ownership. But it's also about having common pedagogical ground in every-thing we do".

Gotvassli (2019, p. 294) claims that organizations with good plans linked to overall organizational goals experience less resistance in their efforts to change. However, the interviewees stated that it was challenging when not everybody understood or valued the need for change:

> *There are some who are very interested in the physical frameworks: In adding to and developing them. And then there are others who do not see the value of them. I think the process has been very exciting and rewarding, but also demanding, because it is difficult to motivate everyone to get involved.* (Coresearcher 1)

When people do not value a transformation, this can lead to resistance in different ways (Eik et al., 2016; Yukl, 2006), which burdens some of the leaders. This demonstrates that the initiating phase (Ertesvåg & Roland, 2021) may be challenging for both leaders and coworkers. For many, finding new ways of doing things is unpopular or may even be fright-ening. As emphasized in transformational leadership theories, shared visions and goals are needed to initiate a transformation (Bass, 1990). Thus, when the aim is to improve play envi-ronments, visions and goals must be linked to a pedagogical consciousness. Pedagogical leadership (Mordal, 2014) is necessary to inform the staff about the pedagogical intentions funded by the national framework plan. That is, the qualities of a play environment are not individually derived but an aspect of the pedagogical mandate (the Norwegian Directorate for Education and Training, 2017).

Not everybody acknowledged the need for better play environments. On the other hand, there were some enthusiasts who were passionate, and they inspired and engaged others. Head teacher 3 said some enthusiasts even completed tasks outside work hours, which inspired others. Head teacher 7 suggested that when someone is motivated and posi-tive, he or she influences others. This seems to be a success factor; it shows how leadership functions are distributed and how motivation and involvement may be promoted by other than formal leaders. Indeed, each enthusiast played an important role as a motivating force and a role model.

Another success factor was when leaders considered their coworkers a positive resource. Head teacher 6 said that her staff are "like gold" and make her job rather enjoy-able. Coresearcher 6 stated that everyone can contribute, in different ways:

> *One of my colleagues said her back was hurting, so she couldn't help in the work. "Yes, but you can make us some coffee," I replied. It turned out she took great care of that, and she even carried some sticks as well!* (Coresearcher 6)

In line with transformational leadership functions, a leader takes everyone's specific needs into account and integrates such individual concerns within the group's specific and overarching goals (Bass, 1990). Therefore, transformational leadership occurs when leaders expand and stimulate their staff's interests, create awareness and acceptance of their group's specific and overarching goals, and are compelled to look beyond their own interests to benefit their group (Bass, 1990).

The interviewees expressed different opinions concerning the importance of involving all staff in a project. Some stated that it is necessary to get everybody engaged. Others argued that this is not possible, but a few negatives should not impede a project's progress. Some of the interviewees stated that they cannot stop simply because someone does not want to participate, and others suggested one cannot expect everyone to be passionate about a project. According to Head teacher 1, "changing is simply resistance". The involvement of everyone in change projects is often emphasized, but our results challenge this idea. Few interviewees experienced direct resistance. Passivity, postponements or not finding time were much more common, and may be defined as silent resistance (Eik et al., 2016).

Time and resources: It simply takes time

All of the interviewees found it challenging to find the time to implement changes and engage everyone. Head teacher 2 stated that it simply takes time to implement new things and to make people excited about it:

> It takes time to implement new ways of thinking, to make everyone see the importance of children playing and to give them a rich repertoire to choose from. That we have a versatile environment, that children can choose between different things to play with. (Head teacher 2)

Some of the interviewees stated that they postponed starting a transformation because they feared it would take too much time, but they were positively surprised when their efforts were not as time-consuming as they expected. Head teacher 4 said, "But then we did find time for it, and then we said, 'why didn't we do this before?'"

Emphasis on comprehensive transformations seems to delay changes. Gotvassli (2019, p. 296) argues that a successful change process is characterized by the initiation of some minor changes and then later building on these. He suggests an incremental attitude towards change, where one quickly tries to bring forward small changes. This can foster an environment for later, major changes. Thus, many interviewees expressed how seeing small improvements triggered their motivation.

Some interviewees described how challenging it was to maintain long-term collective interest, especially when combined with absences due to illness and turnover. It is frustrating to have to begin the process repeatedly; as Coresearcher 5 stated, "it feels like one must start again three times over". Leadership also involves efficiency in everyday challenges, whereby transactional leadership entails attention to daily events and is often linked to practical and administrative functions (Bass, 1990). Thus, even when the aim is to improve something major, arranging rosters, getting substitutes, buying materials, etc. must be completed. Our results show that both transformational and transactional leadership are necessary when transforming the physical environment for play.

