

Actions and practice architectures for realising sustainable development by restructuring school organisations

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Abstract

Sustainability is increasingly being understood as vital for school improvement. The objective of this study is to expand our knowledge of practice architectures that enable and constrain the realisation of sustainable development by restructuring school organisations to facilitate professional learning. In this follow-up study, we return to one of the three municipalities that were involved in an earlier project from 2009 to 2011. The theory of practice architectures is used as an analytic tool to identify and analyse actions that have an impact on the municipality's efforts to realise sustainable school improvement. The results reveal dissimilarities between the investigated municipality's school organisation and the preschool organisation. In the case of the school organisation, the dominating practice architectures disrupt the realisation of sustainable development, while in the case of the preschool organisation they are continuous and foster the same. One disruptive practice architecture in the school organisation is the idea of the autonomous principal, which disturbs the progression of a distributed

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leadership. In the preschool organisation, the superintendents are crucial for facilitating participation in professional learning.

Keywords

Principal, change agent, education for sustainable development (ESD), school improvement

Introduction

This study investigates teachers', school principals' and superintendents' improvement actions and their prerequisites in terms of practice architectures in a Swedish municipality's work to realise sustainable development. The improvement actions aimed at restructuring the school organisations for facilitating professional learning. However, professional learning in terms of teachers using critical thinking and imagining future scenarios of improved instruction cannot be realised without the organisational prerequisites of, for example, a clear and coherent grouping system facilitating teachers' collaboration (Leithwood, 2012; Jarl, Blossing & Andersson, 2017). In this article, we follow improvement actions taken to restructure the organisation of schools to this end, making use of the theory of practice architectures (Kemmis & Grootenboer, 2008) to describe and understand these prerequisites. According to this theory, 'actions' are to be understood as the interconnected 'sayings, doings and relatings', that constitute a 'practice'. A 'practice' is prefigured by the practice architectures present at, or brought into, a site. In other words, the practice architectures are the particular arrangements that together shape, and are shaped by, a certain practice.

Sustainable development has become a hallmark for the improvement of all human business. Industries and companies should use resources in ways that do not exhaust them for coming generations. Education is seen as the most effective way to foster citizens who are conscious of—and take steps for protecting and preserving—biological, social, and material resources and values in line with the 17 sustainable development goals (SDGs) (United Nations Educational, Scientific and Cultural Organization [UNESCO], 2017).

The 17 specific learning objects of the SDGs are to a greater or lesser degree inscribed in the curriculum of Swedish schools (Skolverket, 2019). UNESCO (2017) proclaims that educational sustainable development (ESD) requires participatory teaching and learning methods that motivate and empower learners to change their behaviours and take action for sustainable development. ESD consequently promotes competencies such as critical thinking, imagining future scenarios, and making decisions in a collaborative way. These characteristics are in line with the development of professional learning for teachers in successful schools, which we will return to later.

In this follow-up study, we return to a Swedish municipality involved in a three-year project from 2009 to 2011 with a focus on realising sustainable development by restructuring school organisations to facilitate professional learning. A key incentive in the restructuring was the implementation of change agents as leaders of professional learning, with the overarching task of empowering teachers, principals and superintendents

to develop actions for sustainable education (Blossing, 2016). We returned to the schools in 2019, wondering if the restructuring of the school organisations remained and if the change agents could still be found, and whether or not their actions had developed into practice architectures that facilitated professional learning?

The ESD perspective has in recent time put forward a perspective that aligns to school improvement and the knowledge of change agents (Blossing, 2016; Harris, 2001), associating successful schools with the development of a professional learning community or PLC (Bolam, McMahon, Stoll, Thomas, & Wallace, 2005). The field of change agents and organisational development (OD) originated in the 1970s (Burnes & Cooke, 2012), while the field of professional learning communities emerged in the 1990s; however, both fields were consolidated during the first decade of the 2000s (Carpenter, 2015; Hord, 2004; Watson, 2014). Research in the field of OD and PLCs has shown empirically how organisational change and professional learning in schools are promoted by a type of collaboration characterised by participation and empowerment, as well as by inquiry processes and action orientation (Muijs et al., 2014; Timperley, Parr & Bertanees, 2009; Timperley, Wilson, Barrar & Fung, 2007). UNESCO's SDG number 4: *Quality Education* makes a strong statement, emphasising that these characteristics are ends in themselves, not just educational means for providing students with sustainable knowledge of how to handle the earth's resources. Reframing this, we would say that collaboration, participation, and empowerment are all worthy of protection and preservation when it comes to social resources, and they are valid not only for students but also for teachers in schools. In this article, we look more closely at actions for facilitating coherent school organisations and participation, and their development (see Table 1) as characteristics of a school organisation facilitating professional learning for ESD, in accordance with Mogren (2019).

