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To cite this article: Teresa Berglund, Niklas Gericke, Anette Forssten Seiser, Anna Mogren & Daniel Olsson (24 Apr 2025): The role of ESD facilitators in bringing about change in schools, Environmental Education Research, DOI: [10.1080/13504622.2025.2486367](https://doi.org/10.1080/13504622.2025.2486367)

To link to this article: <https://doi.org/10.1080/13504622.2025.2486367>



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Published online: 24 Apr 2025.



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The role of ESD facilitators in bringing about change in schools

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ABSTRACT

This study investigates the experiences of teachers in middle leading positions who worked as ESD facilitators during a three-year whole school approach project designed to implement education for sustainable development (ESD). Five schools in a Swedish municipality participated in the project to integrate ESD into their organisation and teaching practice. Project activities involved school leaders, teachers, and ESD facilitators, with the facilitators taking part in the design of the development process, workshop activities and content, and facilitating their school's internal work. The aim of this study is to generate insight into their roles as facilitators of transformation in line with ESD, and how they can be supported to fulfil their roles. The analysis used a framework of sustainability change agents, identifying that approaches to change aligned with technician, mediator, convincer, and concerned explorer types. The findings highlight the importance of contextual factors – specifically, a shared vision, collaborative culture and organisational structures, and active school leadership in shaping ESD facilitators' ability to fulfil their roles.

ARTICLE HISTORY

Received 20 May 2024
Accepted 17 March 2025

KEYWORDS

Education for sustainable development; facilitator; middle leading; whole school approach; sustainability change agents

SUSTAINABLE DEVELOPMENT GOALS

SDG 4: Quality education

Introduction

This study explores the roles and practices of teachers in middle leading positions who facilitate the implementation of ESD in schools in Sweden. We interviewed seven ESD facilitators from five schools participating in a longitudinal ESD development project, and drew on Van Poeck, Laessoe, and Block's (2017) typology of sustainability change agents to analyse their experiences.

This study is part of a larger research project that looked at the implementation of ESD in several schools and pre-schools in one Swedish municipality over a three-year period (see also Boeve-de Pauw et al. 2022; Borg and Gericke 2021; Gericke and Torbjörnsson 2022a,2022b; Olsson, Gericke, and Boeve-de Pauw 2022; Forssten Seiser et al. 2023; Mogren et al. 2024; Gericke et al. 2024). The overall aim of the project was to implement ESD at all organisational levels through a *whole school approach* (see Mogren, Gericke, and Scherp 2019) involving

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students, teachers, school leaders, and school boards. The project set out to harmonise content, teaching, and organisational and operational decisions within participating schools, and offered joint seminars and workshops to support internal work processes in each school. It set out to transform teaching and engage teachers in collaborative professional inquiry into their practice. The project ended in 2019, on the basis that ESD had gained a foothold in the schools' organisational and teaching practices. ESD facilitators played a key role in each school.

Studies indicate that implementing whole school approaches to ESD requires a shared vision about student outcomes and appropriate pedagogical approaches to realising that vision (Mogren, Gericke, and Scherp 2019). Without this, educational activities and priorities in schools become incoherent and do not develop in the intended directions (Mogren, Gericke, and Scherp 2019; Forssten Seiser and Blossing 2020). Change agents in school organisations, such as the ESD facilitators in this study, have a significant impact on the implementation of new pedagogical ideas (Blossing 2013). However, their success depends on contextual factors, such as the quality of relationships within the organisation. Forssten Seiser and Blossing (2020) have suggested that it is difficult to implement changes in schools if they fail to realise the idea of change agents and nurture a professional learning community. There is limited research into how change agents in schools, particularly those facilitating ESD, can be supported. This study therefore zooms in on ESD facilitators' experiences and explores their views on the factors that enable and constrain them, with a view to providing insight into their roles and how they can be supported.

Background

The ESD facilitators were intended to enhance and support their schools' internal development processes. Figure 1 shows that the ESD facilitators occupy middle leading positions in the school context, in which they are integrated into both management/leadership teams and teaching staff. They lead their teaching colleagues while remaining one of them (Grootenboer, Edwards-Groves, and Rönnerman 2015). In their middle leading position, the facilitators were meant to be a link between school leaders, project leaders and teaching staff, and to empower teachers to direct their teaching and actions towards ESD. Teaching development was based on the core concepts of holism and pluralism. This demanded more focus on integration between environmental, social and economic aspects and between subject areas, and a teaching approach which invited greater student engagement and paid attention to different perspectives on sustainability, e.g. the many ways in which sustainability problems can be viewed and the multiplicity of perspectives on their solutions (Öhman 2008; Berglund and Gericke 2022).

In this study, the terms *function* and *role* have to some degree similar meaning. *Position* is used when talking about the facilitators' placement in between the school leader and the teaching staff or their placement along the two axes in the typology by Van Poeck, Læssøe, and Block (2017) (see Figure 2).

Professional development systems are generally based on four key elements: a) the programme, b) the teachers (the learners in the system), c) a facilitator (who provides guidance to the teachers), and d) the context in which the professional development takes place (Borko 2004, p. 4). The data for this study comprises ESD facilitators' views and experiences of the relationships between the programme, the school leadership, the teaching staff, and themselves. To our knowledge, such facilitators, i.e. sustainability change agents in middle leading positions involved in transformative ESD school reform, have not been previously studied.

According to Forssten Seiser and Blossing (2020), it takes time to transform teaching and learning in line with ESD, in part because it challenges teachers' professional identities and views. Sustainability teaching based on holistic and pluralistic approaches is challenging and rare in practice (Boeve-de Pauw et al. 2015), and deviates from traditional interpretations of the goals of education and established norms (Sass et al. 2020; Borg et al. 2012; Sinakou et al.

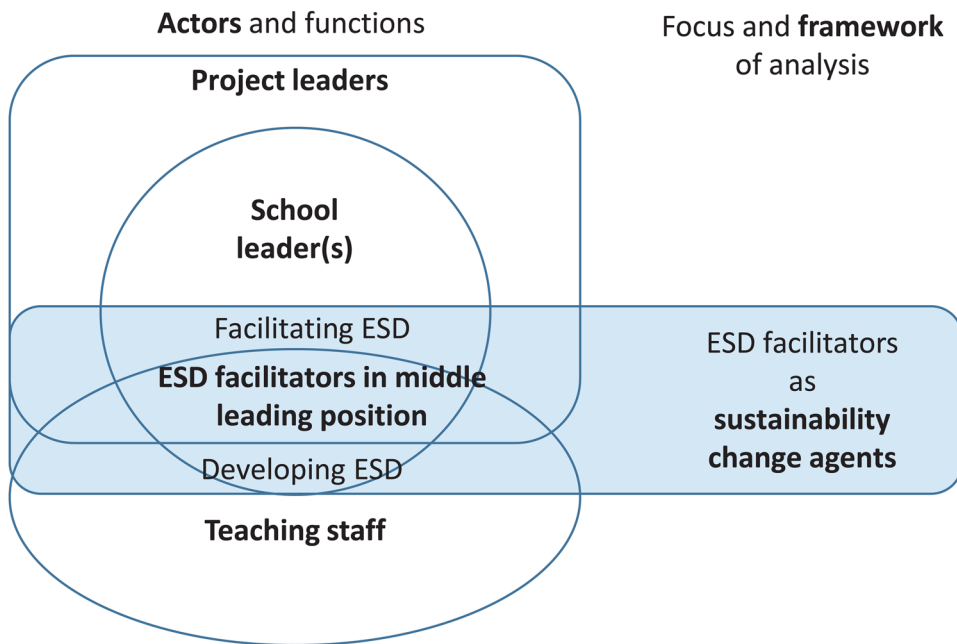


Figure 1. To the left: the ESD facilitator in a middle leading position, and processes of facilitating and developing ESD located between actors in the school context. To the right: the framework for analysing ESD facilitators' roles and practices. Figure based on Grootenboer, Edwards-Groves, and Rönnerman (2015).