Moreover, transactional leadership involves the administration of financial resources. It was surprising to many interviewees that the transformations did not have to be expensive. Improvements could often be made by adding recycled or natural materials. Coresearcher 6 explained how small changes mean a great deal and are not a financial burden. She said it is more about identifying the possibilities in different materials and presenting them in inviting ways.

Figure 3. Play corner with recycled and nature materials.

Figure 4. Organizing materials in inviting ways.

The results show that improving an environment is not a one-off event but a process that must be given time. Head teacher 5 explained that many just wanted to be finished, "but we must simply have this as an everlasting process, a living project". One success factor is the ability to integrate improvements on the environment as an everyday part of the pedagogy, inspired by the Reggio Emilia approach (Åberg & Lenz Taguchi, 2006). Hence, kindergartens familiar with the concept of *the room as a third teacher* found this to be easier.

Changes in attitudes: The need to re-evaluate

The results show that transformations in the environment also necessitate changes in the pedagogical work. This became a challenge in several of the kindergartens. Some of the staff were skeptical; they believed they had enough to accomplish with "everything else" (Coresearcher 2). Many were so focused on being present together with the children that it was challenging to prioritize making physical changes. Head teacher 8 suggested that it all depends on the staff; some are very good at seeing possibilities, others just prefer to supervise children in the room with the door closed. Many interviewees recognized that it was challenging to see the connections between the role of the staff, children's play and the physical environment.

Many interviewees felt that not everyone was willing to re-evaluate their role. Following Yukl (2006, p. 80–81), this may be the case if the values implicated in a change do not correspond with people's individual values. Coresearcher 1 stated, "It was almost a battle concerning why we should do it… But the indoor room has improved a lot; there is a big development in

the way children play". Head teacher 5 suggested that it is not enough to improve the material play environment, one must also *acknowledge* the transformation: "You can have a play paradise without equal, but it doesn't matter unless you have adults who use it and see it". Head teacher 7 explained how it is important to adjust the role of the staff in parallel with improving a physical environment. This may involve pedagogical documentation and collective analysis of the consequences of a change. Thus, Heikka and Waniganayake (2011) emphasize how collective reflection on roles and responsibilities in kindergartens is dependent on good leadership. Our results show the need to balance the immediate "here and now" needs with more forward-looking actions. Both transactional and transformational leadership seem to be necessary.

Coresearcher 1 pointed to the importance of leaders as good role models who exemplify how to work in a new environment. One success factor is when leaders practice the changes they want to promote and help staff to see the environment as a part of the pedagogy. Head teacher 8 stated, "It is important that we lead by example and manage to connect the transformation to other themes, so it's not detached from everything else we do". It is therefore important that leaders are good role models and act as good examples (Bass, 1990; Bøe & Hognestad, 2014).

Attitudes towards tidying up became a challenge during the transformations, as most kindergartens added numerous loose materials. Some began to remove materials because there was so much clutter. Coresearcher 8 said that she tried to inspire her coworkers to organize materials in inviting ways.

> Then, I wished that when we tidy, we set up cups and tableware so that it looks inviting and ready to play with. And, on the Lego table, children will find something that has already been started on and may be inspired to continue playing. (Coresearcher 8)

Figure 5. Lego table.

Working with the environment as a third teacher involves profound changes in people's attitudes and values, as transformational leadership emphasizes (Martinsen, 2019). When an environment becomes more complex and challenging, it reflects a view of children as competent, knowledge-seeking and independent. This contrasts with viewing children as dependent and in need of activation, protection, and support (Dahlberg et al., 2013; Rinaldi, 2005). However, challenging the staff's views on children, the environment, and their own role requires pedagogical leadership that develops these values.

Developing knowledge and competence: A never-ending story

Lack of knowledge regarding how to create inspiring and inviting environments for play seems to be a challenge in most kindergartens. Some interviewees said that they had such knowledge but found it difficult to put into practice, because often "you are already overwhelmed with too much to do" (Coresearcher 3). Also, leaders with an interest in and competence regarding physical environments found it hard to practically apply this in the face of everyday challenges.

However, being part of a research project and learning from external professional sources is seen as a success factor. When the staff learned about theories and other research, this fostered motivation. Head teacher 7 expressed that the project gave "an academic boost and a sense of security and certainty that what they do is good for children". She also said that though she had already tried to educate others about the importance of the physical environment for children's play, it had a greater impact coming from external researchers. It can be a difficult task for leaders to educate the kindergarten staff in a culture characterized as a 'flat-structured lay culture' (Larsen & Slåtten, 2014). Bøe (2016, p. 63) suggests that hybrid leadership, to a greater extent than distributed leadership, regards individual professional competence as an aspect of leadership.