However, school improvement research shows that the most complex and problematic question is not how to define social and educational sustainable qualities but rather how to implement them in underperforming schools that display an individual and isolated culture where professional collaboration is absent (Hopkins, 2017; Leithwood, 2010). The message from school improvement research is that professional culture is deeply rooted in practice architectures (Kemmis & Grootenboer, 2008), which have developed historically both locally and in society as a whole. Emphasising actions for facilitating a coherent school organisation, participation, and progression in a normative way, as ESD does, can in fact have the opposite effect on improvement processes in individual and isolated schools. Since local cultures develop over a long time, their participants become used to them and eventually make sense of them, although they can appear very strange to an outsider! Thus, proclaiming change goals in line with ESD can be perceived as threatening to the meaning and professional identity that teachers and principals have built up over many years. This means that tensions can arise in the practice architectures of education that can either enable or constrain improvement work in local schools.

The objective of this study is to expand our knowledge of the practice architectures that enable and constrain the realisation of sustainable development by restructuring school organisations to facilitate professional learning. This follow-up study enables the possibility to detect long-term practice architectures that may require system reforms on different levels in order to bring about change. Our research questions are as follows: 1) How do practice architectures and actions emerge in relation to realising sustainable development in school organisations? By actions, we refer to actions of the change agents in particular, but also to other agents such as teachers, school principals and superintendents. 2) How can practice architectures explain the restructuring processes in school organisations?

We do this by carrying out a follow-up study of a Swedish municipality that restructured its school organisations to facilitate professional learning during the years 2009–2011. Nine years after the project ended, we interviewed teachers, school principals and superintendents to detect actions and practices architectures that enable and constrain professional learning.

First, we consider research on successful and sustainable schools that is of relevance to the professional learning characteristics highlighted by ESD.

Successful and sustainable schools

UNESCO's (2017) proclamation of the characteristics of ESD as participatory teaching and learning methods that motivate and empower learners to change their behaviour and take action for sustainable development corresponds closely to educational effectiveness research (Chapman, Muijs, Reynolds, Sammons, & Teddlie, 2015). Effective schools are successful in organising professional learning, by inventing and realising teaching models adapted for their students (Muijs et al., 2014). Moreover, they have long experience of this, building over time organisational and social structures that make professional learning sustainable (Jarl et al., 2017). In this study, we focus on actions for bringing about a coherent school organisation and ensuring participation in and progression of the improvement work.

Within ESD research, a whole school approach (WSA) is advocated for successful implementation. Originally, the WSA referred to a school with established communication paths to parents, social and health services, politicians, etc. Subsequently, the WSA has become aligned to school research concluding that the most effective schools are those that are coherently organised, with a focus on the goals and professional learning of the teachers as well as on student learning. Research on school leadership has shown that building a local and coherent school organisation is one of the most important tasks for principals (Leithwood et al., 2019). This means, for example, a clear grouping system and a distributed leadership. The focus of the distributed leadership should be on involving teachers in participatory and action-oriented inquiry processes to improve teaching and learning (Muijs et al., 2014). In this study, we pay attention to the following aspects of a coherent school organisation:

a clear grouping system and a distributed leadership responsible for professional learning.

Participation in ESD and WSA is about stakeholders being invited – and having appropriate communication paths – to participate in the work of ESD. As WSA has developed towards a focus on the local school organisation and professional learning, participation is also a question for teachers. In this matter, teachers' participation is dependent on a coherent school organisation with existing groups that attend and take part in the work. Habermas (1996) enables us to unpack participation, showing that it can be understood as the sharing of a communicative space. Thus, to participate with others in communicative action is to take part in a conversation, in which, through mutual understanding, people strive for intersubjective agreement about the ideas and language they use and, over time, shape an unforced consensus about what to do (Kemmis, McTaggart & Nixon, 2014b). In this study, we pay attention to these aspects of participation: intersubjective agreement about concepts and ideas, and unforced consensus about what to do.