2019). By investigating middle leading teachers' experiences of implementing such change, this study will generate insight into how to better support it.

The facilitator role in the school context

Facilitators are essential to the success of professional development programmes (Borko 2004; Jeanpierre, Oberhauser, and Freeman 2005). However, their roles can be complicated by participants' differing goals, including those that are imposed, for example by local authorities (Fransson, Van Lakerveld, and Rohtma 2009). It is therefore important to view facilitators' roles and practices holistically (Grootenboer, Edwards-Groves, and Rönnerman 2015). Facilitators may be involved in addressing both institutional issues, e.g. technical and management issues, and developing their fellow teachers' practice (Edwards-Groves and Rönnerman 2013). A review by Leithwood (2016) shows that collaboration between facilitators and school leaders facilitates both instructional and transformative leadership, which may contribute to school improvement. Several factors support the facilitator role: a clearly defined role description which focuses on teaching and learning; a broad sense of collegiality among staff; training opportunities; enough time to provide leadership; meetings with school leaders to make decisions (Leithwood 2016, p. 133); and support from school leaders which legitimises their role (Grootenboer, Edwards-Groves, and Rönnerman 2015). A supportive and collegial culture is also helpful, although this cannot be taken for granted, particularly where teachers feel that their autonomy is threatened (Leithwood 2016).

Different perspectives on facilitators in the literature describe their multiple roles as catalysts, experts, process helpers, developers, problem solvers (Fransson, Van Lakerveld, and Rohtma 2009, pp. 80-81), assistants, project leaders, facilitators, and organisational developers (Blossing 2013). They have also been described 'souls of fire', who bring their own values and personal beliefs from the world surrounding them into their professional organisation (Wickenberg 2016).

Different interaction types are also noted: expert, critical friend, mentor, listener, teacher and workshop leader (Perry and Boylan 2018; O'Dwyer & Atli, 2015).

Core skills include enabling professionals to reflect on their practice, explore their own beliefs, and engage with theory (O'Dwyer and Atli 2015; Jeanpierre, Oberhauser, and Freeman 2005), which requires both interpersonal and professional prowess and broad experience (O'Dwyer and Atli 2015).

Facilitating change processes in schools

Facilitators' practices are embedded in the conditions of the specific sites they operate within which may enable or constrain actions and relationships. Therefore, changes must be considered in context (Clarke and Hollingsworth 2002; Borko 2004; Blossing 2013; Gericke and Torbjörnsson 2022a), for example with regards to what types of participation are possible and to what extent experimentation with new techniques and approaches is encouraged and supported (Clarke and Hollingsworth 2002). Facilitators need clear goals and expectations to succeed (Forssten Seiser and Blossing 2020; Blossing 2013; Borko 2004). They also need to create communicative spaces, although the surrounding network of relationships may not always support this (Grootenboer, Edwards-Groves, and Rönnerman 2015).

The literature suggests that school development processes can be divided into phases (see e.g. Blossing et al. 2014; Forssten Seiser et al. 2023). During *initiation*, an idea gradually gains recognition and acceptance, and internal stakeholders who are particularly committed promote it, sometimes overcoming early barriers to change. Next, *implementation* involves adapting the new idea and scrutinising options for realising it. The context becomes particularly important, as the culture of teaching and learning sets the operating space for what is possible. Educational routines, supportive structures, and internal stakeholders are drivers for change in this phase. During the last phase, *institutionalisation*, change is confirmed and the idea gains acceptance throughout the institution (Forssten Seiser et al. 2023). The implementation phase is the most critical and challenging, but research shows that schools rarely get beyond initiation to reach it (Blossing et al. 2014). During implementation, resistance may arise, and this must be discussed and overcome for the new ideas to be put into practice. The facilitator's role can be expected to differ depending on the phase that a development process has reached.

Implementation also depends on a school culture that supports teacher- and student-led initiatives (Leo and Wickenberg 2013; Mogren, Gericke, and Scherp 2019). Implementing aspirations such as sustainability is challenging in underperforming schools where the culture is not collaborative (Forssten Seiser and Blossing 2020). A culture of individuality and autonomy can sometimes explain teachers' resistance towards change processes (Blossing 2016).

The framework of sustainability change agents

This study uses Van Poeck, Læssøe, and Block (2017) typology of sustainability change agents as an analytical framework. As ESD facilitators drive change towards sustainability in their workplace, they can be regarded as sustainability change agents in the school context. Change agents for sustainability have been studied both theoretically and empirically, usually with a focus on the characteristics that promote their ability to contribute to social change. Sarid and Goldman (2021) studied change agents through the lens of environmental citizenship and values, to understand their motivations, identifying the values of self-transcendence and openness to change (see also Schwartz 2012) as important. Van Poeck, Læssøe, and Block (2017) explored various change agents for sustainability in formal and non-formal educational settings, based on differences in their views of learning and how change is facilitated. Four types were distinguished (see Figure 2), all of which strive to contribute to sustainability but in ways that differ on the basis of two key tensions: firstly, whether the change process and learning

objectives are approached in an instrumental or an open-ended way (vertical axis in Figure 2), which distinguishes planned change and pre-defined learning objectives from change- and learning processes and objectives that unfold along the way and depend on the people involved, and secondly, whether change and learning is approached from a personally neutral (detached) or committed (involved) position (horizontal axis in Figure 2). Especially in the context of sustainability, personal commitment to the issue is not uncommon and engaging in action on sustainability may be important for an individual's identity, which sometimes manifests itself as promotion of certain values and norms.

According to Van Poeck, Læssøe, and Block (2017, p. 8) these tensions should not be considered as absolute, dichotomist categories: rather, they 'help us to analyse and understand concrete change agents' struggles with balancing attention for issues and processes, proper solutions, and a plurality of views'. Change agents may also move between types depending on the context, so the typology should be regarded as dynamic, and change agents' practices should be understood in relation to contextual factors including historical processes, current structures, cultures, and dynamics. The typology also describes several sub-types, see Figure 2.

According to the typology, change agents position themselves across different approaches to sustainability and different forms of learning, since learning is central to the transition towards sustainability (see also e.g. Vare and Scott 2007; Wals 2011). In that sense, change agents can be regarded as facilitators of learning processes. This is particularly true in school contexts as they facilitate the learning of both their students and their colleagues. Van Poeck et al. define the types of learning pursued by change agents in terms of Biesta's (2009) three functions of education: qualification, socialisation, and subjectification, but replacing qualification with acquisition (building on Sfard (1998)). Acquisition is often considered the main function of organised education, meaning that individuals are equipped with the knowledge, skills, dispositions, and understanding; aspects that qualify them to function in society and working life (Biesta 2009). Socialisation refers to individuals becoming part of certain political, cultural, and social orders and relates to the transmission of certain values and norms: education always represents something and is never neutral or value-free. Subjectification concerns individuals' independence from such orders and can be explained as the individuating effect of education, resulting in individuals becoming more autonomous in their ways of thinking and acting (Biesta 2009, p. 40). Figure 2 shows these types of learning in relation to the ideal types of change agent and their perspective of what sustainability transition entails.