When the external researchers presented observations and analysis, everyone was fully involved in discussions. Head teacher 5 said that the relevant analysis of their own kindergarten made the project seem more relevant to all. Coresearcher 3 especially emphasized the input from architects: "It becomes bigger than just you; being a part of a project obligates you to carry on". Intellectual stimulation is an aspect of transformational leadership. The analysis of the external researchers provided a collective basis for reflection on existing play environments and possibilities for improvement.

Another success factor was that the changes were made by the staff themselves, and they got to experience the results of their own efforts. In line with Serrano and Reichard (2011), engagement increased when they had real participation and carried out changes themselves. Coresearcher 2 expressed that people must experience the positive differences themselves. "We must put on our research glasses and get a helicopter perspective on how the room functions" (Coresearcher 2). The staff developed new competencies and engagement when they witnessed how the transformations improved children's play and also made their own work easier. According to the interviewees, children became more independent,

there were fewer conflicts, their play lasted longer and was more varied. Coresearcher 2 said, "It has been a pleasure to see how this creates good play". Head teacher 1 shared this view: "You really don't need to refurnish half the room to make it happen. It is easy; if you move some blocks over there, what happens next?" When the staff observed children's use of new materials and how the environment invited children to play, they were convinced that the changes created better possibilities for play.

Figure 6. Adding loose materials inside.

Figure 7. Adding loose materials outside.

Observing results leads to a common motivation to continue making changes, which is referred to as an incremental attitude towards change (Gotvassli, 2019). Coresearcher 8 said that when they saw the results of their transformations, they were pleased with how they had collaborated to attain the result. This shows the potential in experience-based learning. When leaders highlight "the before and after", changes may be visible and commonly acknowledged. Reflecting collectively through pedagogical documentation (Rinaldi, 2005) may strengthen both individual competence and the kindergarten as a learning organization, by asking questions like: How does a new environment influence children's play? How do different play areas affect others, and how can we build a play-friendly environment that enriches and preserves children's play? These are pedagogical issues involving transformational leadership and collective reflection. Hence, pedagogical documentation can be used as a tool to produce local knowledge about what works best in an individual kindergarten.

The role of the head teacher: Hands-on leadership

The results show that head teachers had a great impact on the projects. When a head teacher was highly engaged throughout the whole process from planning to intervention, this was a success factor. A head teacher's active involvement was important to maintain attention on a project. Coresearcher 3 said, "The head teacher was highly involved; she was responsible for the finances, resources, and spent time on the project. She gave very good support".

The interviewees described how the head teachers were involved in various ways and to different degrees. The head teachers who participated actively in the practical tasks experienced how this created motivation and joy. Head teacher 6 said, "It matters that many are passionate about it, and that I am involved as well, that I pushed as many wheelbarrows as the others". Bøe and Hognestad (2015, p. 2) suggest that the combination of individual leadership actions may exist amidst collaborative and democratic leadership, whereas hybrid leadership better describes the complexity in leadership in kindergartens than distributed leadership. Busch et al. (2009) claim that relation-oriented leadership indicates that a leader should not only strive to create results through others but also *together with* others. Another interviewee, a head teacher, described how she had joined her staff in collecting nature materials out in the woods for a playhouse they wanted to build. She related a comic situation in which they all had to clamper through the bushes and shrubs, laughing and helping each other to get hold of some branches. She added that even some skeptics changed their views on the project after this experience (Head teacher 8).

The importance of shared experiences, such as laughter and joint efforts in making changes, seemed to motivate and unify everyone to reach common goals. Both transformational and hybrid leadership theories describe leaders with charisma who are inspiring role models and support good teaching practices (Bass, 1990; Bøe & Hognestad, 2014). This is also supported by Lund (2021), who finds that a working atmosphere characterized by trust, motivation, and humor fosters good communication and cooperation.

Some of the coresearchers received little support from their head teachers. When a head teacher was less involved, a project did not progress as far as planned. Coresearcher 5 said the following:

> *It would have been better if it came from the head teacher. It also might have made the rest of the staff more involved. I also wished that our meetings had not had so much else on the agenda.* (Coresearcher 5)

Some of the head teachers were involved in many different ongoing projects and said it was challenging to prioritize. Hence, they delegated the main responsibility for their projects to the coresearcher. Some of the head teachers stated they should have been better informed and prepared: "I should have had much better ownership of it. But many factors made it this way" (Head teacher 5).