Scott (2013) built on Webster (2004) to elaborate on the stages that a sustainable school might go through in its development. The stages have two evident functions: 1) a way of gaining understanding of the progress made, and 2) a means of scoping the next developmental steps that might be taken (Scott, 2013, p. 86). These different stages are commonly used to categorise both the development of school organisations and local improvement work. Mourshed, Chijioke and Barber (2010) propose a four-stage model: 1) poor to fair – ensuring basic standards; 2) fair to good – consolidating system foundations; 3) good to great – professionalising teaching and leadership; 4) great to excellent – system-led innovation. When it comes to local school improvement work, the stages are described in terms of initiation, implementation, institutionalisation and dissemination (Miles, Ekholm & Vanderberghe, 1987). Both the school stages and the improvement work stages are shown to be important in schools' development strategies.

Theoretical framework

The theory of practice architectures (Kemmis & Grootenboer, 2008) is used as an analytical tool to identify and analyse actions that have an impact on the municipality's work to realise sustainable development by restructuring its school organisations to facilitate professional learning. According to this theory, a practice is understood as a socially established cooperative human activity constituted by the sayings, doings and relatings that hang together in the project of the specific practice. The project encompasses the intention, or aim, that motivates the actions undertaken in the conduct of the practice. The notion of practices hanging together in a project is critical in 'identifying what makes particular kinds of practices distinctive' (Kemmis, Wilkinson, Edwards-Groves, Hardy & Grootenboer, 2014a, p. 31). Restructuring school organisations in order to realise sustainable school development is the project that motivates the practices in this study.

The theory of practice architectures (Kemmis & Grootenboer, 2008) holds that practices are prefigured by the practice architectures present at, or brought into, a site. The practice architectures are the particular arrangements that together shape, and are shaped by, the practice. Practice architectures appear in three intersubjective dimensions: the semantic, the physical, and the social. In the semantic dimension, cultural-discursive arrangements appear through the language and speech surrounding the specific practice. In the social dimension, social-political arrangements reveal how people relate to each other, as well as to artefacts inside and outside the practice. In the physical dimension, material-economic arrangements become visible in the actions and work that take place.

Practice architectures can exist beyond the intentional actions of individuals, but the theory maintains that practices are human-made and socially established, and therefore it highlights the role of the participant in the practice and in the shaping of the practice (Kaukko & Wilkinson, 2018).

Data and method

This follow-up study concerns one of the three municipalities that were involved in the original project from 2009 to 2011. We start by describing the project and its most important results. The project was a commissioned research study involving three municipalities and one university. The aim was to realise sustainable development by restructuring school organisation to facilitate professional learning. A key incentive in this restructuring was the implementation of change agents as leaders of professional learning, with the main task of empowering teachers, principals and superintendents to enable sustainable education. Teacher teams were organised in which pedagogical leaders functioned as change agents organising professional learning. The wider context of this initiative should be understood within the framework of the greater pressure from the state exerted on the municipalities responsible for improving the quality of schooling, particularly through the Swedish School Inspectorate, which was implemented in 2008. The municipalities' superintendents and principals expected pedagogical leaders to work as change agents facilitating the improvement of teaching practices. However, these expectations were in most cases vaguely expressed, which left the pedagogical leaders with the task of inventing their own practice. One investigation (Blossing, 2013) concluded that a clear organisational structure and a strong communication of the goals promoted the realisation of pedagogical leaders. Moreover, the role taking displayed four types: the assistant, the facilitator, the project leader and the organisation developer. The facilitator and the organisational developer embraced functions in line with the characteristics of ESD, with the facilitator being seen as improving participation and progression in teacher teams, and the organisational developer as important for questions relating to the development of coherent school organisations.

Another investigation of the project (Blossing, 2016) identified four themes relating to the pedagogical leaders' work of allotting meaning to their new role as change

agents: (1) daily work management, (2) emotional supervision, (3) role development, and (4) community development. The change agents managed the problems with various micro-processes or actions (e.g., different dialogue models learnt in a university course to structure the work with the teachers). The study concluded that at the core of the practice was the following question: How should the change agent's role be developed and built upon? This question nurtured the process of being a change agent. As for the pedagogical leaders, they assumed the role of assistants to the principal and also the role of facilitators in the teacher teams. Both roles were strongly recommended by the municipal superintendents. The study also showed that several pedagogical leaders in the school organisation struggled in their role compared to the pedagogical leaders in preschools. This was explained by the presence of an individual and autonomous school culture that led to resistance to pedagogical leaders acting as change agents. Some of the pedagogical leaders ended up in the role of emotional and psychological supervisors and were quite confused regarding the meaning of the role of pedagogical leaders as change agents.