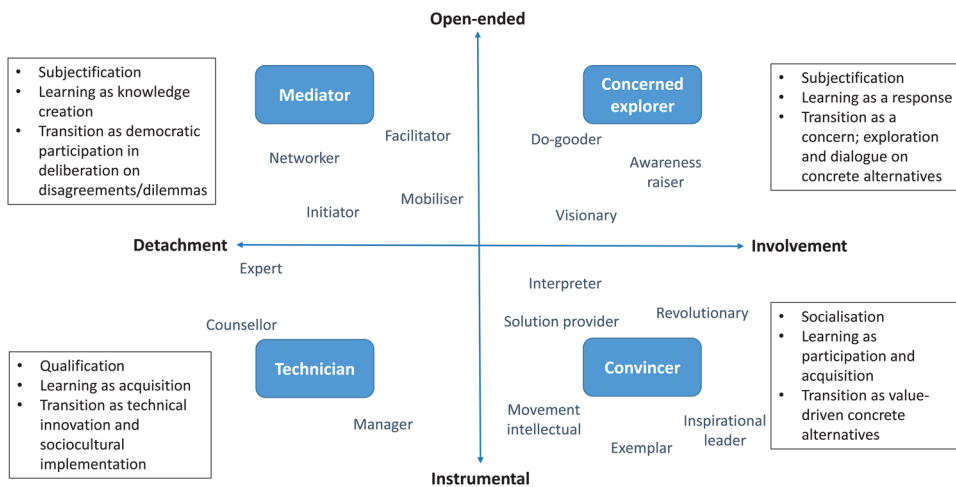


Figure 2. The typology of sustainability change agents, associated characteristics, and sub-types (reproduced by the authors based on Van Poeck, Læssøe, and Block 2017).

This typology of ideal types offers insight into the complex landscape within which ESD facilitators work, and how they navigate this complexity to facilitate change. However, it should be used with caution, as a typology of ideal types risks dealing with descriptions and experiences too statically, resulting in stereotyping and narrowly characterising people rather than a nuanced understanding of their functions and practices in relation to the many contextual factors affecting their scope of action. To reduce this risk, we have chosen to categorise the ESD facilitators specific expressions, which may fall into any or several categories. We are concerned with the type of change that they envision and/or enable, and how contextual factors shape their role, rather than defining their individual positions. This is particularly important as the research shows that change agents' practices should be interpreted in relation to contextual factors (Clarke and Hollingsworth 2002; Borko 2004; Blossing 2013; Gericke and Torbjörnsson 2022a). Hence, we study what they emphasise when reflecting retrospectively on the project and their functions and practices.

Aim and research questions

The overall aim of this study is to generate insight into the roles of teachers in middle leading positions who have been tasked with facilitating transformation towards ESD, and how they can be supported to facilitate such change.

The following research questions are addressed:

- How do ESD facilitators bring about change in schools?
- What contextual factors enable and/or constrain their ability to fulfil their roles?

Method

This study investigates how ESD facilitators having a middle leading position enact their roles and associated practices in the particular context of their school. In line with the argument by Grootenboer, Edwards-Groves, and Rönnerman (2015), we distinguish between leadership and leading and view the latter as a practice under influence of contextual factors: 'understanding leading practices entails understanding the conditions – the enablements and constraints – which makes leading possible' (p. 514). Contextual factors both influence and are influenced by how they enact their roles, which is in turn shaped both by institutional pre-conditions, such as others' expectations, organisational structures, routines, culture, and their personal view on the purpose of the project. How they enact their role also shapes their perceptions of enabling and constraining factors. The analysis builds on both inductive and deductive (i.e. Van Poeck, Læssøe, and Block 2017) approaches (further outlined in the Data analysis section). Figure 3 presents the overall research design based on the objects of analysis and their relationships.

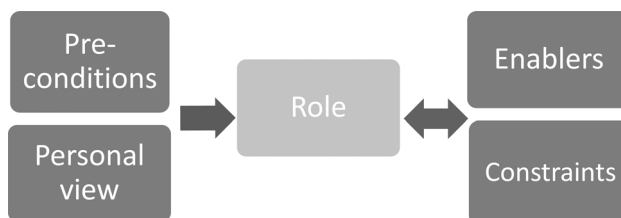


Figure 3. Overall research design and objects of analysis. Dark grey boxes=object of inductive analysis. Light grey box=object of deductive analysis.

Context and sample

In Sweden, national curricula for compulsory and upper secondary school prescribe that teaching in all subjects should illuminate how people's everyday social, personal, and working lives can be adapted to create sustainable development (SD) (The Swedish National Agency for Education 2022a,b). Many subject syllabuses include core content that is relevant to SD. Thus, ESD is the concern of all teachers and subjects and should, according to policy, be implemented systematically (Gericke and Torbjörnsson 2022b).

The ESD project was initiated by municipal authorities in a medium sized town in central Sweden, based on an earlier study in the locality which considered how to improve students' experience of their education as meaningful and relevant and examined the pre-conditions for change. The ESD project was designed to scale up from a few pilot schools to other schools in the municipality and encourage a whole school approach to ESD. This implied integrating ESD fully into the local curriculum and making it visible and explicit in educational goals (Gericke 2022). The intention was to initiate processes which enabled participating schools to develop their own approach to ESD.

The seven ESD facilitators in this study represent five schools (Table 1) (for more detailed information about the schools, see also Forssten Seiser et al. 2023). A number of pre-schools also took part in the project, and their experience is reported in Borg and Gericke (2021). The project lasted for three years and was jointly funded by an external organisation and the municipality. Five joint seminars were held to provide input from external researchers and practitioners: the first three focused on developing teachers' self-efficacy and knowledge about ESD, and the last two on making teaching more holistic and pluralistic, using interdisciplinary and action-oriented approaches. ESD facilitators were involved in designing these seminars with school leaders and project leaders and played a central role during them. Between seminars, the ESD facilitators were intended to support teams of teachers through discussions and practical work on ESD in each school. Thus, they were meant to function as leaders for professional and collaborative learning amongst their colleagues, empowering them to align their teaching practices with ESD. A more detailed description of the seminars is given in Boeve-de Pauw et al. (2022), who studied the project's impact at the teacher level longitudinally, and in Gericke and Torbjörnsson (2022a, 2022b), who investigated teachers' experiences of the project and how their teaching practices changed in response to it.

Two project leaders (the co-authors of this paper) led the overall process for all participating schools, simultaneously providing the research foundation for the work and acting as researchers. The project leaders held regular meetings with both facilitators and school leaders. At the start of the project meetings were held with ESD facilitators as a group and school leaders as a group. This was designed to build networks and enable collaboration and synergy between the schools. Towards the end of the project, meetings were more often held within each school, as they had developed in different directions and needed to focus on their specific issues. The project leaders met with school leaders in their schools once per semester to plan and discuss the project and any leadership and organisational issues.

The ESD facilitators met once a month with the project leaders and each other, to support each other and discuss issues associated with the processes within each school. Two schools had two facilitators, and the remaining three had one facilitator.

Table 1. Overview of schools.

School	Level (age of students)
School 1	Lower secondary/secondary (10–16)
School 2	Secondary school (13–16)
School 3	Primary school (6–9)
School 4	Lower secondary/secondary (6–16)
School 5	Upper secondary (16–19)

Data collection

Seven interviews with the ESD facilitators were conducted between November 2020 and April 2021, after the project had ended. Two facilitators, who had moved jobs during the project, were not included.

The semi-structured interview guide¹ covered three aspects of their experiences:

1. How do the ESD facilitators view the purposes and goals of the development project and their own role?
2. How do the ESD facilitators view their own role in relating to their colleagues and their school leader?
3. Which organisational factors and/or practices were central to enabling the ESD facilitators to pursue the stated goals?