A lack of information and an unclear division of responsibilities between coresearcher and head teacher was described as a challenge. Heikka and Waniganayake (2011) emphasize that distributed leadership is not mainly about delegation but rather a basic understanding of tasks through cooperation and collaboration. In our study, the mutual dependence between head teachers and coresearchers is clear, and Heikka (2014, p. 38) considers such dependence a core element in distributed leadership. Distributed leadership may have a positive effect on pedagogical quality, but it depends on formal leaders to be realized. Although leadership entails more than formal leaders, they still possess great influence on quality development (Heikka, 2014, p. 55). In this study, the role of the head teacher seems to be a core factor for success in transformation projects.

Concluding discussion

The aim of this study was to investigate how leadership matters when transforming physical environments for play. The analysis accentuated different aspects of leadership involving both challenges and success factors. Our results show that leading towards a vision of inspiring environments was a challenging task for both coresearchers and head teachers in all of the kindergartens, regardless of size, type and organization. The idea about the room as a third teacher required new ways of thinking and acting.

Our findings challenge the idea that all staff need to be involved to initiate a project. The intention is to engage everyone, but some resistance to change is unavoidable. A few enthusiasts or a group of supporters may be sufficient initially. Leaders should not let a few negative attitudes impede efforts for pedagogical improvement. Moreover, it may be important for leaders to ally themselves with enthusiasts and believers who can be a positive inspiration to others.

All interviewees experienced challenges concerning finding time and resources. Changing established practices takes time and patience, in order to bring about a transformation (Ertesvåg & Roland, 2021). Nevertheless, even small changes can have a positive impact on children's play. A success factor is when people realize that positive changes in an environment can be made without many resources, i.e., reorganizing rooms and adding varied materials in inviting ways.

Some of the staff had difficulties adapting their roles to new environments. But when the changes were made, many asked "why didn't we do this before?" The interviewees also expressed that after making changes, they understood how the room became a resource as "a third teacher" (Carlsen, 2021). Here, the success factor is to work *with* the environment, not just *in* it.

Most leaders experienced how the staff lacked competence regarding the importance of physical environments and how to create inspiring areas for play. When external researchers introduced theory and analysis, this fostered commitment, motivation, and an obligation to continue. Peeters et al. (2018, p. 46) held that individual learning is not enough, but that a "competent system" is needed. This includes collaboration between individuals, teams, and institutions. Learning collectively is necessary to facilitate a culture of change and greater engagement (Gotvassli, 2019; Senge, 2006).

Another success factor is when people make the changes themselves and thereby gain knowledge through their own experience with the transformations. Observations and documentation on how children use the transformed rooms and new materials motivates the continuing work *with* the environment.

As emphasized by Yukl (2006), it seems important to acknowledge how demanding it is to modify people's values and views. Pedagogical documentation may be helpful to examine basic views about children and how the staff grasp their own role working with children. In the implementation phase (Ertesvåg & Roland, 2021), reflections on how new environments demand a different staff role should be discussed. A conclusion is that a transformed physical environment requires a transformed way of working.

Finally, the results show that head teachers are important motivators and role models. The role of head teachers should not be reduced to management or simply delegated to pedagogical leaders. When a head teacher is highly involved, this is a success factor for achieving changes and legitimizing the project in the organization. The concept of kindergarten as a learning organization emphasizes the importance of cocreated learning (Wadel, 2008). Our study indicates that to promote cocreated learning, leaders must actively participate.

We suggest that when transforming a physical environment, there is a need for leadership that draws on the different leadership theories presented in this article. Such leadership entails leaders who are actively involved in and *hands on* throughout all parts of a project. Hands-on leaders function as role models and motivators and work for results *together* with others. The purpose of being involved is not to control, but rather to show

interest and engagement while being a driving and motivating force. Hands-on leadership therefore describes leaders who are competent, visible, involved and engaged in pedagogical work, which includes leading the development of the physical environment.

Our results imply that creation of more play-friendly environments necessitates competence about the interdependence between play, the environment and leadership. Thus, we advocate more research on kindergartens and leaders who have successfully integrated working with their environments as a part of the pedagogy. Working *with* an environment has the potential to stimulate crucial pedagogical issues. A discussion about high or low tables can foster awareness about why we think the way we do and what sets of values lie beneath such thinking. Working with the room as the third teacher requires hands-on leadership. We conclude that leadership has a great impact on environmental change processes, which activate many aspects of leadership. Transforming children's play environments in kindergartens includes much more than refurnishing.

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