The municipality chosen from the original three, used in this follow-up study, is located in the southern part of Sweden and has approximately 13,000 inhabitants. The data builds on 13 group interviews carried out during two days in March 2019. A total number of 46 participants were interviewed: three municipal superintendents, 18 teachers, 21 preschool teachers, two primary school principals and two preschool principals. The teachers represented three local schools, while the preschool teachers represented seven preschools. The teachers, principals and superintendents were divided into different interview groups. In addition, the teachers with change agent functions were separated from the 'ordinary' teachers. It is worth noting that of the 18 school teachers, only five were listed as 'first teachers', that is, with a formal change agent role based on a government reform from 2013 (SFS 2013: 70). By contrast, 17 out of the 21 preschool teachers held the role of pedagogical leader. The interview guide consisted of questions to capture the process of change since the project in 2009–2011.

The recordings from the interviews were transcribed and analysed in three types of analytic activity: (1) data condensation, (2) data display, and (3) conclusion drawing (Miles, Huberman & Saldaña, 2014). The first activity is a selective and focusing process that makes the data stronger and more solid. This was carried out in relation to the ESD criteria: coherent school organisation, participation, and progression (Mogren, 2019). The three criteria were operationalised into the following aspects: a coherent school organisation, which was distinguished by a clear grouping system, a distributed leadership and professional learning; participation, which was understood as a form of communicative action in which people strive for intersubjective agreement about concepts and ideas and unforced consensus about what to do; the progression of a coherent school organisation and participation, which was assessed as sporadic, continuous, or disrupted, in line with the methodology from Miles et al. (2014). 'Sporadic' means an organisational process which shifts back and forth in relation to

the ESD criteria; ‘continuous’ means a process showing a steady improvement; and ‘disrupted’ means an organisational process that has come to a halt. Sporadic participation is random in terms of content and time; continuous participation has a specific content and is regular over time; and disrupted means participation that has come to a halt. In the data, actions corresponding to the ESD criteria and aspects were coded. This activity was conducted with the aid of the NVivo 11 data program. To make the coding sharper, we individually coded the same data set and discussed our definitions. The schools and the preschools were coded and analysed separately due to the fact that they are separate organisations.

The coding led to the second type of analysis activity, in which data from the two cases was organised and compressed in a matrix (Table 1) and the ESD criteria were subsequently scored as low, moderate, or high, following the methodology described by Miles et al. (2014). The scores were based on what the respondents said about how strongly specific actions had facilitated sustainable development in the project, as well as on how frequently a specific action (or lack of action) was mentioned in the interviews.

In the third analysis activity, thick descriptions (Yin, 2013) were constructed in the form of two narratives, which described the actions (sayings, doings and relat-ings) and practice architectures that emerged as significant in terms of enabling and constraining the realisation of sustainable school development in the project. As a complement to the matrix, the three intersubjective dimensions in which practice architectures appear (Kemmis & Grootenboer, 2008) were used to frame the narratives. In the semantic dimension, we visualised how different cultural-discursive arrangements emerged through the language and concepts used in the interviews. In the social dimension, social-political arrangements were visualised through descriptions revealing how different functions, roles and professions related to one another. In the physical dimension, material-economic arrangements became visible in the actions and work that, according to the respondents, was taking place in the schools. Authentic quotations from the interviews have been added to strengthen the validity of the narratives.

Results

Initially, the results were reported in the form of a matrix (Table 1). The ESD criteria are found in the left column. The ‘progression-criteria’, that is, the development of the organisational process, are applied both to the criterium of ‘coherent school organisation’ as well as to ‘participation’. The matrix revealed dissimilarities between the two cases, in that overall the preschool organisation scored medium-high, while the school organisation scored low-medium. The matrix shows that the actions identified for the schools were not in line with a coherent school organisation and that the progression was disrupted. In particular, progression was disrupted in terms of intersubjective agreements and unforced consensus.