The interviews took place using video conferencing software and lasted for between 30-80 min, depending on how much the respondent wished to say and the time available. The interviews and subsequent analysis were undertaken broadly in line with a phenomenographical approach, with a focus on respondents' views and experiences. Follow-up questions were asked in light of interviewees' responses to the main questions, so the conversation followed their lead (Dahlgren and Johansson 2015; Bruce 1994; Marton 1988). At the start of each interview, the interviewer emphasised that the focus was on the respondent's own experiences and views, and that there were no right or wrong answers to any of the questions. The interviewer aimed to understand both actual and implied meanings so, at points, explicitly reformulated what was said in order to verify their interpretation of implicit messages (Kvale 1997, p. 36).

Audio recordings of the interviews were transcribed into text documents which were used for the thematic analysis. Excerpts of relevance for this publication were then translated into English.

The study follows the guidelines of The Swedish Research Council (The Swedish Research Council 2017). Before the interviews, all participants gave their informed consent after providing them with information about the purpose of the research and the contents of the interview. After each interview, the participants were asked for renewed permission to use their answers. The ethics of the study was reviewed by the Swedish Institute for Educational Research under project number 2017-00065.

Data analysis

The analysis focused on ESD facilitators' perspectives and experiences rather than on them as individuals, and it considered both similarities and differences. To further refine the analysis, the phenomenographical approach was combined with thematic analysis (Terry et al. 2017). Thematic analysis aims to identify, analyse, and report patterns or themes within a data set, to organise and describe it in rich detail (Terry et al. 2017). The analysis involved four phases:

Phase 1: Data-driven thematic analysis of

- a. ESD facilitators' descriptions of *their views of purpose and goals* of the development project
- b. ESD facilitators' descriptions of *their roles and experiences in relating to colleagues and school leader*
- c. ESD facilitators' descriptions of *factors central to their ability to fulfil their role*.

All statements of relevance were coded and collected under each sub-theme identified.

Phase 2: Analysis of the statements identified above that could be associated with a certain type of sustainability change agent, based on the typology outlined above. Statements relating to a. and b. above were analysed in light of: the two axes of personal involvement versus personal detachment and instrumental versus open-ended approaches; role and sub-role descriptions; and the type of learning relevant to the different types, as described in the typology. For the latter we drew primarily on statements relating to a. above, since it had the strongest connection to learning.

Phase 3: Analysis of perceived enabling and constraining factors (c. above), in relation to types of sustainability change agents as identified in phase 2.

Phase 4: Review of contextual factors in the schools as described by the ESD facilitators.

The procedure of each of the four phases is described in detail below.

Phase 1: First, the researchers identified text sequences relevant to the study. Next, data-driven thematic analysis based on an inductive approach was used to refine comparison of text sequences by coding their contents. Then the codes were grouped by placing sequences of text under headlines of codes in an Excel spreadsheet. To highlight similarities, excerpts representing the same code were placed under the same heading in the spreadsheet.

Phase 2: Statements about facilitators' views on the purpose and goals of the project and descriptions of their roles were analysed using a deductive approach based on the typology. Interviewees' descriptions of their roles and practices were related to roles and sub-roles in the typology, while their descriptions of purpose and goals were analysed in light of the learning associated with each type, as described in the typology. Each interviewee was considered to have a dominant type, although not to the exclusion of other types. Views on learning were well represented in the data, which is not surprising given the educational context for this study.

Phase 3: This phase focused on the enabling and constraining factors emphasised by the different types of change agent identified, seeking out patterns in the relationships between these types and the factors they emphasised. The enabling or constraining factors mentioned were then organised into broader themes and labelled according to their meaning. In analysing and reporting themes' meanings, particular emphasis was placed on the differences between them. For example, the category *shared responsibility* could refer to facilitators and other teaching staff sharing responsibility for the process:

I had this role, although I actually had it, I was the one who represented the school at meetings and had contact with you. But then, when I came back to school I had my colleagues, we were a group all the time working here at the school so I was never alone...

Here, the ESD facilitator describes that (s)he represented the school at meetings but in her/his school (s)he felt that the whole group of colleagues was responsible. *Shared responsibility* could also refer to two facilitators in the same school sharing responsibility with each other:

...there was a time to do this and there was a colleague to work with, and there were, like, various different networks of contacts around in various different contexts, so I think it was probably a good pre-condition that it was inspiring and so on, it was a good way in.

Here, the ESD facilitator highlights the shared responsibility with the other ESD facilitator at their school and external networks for advancing the work process.

Phase 4: The final phase comprised an overall review of the seven interview transcripts to search for additional important contextual factors. This reading was performed in light of the overall school context.

Results

This section is organised around the four types of sustainability change agent, showing how ESD facilitators' expressions reflected the types of change described in the typology. When

talking about types below, we mean expressions reflecting perspectives typical of this type. We view the ESD facilitators as change agents who facilitate particular change processes, which we describe in the first part under each main type, and under certain conditions, which we describe in the second part under each main type. For each type, we first report how change was brought about by the ESD facilitators and what characterises the change processes they emphasise. We then identify the factors that enable and constrain their ability to fulfil their role.

Each type is exemplified mainly by one or two ESD facilitators, although individuals' statements could be associated with more than one type. The seven ESD facilitators are labelled F1-7.

The technician

This type is exemplified mainly by F2 and F3, whose expressions were characterised by an instrumental orientation and personal detachment. They described ESD facilitators as providing direction to change processes based on their expertise, providing insights, facts, and knowledge. They felt that change happens by providing colleagues with inspiring examples and encouraging explanations.

...so that you get [to know about] what is up to date [...] and would like to know in a concrete way how you can incorporate it into your teaching, which we also demonstrated on a number of occasions. (F3)

They did not relish having to formulate their own goals, preferring to work to a pre-defined purpose and seeing learning as the acquisition of specific content with a focus on results over process. These facilitators felt that the teaching content should include the SDGs.

...the most important thing has been to provide a basic understanding that sustainable development and not least the global goals are central to the school's operations and that every teacher just asks themselves every now and then how do I incorporate this into my teaching, what points of contact are there in what may appear to be other content, but how can I link [the teaching] to the global goals? (F2)

The sub-roles of experts and counsellors can be identified in these facilitators' expressions, as they mentioned providing colleagues with expert advice on specific issues.

...we talked about the work that we did and that there were those who were inspired by it, but then also there were a few who came over to have a dialogue and discussion about what they were doing and whether it fit into this...(F3)

They also pointed towards a managing role with an emphasis on governing the overall change process.

[we]...discussed and reasoned about what was relevant right now [...] and what was in the pipeline, what was ahead to keep an eye on and tried to discuss about how to then share this in a good way to the rest of the teaching staff...(F3)

Important contextual factors

We identified three themes from technician type expressions which relate to the factors shaping the facilitators' ability to fulfil their role: *pre-conditions for the change process*; *the school leader as driver*; and *the ESD facilitator as process manager*.

Pre-conditions for the change process includes two further sub-themes. The need for an *explicit and clear structure* for the work process referred less to collaboration between all staff and more to jointly scheduled time for the ESD facilitators to develop the way forward together.

...I still thought it was important that there were two of us [...], and that there was a dedicated time to talk about it. (F3)

The *lack of expectations from the school leader* concerned teaching staff as a whole, specifically a requirement that each teacher should provide an account of how they changed their teaching to align with the new goal.

School leader as driver also includes two sub-themes. The first concerned *active leadership by the school leader*, specifically the school leader signalling the importance and priority status of ESD development.