Table 1. Actions enabling and constraining sustainable development

ESD criteria	Identified actions in schools	Identified actions in preschools
Coherent school organisation	There are autonomous principals.	Primarily, the superintendent manages this organisation in collaboration with the principals.
A clear grouping system	There is an individualistic school leadership.	
Distributed leadership	Principals have taken over the responsibility.	Pedagogical leaders are responsible for planning and managing teacher teams.
Professional learning	Pedagogical leaders have disappeared or been replaced with new functions. Clear assignment descriptions are missing for these new functions.	There is a mutual understanding of the role and its functions.
	There are no regular meetings at a municipal level.	The role of pedagogical leader is reserved for qualified preschool teachers.
	Temporary groups are organised, with irregular and random in-service training.	The role is distributed as a rotation.
		There are regular meetings.
Progression	Disrupted	Continuous
Sporadic, continuous or disrupted		
Score	Low–medium	Medium–high
Participation	It is unclear which current role corresponds to the former pedagogical leader's role.	The role of pedagogical leader remains.
Intersubjective agreement about ideas and concepts	There is no common use of concepts.	There is common use of concepts.
Unforced consensus	There are significant dissimilarities in the descriptions and understandings of different roles and functions.	Some of the interviewees can describe the original idea.
	Only one interviewee could describe the original idea.	
Progression	Mainly disrupting actions	Sporadic and maintaining actions
Sporadic, continuous or disrupted		
Score	Low–medium	Medium–high

The following section offers thick descriptions in the form of two narratives based on the coding in the matrix.

The case of the schools

The restructuring idea of using pedagogical leaders as change agents is no longer clearly seen in primary schools in the municipality. Neither the teachers nor the principals were familiar with the original idea. In the physical dimension, it is clear that this function has been replaced by new roles which operate differently in the schools, but which can contain aspects of the change agent functions. However, there is a lack of clarity connected with this, and the teachers and principals answered differently regarding which role had replaced that of the former pedagogical leader. The principals primarily saw 'the first teacher' as the role that has inherited the change agent functions, while most of the teachers perceived and described 'the team leader' as the former pedagogical leader. The outcome in the physical dimension is that the function of the pedagogical leader as it was in 2009–2011 has been distributed across several roles. In addition to first teachers and team leaders, temporary roles have been implemented in the organisation. For example, one role focuses on educating teachers in reading and writing strategies, while another promotes different strategies concerning the pupils' state of health.

Interviewer: And you are saying that no one is using the concept 'pedagogical leader' any longer?

Principal: Not 'pedagogical leader', but I have 'first teachers', and they are an extension of the function, so to say. (Interview group 12)

Teacher: Perhaps we don't use the term 'pedagogical leader'; we call them 'team leaders' instead. (Interview group 1)

Moreover, when we compare the new roles – first teacher and team leader – with the previous term, pedagogical leader, we identify several changes in the material-economic arrangements, including a state salary supplement of SEK 5 000 for the first teacher. This is an arrangement that is well-known to teachers and principals, yet at the same time the function of the first teacher is not clear to everyone.

Teacher 1: It's very diffuse. What are they supposed to do? They have been paid, but what are they supposed to do?

Teacher 2: This could be quite tough on Lisa: she gets compensation, but what is she doing? (Interview group 2)

First teacher 1: It's all about school development.

First teacher 2: I have no instructions on what to do. Sometime I write timetables; it differs. (Interview group 9)

The team leaders receive a lower salary compensation.

Principal: You could see both ‘team leaders’ and ‘first teachers’ as the former ‘pedagogical leader’, but they have some different areas of responsibility. And it differs very much in compensation: SEK 5 000 for the ‘first teachers’, while I give the ‘team leaders’ SEK 5 000, plus some reduction in teaching. (Interview group 12)

One justification for this inconsistency in salary compensation is to be found in a government reform (SFS 2013: 70). First teachers were introduced into the Swedish school system in 2013. In some respects, such as payment, this role is regulated in detail in the legislation, but in other respects, it is not. Regarding the position’s functions, nothing is said in the reform other than that first teachers should be skilled and knowledgeable teachers in their subject. Perhaps this implies that first teachers should assist in the professional development of their colleagues. However, this is delegated to the local school or authority to decide upon. The team leader role, on the other hand, is not at all state-regulated, thus giving the school principal freedom to decide on economic compensation as well as what functions to add to the role. It is therefore up to the principal to decide if there are to be team leaders or not.

The teachers and principals expressed that while there were similarities between the first teacher and team leader roles compared with the former pedagogical leader, there were also numerous dissimilarities. The pedagogical leader existed in every school, and the role had a clear remit and clear functions. It was implemented by the superintendents, who, together with the principals, developed the functions of the role. The original aim was to strengthen shared leadership and achieve higher teaching quality in the municipality’s schools.

Superintendent 1: First of all, you can say that I was very busy being a single manager, and the idea behind shared leadership was that as a superintendent or a principal, you had a management team around you and everyone worked together.

Superintendent 2: I think that the power we concentrated in the project was the power to keep moving forward. (Interview group 13)

This consensus, which existed in 2009–2011, was not present on our visit in 2019. Instead, each principal had the freedom to organise the local school based on individual interests and ideas. This variation in the principals’ understanding caused considerable differences in the practice of how to best use and organise the change

agent functions. This was seen in the physical dimension, but also in the semantic dimension regarding the different concepts and dissimilar understandings that were expressed. Another important change in the physical dimension was the absence of the in-service training that all pedagogical leaders attended in 2009–2011. A comparable activity for first teachers and team leaders did not exist. In addition to the training, pedagogical leaders attended regular meetings organised by a superintendent, at which they discussed and reflected on their experiences and the dilemmas connected with their roles as change agents. According to the interviews, no such meetings exist today.

One problem connected with the autonomy of school principals is that there is a great deal of mobility among Swedish school leaders. Because new principals have their own ideas about how to organise a school, teachers may find it hard to grasp all the new ideas that come along with a new principal. This has been the case in the current municipality during the last ten years.

Teacher: I think it is eight principals within thirteen years.
(Interview group 1)

Superintendent: We've had many principals, and there have been a lot of things that have meant that we haven't had the opportunity to run it (the change agent organisation), and the principals haven't done it, so a new principal would come along who didn't know the concept, and no one really had the time to train him. (Interview group 13)

Summing up the matrix and the narrative concerning the school organisation, we conclude that the majority of the identified practice architectures and the actions within the project have disrupted the realisation of sustainable development in the school organisation. A social–political arrangement in the form of the autonomous principal constrains the emergence of a coherent school organisation by disrupting the progression of the distributed leadership in terms of change agent functions. Moreover, the progression of a clear grouping system is disrupted both on a local and municipal level. The progression of professional learning in the groups is sporadic. The arrangement of the autonomous principal also disrupts the progression of participation. There is little consideration given to intersubjective agreement regarding the change agent idea or any roles in the distributed leadership that are reorganised by the principal. The same observation is also valid for the assessment of the progression of the unforced consensus that is thus disrupted.

Another important factor is 'the first teacher reform', seen as a material–economic arrangement bringing in SEK 5 000 in increased salary. This reinforces the arrangements made by the autonomous principal. The 'first teacher' is not included in any

clear grouping system, and there are no intersubjective agreements about the first teachers or any financial compensation.

The case of the preschools

The pedagogical leader is a well-established role in the preschool organisation. The teachers, the principals and the superintendents are all familiar with the role, and their descriptions of the role and its functions have a high conformity. In the physical dimension, it is clear that this role still has a clear structural position in the preschool organisation. The same picture appears regarding the semantic dimension, where the concepts used are common to and shared by everybody. The role is also institution-alised in the preschool culture, which particularly emerges in the social dimension.

The tasks and responsibilities described that exist in the physical dimension (in the form of the work carried out by the pedagogical leaders) include implementing the new curriculum, planning and managing team meetings, transferring information from principals to teams and vice versa, being updated on research that is shared within the organisation, and planning and organising 'reflection meetings'. It is clear that the pedagogical leader's role includes not only pedagogical tasks but also responsibility for facilitating daily working life in preschools.

- Teacher 1: Her role is to coach us and to guide us in our pedagogical work and ensure that all elements that are supposed to be there, are there.
- Teacher 2: She is competent, and she doesn't give up.
- Teacher 3: It may sound simple, but it could be that she has printed a paper and put it up on the wall. That makes it easier than if I had to search for it among my emails. It is a small thing, but it means a lot.
(Interview group 4)
- Pedagogical leader 1: To be a 'pedagogical leader' is to be a person that moves individuals and teams forward, so we're all striving in the same direction. To get everyone on board, get them engaged, and give them responsibility so they can grow.
- Pedagogical leader 2: The main task is to contribute to a development in the teacher teams for the sake of children's learning. (Interview group 7)
- Principal: One part of the pedagogical leader's function is to make sure that everyone has the opportunity to speak at various meetings so that they feel involved and important ... We (principals) support them (pedagogical leaders) in their curriculum

work, concerning what's new in the curriculum, and we arrange discussions about how to address these things. How to work together with the teachers is up to them to decide.
(Interview group 11)

Similar to the case of the schools, very few knew the original aim of the project that started in 2009. Some of the teachers talked about a school inspection previous to the project, referring to this as the starting point for implementing pedagogical leaders in the organisation. The principals confirmed this, explaining how the 2009–2011 project was actually a consequence of the criticism raised by the Swedish School Inspectorate, which complained that the quality of the municipality's preschools was insufficient.