[We felt]...that it should have been designated as a very, very important strategic goal to work towards. If it had been first-teachers² doing this, like, then the message received would be something completely different. It is [important] to state that they have chosen to do [it] like this as [an instruction that has come] from school management, the information that comes from there is important. (F3)

The second sub-theme concerned *lack of engagement from the school leadership*; both signals from, and regular meetings with, school leadership are regarded as essential, but were felt to have happened too infrequently.

...I think there would have been better conditions, maybe a little closer contact and commitment from the school leadership too, I think this was a slight lack at times. (F2)

ESD facilitator as process manager includes three sub-themes. The first, *shared responsibility*, referred to sharing between the school's ESD facilitators rather than among all staff. The second focused on the need for *someone [to run] the development work*: facilitators felt that, without someone having this role in their job description, not much would change. The third, *everyone should take part*, emerged as a constraint in that teachers' differing views and experiences created some resistance to change.

[It is]...difficult to control the activities which in the end are largely planned and carried out by, in reality, different teachers with long experience, so to bring in something additional, something new, has been and is quite complicated, I think. (F2)

The mediator

Expressions associated with the mediator type, best exemplified here by F1 and F4, focused on open-ended and collective processes based on reflection and creative interaction. One facilitator described how teachers struggled to operationalise ESD, which they perceived as highly theoretical, into concrete teaching practice.

...what has been most difficult for us is the discussions, the conversations around things like, what is this, what does it stand for, what does it stand for to me, [...] there are many difficult words and there are very difficult things to think about. [...]. (F1)

F1 experienced a tension between a prescribed direction that proclaims a specific way of teaching, and the value of open-endedness and co-creation, emphasising the importance of initiating collaborative processes. Similarly, another facilitator described how co-thinking and co-creation processes need facilitation, pointing to the challenges associated with a lack of collegiality and shared vision. Their expressions indicated that change in terms of students' learning processes occurs through democratic participation. Facilitators describe how they further the ESD development process by encouraging and taking part in the planning of new themes in teaching, as the planning of themes is the responsibility of different teams of teachers. Thus, the initiator and facilitator sub-roles are expressed, seeing themselves as process experts who create the conditions for collaborative reflection.

But our idea from the beginning was that it would roll around, but I think it is development, so for us this is changing and we have learned and are learning so we will see where we end up. (F1)

Elements of the mobiliser were also expressed: the person who activates others through good communication.

...inspiring the teams of teachers and perhaps discussing proposals and ideas was difficult, and it was difficult to be able to inspire everyone, which was also one of the things that we said was important, that we got everyone on board. (F4)

The networker role, bringing diverse actors and perspectives together to stimulate curiosity, was also mentioned but only briefly.

Important contextual factors

Three themes concerning contextual factors emerged from the mediator perspective: *agency and pedagogical vision*, *transformation of theory into practice*, and *direction from project leaders*.

Under *agency and pedagogical vision* the first sub-theme was *shared responsibility*, and the two facilitators differed as to what this means. While one highlighted the strength of being two ESD facilitators who work together on the development process, the other described the strength of co-creation among colleagues.

...then you have to be extremely strong I think, or that the school leader has somehow been very clear in the description or assignment, or that everyone gets time [...], because otherwise I think it will be very difficult to run it all by yourself. (F1)

The second sub-theme, *broad anchoring among the staff*, emerged in comments by both facilitators. However, their pre-conditions for this differed as one school had a clear work structure for collegial discussions while the other did not.

[It is important]...that it is anchored [...] and perhaps also not dependent on coordinators³ and the staff who are at the school but that it is something that we all work with, everyone is involved in it and then, yes, I am the coordinator, but even if I were not there it still works, ... you have the routines and can continue with the work and the goals. (F4)

Under the sub-theme of *joint foundation*, one facilitator described the need for collegial work to discuss mutual elements such as teaching content. During the process, their understanding of ESD developed from recycling and caring for nature into something much broader. Another facilitator explained how their collegial work became more effective as their shared understanding of ESD grew.

Transformation of theory into practice encompassed six sub-themes. *Keep focus and direction*, was illustrated by one facilitator who noted that at least one representative of the ESD group always joined the teachers responsible for planning the school's thematic work⁴. Both facilitators described the importance of de-selecting other projects or tasks that do not align with ESD. With regards to *professional learning*, both facilitators emphasised the inspiration that the professional development process offered and found the collegial conversations with other ESD facilitators rewarding. Both also mentioned an *explicit and clear structure for collaboration between all teaching staff*, although their pre-conditions for this differed.

...we have succeeded least in creating the conditions at the school that would mean that we have common forums where we can meet [...] and then it was very difficult to have conversations about ESD [...], that you really bring it into the organisation and the planning from the beginning, that there is [allotted] time. (F4)

A sub-theme we labelled *early into doing* referred to taking action right away, evaluating and revising later as necessary: this approach was adopted because ESD seems abstract and distant from everyday teaching and therefore difficult to plan perfectly from the start.

...therefore, I think it has been good that we have done or are doing, because certain things happen in that too [...], it becomes more concrete what is it, what should we work on, [...], if we hadn't done that, then we would have been stuck thinking 'oh, how difficult this was to talk about...'. (F1)

The sub-themes *everyone should participate* and *lack of time for collegial discussions* highlighted constraints to the process. One facilitator suggested that it would be more fruitful to let those who are willing get started straight away, and get others to engage over time. Along similar lines, another described the challenge of getting all teachers to contribute to the development work.

...we were supposed to get everyone involved [...], it was very difficult to get anything going even though we had a ready-made plan and idea... (F4)

...we may not have had enough time [...], the school leader has to make sure we have time for these conversations. (F1)

The last theme concerned the importance of *direction from project leaders*: one facilitator highlighted the need for feedback while another emphasised the need for guidance concerning expectations on what their role as ESD facilitator should be.

...then it is up to me to structure something with the school leadership and ... it should perhaps be clear to me that you expect me to do that. (F1)

The convincer

The convincer type, exemplified best by F5, is typified by personal commitment and a view of sustainability as a value-driven, instrumental process.

...what should we teach, [...], what opportunities should we see, and what do we need to teach children to become good citizens? (F5)

F5 highlighted the importance of working on attitudes and social climate, placing the socialisation function at the centre. In this view, it is important to raise people's consciousness and activate and re-socialise them, and learning involves acquiring the particular attitudes, identities, and norms needed to become a good citizen.

F5 described that, when trying to engage colleagues and students, they found it more fruitful to set an example and share ready-made teaching materials rather than getting stuck in discussions. However, because this was seen as rather theoretical, it was still difficult to operationalise ESD.

It was easier when you had ready-made material to present and hand out. [...]. ...when you did things concretely yourself, it was much better than just talking, discussions. (F5)

One apparent sub-role was the solution provider, who can supply other teachers with ready-to-use materials.

...if you heard some or someone talking or a discussion or something like that, you could guide, I have material, or go to that page or look there, I can help... (F5)

The exemplar role was expressed when talking about providing a model that can be imitated by others over time. The difficulty with this is to create materials that work for different ages and for different teachers.

...having parts where you provide a little input can inspire others and it can be like ripples on the water instead of doing nothing... (F4)

Important contextual factors

Three types of enabling and constraining factors emerged from the convincer perspective: *demands for participation and focus*, *conditions for executing the task*, and *ESD facilitator's own development*.

Demands for participation and focus included two enabling sub-themes and one constraint. With regards to *broad anchoring*, one facilitator emphasised the importance of demanding that everyone be involved in the process.