Principal 1: We started this thing with pedagogical leaders after the School Inspectorate had visited us. They thought that we worked too much individualistically ... After that, we appointed one teacher as a 'pedagogical leader' in every preschool section. (Interview group 11)

The teachers who had been in the project from the beginning described how there had been some changes regarding the pedagogical leader's roles and functions. From the beginning, anyone could be appointed pedagogical leader. In fact, anyone was expected to assume the role, as it rotated among the staff. This is a well-known approach frequently found in preschools, and it has its roots in a culture that insists that everyone in the organisation is equally essential. In this case, it resulted in everyone doing the same tasks and sharing the same responsibility, independent of the person's education. This has changed, and today only qualified preschool teachers are perceived as qualified to hold the role of pedagogical leader. This clarification has contributed to the role assuming a greater responsibility, including carrying out advanced assignments such as implementing the new curriculum.

Teachers 2: But I did not experience their responsibility as clearly as today. And it has become even clearer with the new curriculum. (Interview group 4)

The consensus that exists among the preschool staff can be found in the social dimension, as a result of a distributed school leadership. One of the superintendents has the main responsibility for the development and facilitation of the structure that encompasses the role of the pedagogical leaders. She plans and leads the meetings at which all pedagogical leaders in the municipality regularly gather. At these meetings, she informs them of new curriculum changes, presents research, and arranges discussions

and time for reflection. The principals also attend, and it is obvious how the principals together with the superintendent form a joint school leader team. The pedagogical leaders have great trust in their school leader team, and the ideas of participation and engagement seem to have their foundation in the way this team leads and takes action

Pedagogical leader: I must say that I love this; I can't live without this organisation. I think it's great.

Interviewer: Why?

Pedagogical leader: Because it feels safe knowing that our school leader team is there and that they are updated and know about all the important changes that we need to attend to. This feels like a guarantee for me ... that I will get the information that I need ... I can relax in that feeling. (Interview groups 8)

The pedagogical leaders and the principals agreed that the municipal superintendent has a key role and is much appreciated. Furthermore, the regular meetings have a positive impact on the stability of and consensus in the organisation. Additionally, there have been few replacement principals. The superintendents and the principals have long been employed in the municipality, and they all participated in the 2009–2011 project.

Pedagogical leader: She (the superintendent) always supports us; if there is anything, we turn to her. She has been there all the time, and she knows what we are talking about and what it is all about.
(Interview group 7)

Principal: There are probably 20 to 24 people in that group, and we have to thank xxxx (the superintendent); she is the one who has continued this process, and it's thanks to her that we have coped.
(Interview group 11)

Pedagogical leader 1: We have a joint school leader team. No single principal makes decisions; it's the whole team, and we run projects together. The team has decided that this is the way it should be, and as long as they stick with it, it will last.

Pedagogical leader 2: And I think that the regular meetings at which we have developed our work – that's why we have come this far. (Interview groups 8)

Summing up the matrix and the narrative concerning the preschool organisation, we conclude that the majority of the identified practice architectures and the actions within the project, have continuous progression of sustainable development in the school organisation. The coherent preschool organisation emerges as social-political, material-economic, and cultural-discursive practice architectures. The coherent school organisation, with a clear grouping system, a distributed leadership and professional learning, enables a continuous progression of sustainable development. Participation with intersubjective agreement about ideas and concepts, which communicates an unforced consensus, continuously progresses to new teachers and new parts of the preschools' work. We conclude that very little seems to constrain the preschools' sustainable development. New actions (e.g., national reforms) are absorbed by the practice architectures and secure a continuous progression. Certainly, national reforms can make the practice architecture of the preschool organisation tremble, but no more than that. The coherent school organisation supports professional learning and communication towards unforced consensus as a means for tackling problems. However, some changes, such as less frequent meetings and upcoming changes in the school leadership due to retirements, could threaten the organisation's continuous progression.

Another significant practice architecture is the social-political arrangement of the superintendents in preschools. This practice architecture has enabled the progression of a coherent school organisation and participation since the start of the project in 2009. In fact, superintendents initiated the idea of how to restructure the organisation and facilitate participation in professional learning. Throughout this time, they have carried out actions gradually strengthening the idea, especially through the material-economic arrangement of applying resources to the restructuring. At our visit, it became evident that, as described in the previous paragraph, the restructured coherent school organisation, with pedagogical leaders and superintendents, is also a cultural-discursive arrangement. This has become 'the way things are done in the preschool'. It has become a trusting relationship, leading to committed professional learning.