Then it should be, [...], rooted in the fact that this is what we are going to do, [...], what goal should we have, where are we going now and when should we have [got there] [...], it has to be evaluated and it has to be analysed if something has happened, have we done what we said, everyone has to be on the train then... (F5)

This sub-theme aligned with the second, *clearly stated demands for everyone to participate*. One facilitator felt that participation should not be voluntary as it caused difficulties during joint meetings if some people were not engaged. However, the directive must be clearly motivated. One constraint related to new staff joining a school as this disrupted establishment of a shared approach to pedagogy. *Conditions for executing the task* included the sub-themes *explicit and clear structure for collaborative work* and *clarity concerning overarching purpose*. The first had two aspects: the need for structures for collaboration between ESD facilitators and amongst all staff. The second emerged from the facilitator's need for a clear assignment and for other development areas to be de-prioritised.

...say that you are given a specific assignment, for example, this is what you are supposed to do and it is sanctioned... (F5)

ESD facilitator's own development included *professional development* and *participation in networks*. The expressions indicated how meetings with project leaders and other ESD facilitators inspired the facilitator by offering examples of how things could be done. However, in practice, few of the materials produced were actually used by other teachers.

It was very good to be able to participate [...] in these meetings [...] because there you got some ideas and thoughts yourself, [...]: 'I could do like that'. And we tried here at school too, [...] ... but it, kind of, petered out. (F5)

An important pre-condition was that the facilitator felt prepared to communicate and stand fast about what the change actually implied. Being part of a network was important for showing colleagues that others had succeeded in operationalising ESD in their pedagogical daily work.

...it has been so very good because [...] what some might have experienced as very difficult was not that difficult. Because others have done it, and they told us about it, so it has been a very good process for us in the staff. (F5)

The concerned explorer

The concerned explorer type, exemplified mainly by F6 and F7, emphasises personal commitment, like the convincer, but conceives of change as a more open-ended process.

...it was very broad and had connections to a lot of other work at the time, so that was the entry point I tried, but this [their own focus for the development work] was something very important to the staff that you feel a sense of involvement in, and that's why I wanted to connect it [the ESD project] to that too... (F6)

In this perspective, values are treated as input to exploratory dialogue and learning, rather than as things that should be conveyed to others. One of the facilitators expressed the challenge of discussing and harmonising divergent personal views before proceeding to concrete actions, given the breadth of ESD. Nonetheless, a diversity of views can be inspiring to others. They talked about the importance of connecting the work in school with wider society, to

create authentic learning experiences for students with the purpose of contributing to a better world.

...it should feel like we are doing something [...] for real...with the purpose, of course, to create a better world. (F7)

Expressions about purpose and goals emphasised the need to engage other staff. Staff struggled to find a shared vision that aligned to their school's and students' specific challenges. Finding this focus was felt to be a crucial pre-condition for advancing the collegial process.

...we needed a common ground, ... and yes that's actually what we needed to work on more and haven't always succeeded so well either. (F7)

...it was about connecting it consistently to everything else we did at school, from putting it together to motivating and reasoning based on it [...], so that was a prerequisite for moving forward on the matter. (F6)

The concerned explorer's perspective on learning emphasises diversity in norms and values, emphasising subjectification as an educational purpose and teaching which prioritises exploratory approaches and perspective-shifting. Facilitators expressed the centrality of values but from an exploratory point of view, and one wondered how they could collaborate with colleagues to make students engage more in sustainability issues.

The only sub-role identified relating to the concerned explorer was the awareness raiser, who strives to arouse interest and calls for other teaching staff to pay attention to sustainability issues.

The problem was that there were some who thought this job was important and good and then some who thought it was too much, but we pushed on anyway... (F5)

Important contextual factors

The thematic analysis yielded three themes in this instance: *school leader as driver*, *conditions for the ESD facilitator*, and *guidance from project leaders*.

Under the *school leader as driver* theme the sub-theme *the school leader's active leadership* implied that leaders need to place the development process at the centre of teachers' work. According to one facilitator, encouragement and active support from school leadership was important in creating a sense of commitment and joy. Another expressed the importance of active leadership in legitimising the ESD facilitator's role.

...the school leader then, [...] drives the issue and is committed and legitimises it among the staff and, all the time kind of promotes it and yes, remember that you are working on this and how are we going to do it and [...], otherwise it will be difficult... (F6)

The sub-theme *clarity concerning overarching purpose* suggested that the overarching purpose should be clear, explicit, and communicated to all staff at an early stage. The opposite, i.e. vagueness about the overarching purpose, was mentioned as a constraint, because it left staff to define it themselves.

...that perhaps the overall purpose from the beginning, when the whole project [started] was more clearly formulated and communicated to the staff. (F6)

This relates closely to the *initial anchoring process* under *conditions for the ESD facilitator*, which one of them saw as essential for success, although it had been weak in their school. With regards to *shared responsibility*, another facilitator expressed the benefits of having more than one facilitator.

... you have a shared responsibility and ... you push forward, like, now we have a meeting, now we do this, sort of, and then it's somewhat up to how you are as a person [...]. I think it would be good to have in order to complement each other a little there. (F7)

We identified two aspects of the sub-theme *clear mandate*: firstly, motivating the use of time during in-service training days and, secondly, participating in the ESD facilitator group which met regularly with project leaders. Both of these were effective in building a mandate.

Two sub-themes of *guidance from project leaders* emerged. Firstly, joint meetings with project leaders and other facilitators provided facilitators with *professional development* opportunities.

...it was good that we had meetings, that you felt you got input. [...]. Otherwise it's easy to get consumed, and then it might almost disappear [...], but it's important that you yourself [...], that you get some new fresh ideas. (F7)

Secondly, getting the right level of *input/feedback from project leaders* was challenging. Individual feedback was not best delivered in joint meetings, but those discussions should focus on how teaching aligned with the wider world and how the project could connect with it.

...it's always easier with the concrete and tangible, which is what you often get stuck on [...], it's about constantly going back to how this connects with everything else, [...], what we do at school and the world as such and climate threats and everything like that; how it is connected and where we are in this project [...], I think both at school and then, in the project as a whole. (F6)

Discussion

In this section, we build on Van Poeck, Læssøe, and Block's (2017) original model to show the typology of sustainability change agents in the school context (inner circle, Figure 4) and indicate the main contextual factors which influence their roles (outer circle, Figure 4), as found in this study. In our discussion we expand further on the findings to address the research questions, starting with a discussion about different roles and how they contribute to change in their schools. We then explore enablers and constraints to fulfilling those roles, highlighting both varying and shared contextual factors.

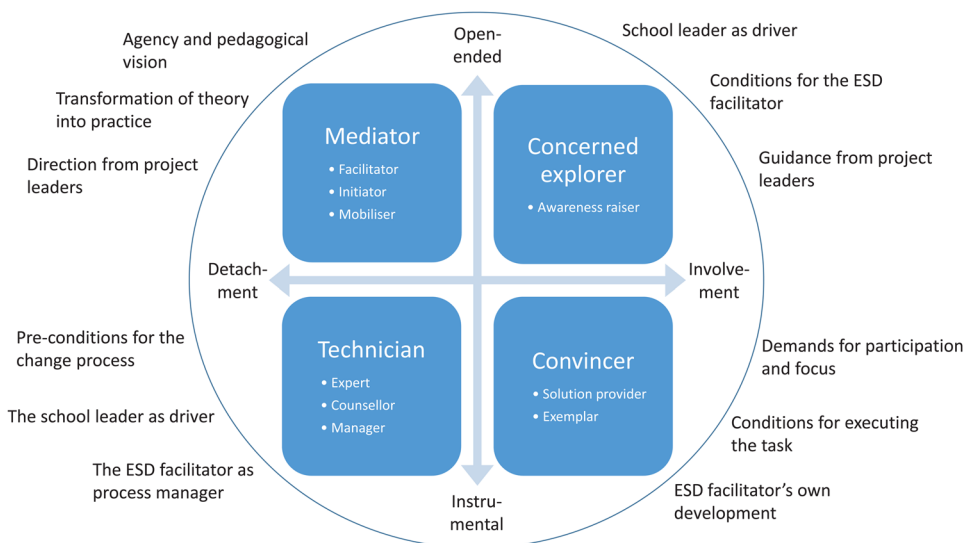


Figure 4. A summary of the results, showing the roles and sub-roles emphasised across the two axes (inner circle), and the main contextual factors important to fulfilling different roles (outer circle).

ESD facilitators' contributions to change in schools

As confirmed by our findings, the instrumental, neutral, and expert approach associated with the technician type (Figure 4) risks providing too little space for the types of discussion which enable a shared vision (Mogren, Gericke, and Scherp 2019; Forssten Seiser and Blossing 2020) to develop amongst all teachers. However, such discussion is important in moving ESD development beyond simply offering new teaching content. The qualifying function of education (Biesta 2009) is in focus (Figure 2), placing emphasis on the acquisition of certain contents such as the SDGs through result oriented (instrumental) learning processes based on facts and knowledge. Shifting the teaching towards ESD has in previous studies proved difficult (Borg et al. 2014; Boeve-de Pauw et al. 2015; Boeve-de Pauw et al. 2022), and opening up for such discussions appears as essential.

The collaborative approach of the mediator, functioning as initiator, mobiliser and networker (Figure 4), may be more effective in this regard. Similar to the technician, the mediator type is characterized by personal neutrality but differs in the open-ended orientation towards the change process (Figure 2), which can mitigate threats to teachers' autonomy by inviting co-created solutions and cultivating a culture of discussion as advocated in the literature (Blossing 2016; Leithwood 2016). As a result, the learning processes have the possibility to focus on any or all the functions of qualification, socialisation and subjectification (Biesta 2009). However, it can be excessively time-consuming and risk the process getting stuck in discussions rather than generating action. One facilitator addressed this by explicitly encouraging early action alongside ongoing discussion. In this way, they may have been able to establish a school culture that supports initiatives and influence of teachers and students, which is essential if the process of change is to reach beyond the stage of initiation (Blossing et al. 2014, Leo and Wickenberg 2013; Mogren, Gericke, and Scherp 2019).

The convincer approach focuses on the acquisition of particular values, attitudes, and norms, pursuing change by highlighting good examples with emphasis on the socialisation function (Biesta 2009) (Figure 2). This only works to the extent that everyone concerned participates, and the personally committed and instrumental approach, for example as solution provider (Figure 4), risks limiting the emergence of other perspectives on what ESD should involve (Fransson, Van Lakerveld, and Rohtma 2009). Nonetheless, its focus on personal commitment can be stimulating in the context of communicative and collaborative organisational cultures (Wickenberg 2016; Grootenboer, Edwards-Groves, and Rönnerman 2015).

The concerned explorer approach offers the potential to influence current norms, highlighting the multiplicity of perspectives and overcoming some of the limitations of other approaches in terms of building shared vision (Mogren, Gericke, and Scherp 2019) and respecting teachers' autonomy (Forssten Seiser and Blossing 2020). As awareness raisers (Figure 4), they can potentially stimulate interest and influence the normativity of the organisation (Wickenberg 2016). However, there is a risk that the focus is shifting towards teachers learning rather than the teaching itself actually changing, in line with the argument by Blossing et al. (2014). The process oriented and authentic learning with emphasis on pluralism and shifting perspectives is consistent with ESD's aims to develop students' skills for critical thinking and democratic decision-making (Öhman 2008; Berglund and Gericke 2022), and the subjectification and socialisation functions of education (Biesta 2009).

Enabling and constraining factors for fulfilling facilitators' roles

This section focuses on the contextual factors that enable or constrain ESD facilitators' roles, including those that differ according to the four identified types. Participants in this research highlighted several common factors, both at theme and sub-theme level. The following

discussion draws out the connections between these and their roles, enabling us to make recommendations about how to better support ESD facilitators.

As outlined earlier, successful change processes require a *shared vision* (Mogren, Gericke, and Scherp 2019). This was reflected by the technician perspective's emphasis on pre-conditions for change and the need for teachers to provide account of how they changed their teaching, and by the convincer and concerned explorer perspectives' concern for proper anchoring of the process (Figure 4). The mediator perspective emphasised agency and pedagogical vision. The literature has established that two central elements in developing shared vision are school leaders' pedagogical leadership and the prevailing school culture (Leithwood 2016; Grootenboer, 2018). The mediator approach to change is achievable where these factors are in place, but seems likely to fail where they are not. Where there was little consensus about the meaning and purpose of ESD, facilitators taking a technician approach struggled to effect change. It was easier to include new teaching content, than to change teaching approaches. However, weak integration between subjects creates a risk that students encounter environmental, social, and economic perspectives on SD in separated rather than integrated ways (Berglund and Gericke 2016). Operationalisation of ESD in one of the participating schools became focused on new SDG-related content at the expense of a more integrated holistic approach (Berglund and Gericke 2016). This was also identified in statements associated with the convincer type. Their approach was to emphasise that the change process did not imply something completely new or different, rather like the technician facilitators, and the SDGs became a focus within the teaching of different subjects. The concerned explorer perspective emphasised the need for freedom and flexibility in the approach to change, rather than concrete examples of how ESD teaching should be performed. This could be achieved by, for instance, formulating an overall purpose that answers the 'why' question (purpose) rather than the 'what' (content) and 'how' (methods) questions. The latter two would then constitute the focus of teachers' development work. To summarize this discussion, in school contexts where a shared vision or the preconditions for it were lacking, the favoured approach was to adapt rather than transform teaching.

Another contextual factor addressed from all four perspectives was *collegial culture and/or organisational structures for collaboration*. Technicians emphasised the need for an explicit and clear work structure as a pre-condition for the process, and suggested that the difficulty of getting everyone to participate, underpinned by the autonomy and resistance of teachers, indicated a poor collegial culture (Figure 4). Collegial culture and organisational structures for collaboration also came up when mediators mentioned anchoring change among all staff and establishing a joint foundation, when time constraints of collaboration were noted, and when concerned explorer and convincer representatives expressed the desire for a clear overarching purpose. A facilitator's ability to encourage reflection and explore beliefs and practices is central to teacher development (O'Dwyer and Atli 2015; Jeanpierre, Oberhauser, and Freeman 2005). This is impossible where collaborative spaces do not exist. Combining means- and goal-oriented implementation strategies can be effective ways of achieving change in teaching (Blossing et al. 2014). In this case, 'means' would imply increased understanding of ESD through group discussion and 'goals' would mean better instruction through increased collaboration between teachers. One ESD facilitator reflecting the mediator perspective who experienced a collegial culture from the start managed to establish both strategies by taking a 'start doing instead of getting stuck in discussions' approach.

Where collaborative structures were in place, facilitators adopting a mediator approach experienced a contradiction between leading movement towards a specific goal and establishing joint agency. Discussions are not a virtue in themselves: although teachers may learn from them this does not automatically translate into changes in their teaching practice (Blossing et al. 2014, p. 20). Hence, convincers in this study were concerned to move forward using particular materials rather than getting stuck in general discussions. Expressions associated with the concerned explorer type indicated that a way forward may be to start working to establish the

conditions for ESD, i.e. a collegial and development-oriented culture, rather than ESD itself, but this was mentioned in the context of active leadership, which is the next factor addressed by the facilitators. In summary, schools in this study appear to have struggled to establish the type of collegial and development-oriented culture as recommended by Forssten Seiser and Blossing (2020) that would support fuller implementation of ESD.