Discussion

The objective of this article has been to develop knowledge of the practice architectures that enable and constrain the realisation of sustainable development by restructuring school organisations to facilitate professional learning. To respond to the first research question, how the practice architectures and actions emerge in relation to the realisation of sustainable development in the school organisation, they are mostly disruptive, while in the preschool organisation they are continuing and thus foster sustainable development. The disruptive practice architectures for the school organisation are the social-political arrangement of the autonomous principal and the material-economic arrangement of the first teacher reform. In the preschool

organisation, the continuing practice architecture is the coherent organisation that emerges in all three intersubjective dimensions. The social–political arrangement of the superintendents has been crucial for initiating the idea of how to restructure the organisation and facilitate participation in professional learning. Thus, permeating the practice in this all-encompassing way, the coherent school organisation supports the actions for the sustainable development of professional learning.

Regarding the second research question, the restructuring process in the preschool organisation is explained by the building of a coherent school organisation in line with ESD that permeates the social–political, material–economic, and cultural–discursive arrangements. This gives a solid practice architecture for actions for realising sustainable development, which has lasted since before the project started in 2009 and has managed to embed reform changes ‘in the way things are done in preschool.’ However, in the school organisation, such an all-encompassing arrangement in line with the qualities of ESD does not exist. Instead, there exist different kinds of arrangements that emerge and develop more or less separately from each other and that do not facilitate the restructuring process. This has led to a divided school organisation that has not laid the foundation for professional learning in line with ESD.

Practice architectures are stable. As the name of the theory implies, architectures take time to become established and they are not easy to change. This can be a good thing, as in the preschool case, but it is a sneaky thing in the school case. When the project started in 2009, the preschools were already in the implementing stage of fulfilling the idea of change agents in the form of pedagogical leaders. The school reorganisation was also underway, although it encountered resistance among some of the teacher groups and some of the principals. After nine years have passed, we conclude that the preschools have succeeded in realising sustainable development due to the practice architecture of the superintendents, which shapes the improvement practice. By contrast, the school organisation has failed, mainly due to an autonomous principal practice architecture that never succeeded in holding the practice together with respect to fulfilling the idea of pedagogical leaders.

This finding is in line with earlier research on how school cultures develop locally when the principal is a powerful factor (Chapman et al., 2015; Jarl et al., 2017). We conclude that the school principal’s autonomy, as a social–political arrangement, is very strong in Sweden. It is also a cultural–discursive arrangement with roots in Sweden’s *primus inter pares* history. In addition, since 2010, the principal’s autonomy has been authorised by the Swedish Education Act (SFS 2010: 800). A substantial consequence of this, which we could see in the case of the schools we investigated, is that every school has its own organisation and that the ‘change agent project’ that started in 2009 has slowly transformed into many dissimilar projects and finally disappeared. The Education Act also relates to preschool principals; however, instead of growing into solitary and autonomous principals, they have organised a school leader team nurturing a professional learning community.

Applying the four-stage model from Mourshed et al. (2010), the school organisations seem to be in the first stage concerning professional development: poor to fair—ensuring basic standards. The preschool organisation, on the other hand, displays the characteristics of a professional community (Carpenter, 2015; Hord, 2004; Watson, 2014), with pedagogical leaders representing the functions of change agents. However, we believe there is scope for improvement from stage three (good to great—professionalising teaching and leadership) to stage four (great to excellent—system-led innovation). We emphasise the need for awareness of how the practice architectures both enable and constrain sustainable development. By knowing and acknowledging the relation between the actions and the practice architectures, the organisation's ability to handle permanent demands and pressures improves.

Reviewing our method, we would like to draw attention to the fact that the sampling of interviewees could be somewhat biased, as the relation between the number of teachers and number of change agents notably differs between the two organisations. The proportion of change agents is significantly larger within the preschool organisation.

Our practical advice for principals and change agents is to pay attention to the ESD criteria and the stage of development of the school organisation. Research convincingly shows that it is fruitful to participate in communication about sustainable development and that participation requires a coherent school organisation.

In conclusion, the investigated cases have contributed to our knowledge of practice architectures as the sustainable environment in which actions for restructuring school organisations for professional development have to work. What teachers and school leaders in schools can and must do is to take actions of such quality and to such a degree that they develop into practice architectures that enable sustainable school improvement in practice, assuming the responsibility for fostering the good life where humankind can 'live well in a world worth living in' (Kemmis et al., 2014a, p. 27).

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