Active leadership is the next common factor. In one school where a shared vision was established, the mediator perspective emphasised that pedagogical leadership by the school leader helped to establish a culture of learning amongst teachers (Leo and Wickenberg 2013) and initiative-taking by both teachers and students. Technician expressions valued clear expectations by school leaders and requirements on individual teachers to demonstrate change. They felt that it would be difficult to advance the process without regular meetings with and signals from the school leader. Concerned explorer perspectives highlighted that a committed school leader makes it possible to go beyond establishing the pre-conditions for ESD and begin actual implementation. Their emphasis on an initial anchoring process also points to the active role of the school leader in establishing awareness of the need for change at an early stage. Meanwhile, convincer and concerned explorer types both noted that it was difficult to run the change process themselves, and that school leaders needed to play an active role in engaging in and prioritising ESD. School leaders were important in establishing a mandate for change in general and facilitators in particular, echoing the findings of previous studies (Leithwood 2016; Grootenboer, Edwards-Groves, and Rönnerman 2015). Mediator perspectives from school contexts without collegial culture and spaces for collaboration emphasised the need for a clearly communicated role description for the facilitator, to prevent conflicts arising between the school leader's and teaching staff's expectations.

Contextual factors are themselves shaped by the stage a school is at in terms of initiation, implementation, and institutionalisation of change (Blossing et al. 2014; Forssten Seiser et al. 2023).

The typology of sustainability change agents in the school context – strengths and weaknesses

In this study, placing facilitators' expressions in light of Van Poeck, Læssøe, and Block's (2017) typology was relatively straightforward, not least because the typology focuses on learning, a function which the facilitators were engaged in daily. Based on our findings we observe that roles and practices are intertwined, and therefore we use the term 'functions' to emphasise the importance of context when it comes to enactment.

The typology is intended as a heuristic tool that can be used for theoretical, analytical, and reflective purposes. It has its limitations, some of which are particularly relevant to this study. Firstly, it risks oversimplification and decontextualization: ESD facilitators operate within a dynamic landscape that influences their functions in complex ways, and a typology based on ideal types cannot fully account for how they navigate this complexity. In practice, when facilitating change processes, some actions may be open-ended and some instrumental. An individual can be personally committed to some aspects of the change process and personally neutral about others. The two axes in the typology can represent extremes (Van Poeck, Læssøe, and Block 2017) while people's practices are generally positioned somewhere between those extremes, implying that reality is not black or white and there are overlaps between types. Nonetheless, as argued by Van Poeck and colleagues, each of the four ideal types represents certain qualities that are not fully covered by other types. In this study we have aimed to gain insights into ESD facilitators' roles and practices when facilitating change processes in multifaceted school contexts, and we found the two axes in the typology relevant and useful while acknowledging its limitations. It could be interesting to conduct further research by exploring ESD facilitators'

functions through combination of roles in the typology, for example with focus on teaching and learning.

In the project under study, the focus on ESD may have favoured the mediator type, with its focus on personal neutrality and open-endedness. The concerned explorer similarly fit well. Seminars and project meetings emphasised pluralistic, non-normative teaching approaches, and each school was encouraged to create their own holistic pedagogical idea of ESD (Mogren 2019; Mogren, Gericke, and Scherp 2019). Not all sub-roles in the typology were enacted in the five schools in this study (Figure 4). It may be that the sub-roles of do-gooder, visionary, interpreter, revolutionary, movement intellectual, and inspirational leader (Figure 2) (Van Poeck, Læssøe, and Block 2017) are less common in the school context. However, the low number of participants means we cannot make such generalisations. Further research is needed to be able to generalise to larger populations.

Conclusions

This study has offered insight into change processes brought about by teachers in middle leading positions who are facilitating transformation in line with ESD in schools. The findings indicate that the change brought about by ESD facilitators can be explained through four patterns which differ in terms of their emphasis on instrumental versus open-ended approaches and personally committed versus personally neutral approaches. In result-oriented approaches, pre-defined content (technician type of change) and pre-defined values (convincer) constitute central learning objectives, while in process-oriented approaches the focus is on co-creation of knowledge (mediator) and authentic learning experiences including elements of perspective shifting (concerned explorer).

Despite emphasising different types of change processes, ESD facilitators generally highlighted similar contextual factors when it came to their ability to fulfil their roles. These suggest directions for supporting different types of ESD facilitators going forward. Overall, shared vision is the most important contextual factor. This, together with collaborative culture and organisational structures, is essential to the success of the mediator role. Without these conditions in place, the mediator role risks failing while the instrumental change processes associated with the technician and the convincer roles remain more achievable. Resistance is a potential challenge associated with instrumental and personally committed approaches. The open-endedness and personal commitment of the concerned explorer may be effective even without these conditions, but we found that the focus shifted towards establishing a culture and spaces for collaboration rather than actual ESD implementation.

Active leadership is essential from the perspectives of all roles. However, different roles mean different things by this. A committed school leader who has established a staff-wide understanding of the importance of ESD enables the mediator role. For the concerned explorer type, active leadership is needed to run and legitimise the work and enable implementation of ESD, whereas technician and convincer processes of change are easier to facilitate if the school leader runs the development work, sets clear goals, and provides a mandate for the ESD facilitator.

Implications

This study set out to generate insight into the roles and functions of ESD facilitators working in middle leading positions in schools implementing a whole school approach to ESD. It aimed to clarify the relevant contextual factors and create knowledge about how ESD facilitators can be supported to fulfil their role. Above all, our findings illustrate the value of ESD facilitators for schools that strive to align their teaching with ESD.

We have shown that the ESD facilitators endeavoured to implement ESD in their schools and among their colleagues in dedicated and ambitious ways. The study has provided insight into different roles that ESD facilitators can take and/or be given. The results suggest that open-ended processes have more potential than instrumental approaches to change how teaching is performed and not only its content. We have shown that co-creative and critical discussions are essential to changing teaching in line with ESD. It also seems that personal commitment and the promotion of certain values and norms can be an asset if treated as input to discussions rather than endpoints.

We recommend that schools working to implement ESD establish ESD facilitators from amongst staff at middle leadership level. Several factors are particularly important to the success of these ESD facilitators:

- active pedagogical leadership by the school leader that establishes a shared vision of the importance of ESD;
- a co-creative culture that allows for critical discussions and encourages explorative approaches;
- organisational spaces in which discussions can take place.

Schools that establish the above conditions have the potential to prevent resistance and enable ESD facilitators to implement ESD beyond simply adding to existing teaching content.

Finally, schools that want to change their teaching to deliver ESD need to consider what type of change they are striving for and how such change should be facilitated. School leaders and people taking on facilitator roles need to discuss their roles in relation to the type of change they are striving for. This study's findings can contribute to such discussions.

Notes

1. See [Appendix 1](#) for a full version.
2. This refers to a particular point on the teaching career path, and the interviewee is making the point that the ESD development project would have been a higher priority were it to be facilitated by a teacher at first-teacher level.
3. Within their schools, the ESD facilitators were called coordinators.
4. Each school year is divided into periods of cross-disciplinary thematic work with focus on a specific sustainability issue.

Within their schools, the ESD facilitators were called coordinators.

Authors' contributions

Teresa Berglund designed the study. Teresa Berglund, Niklas Gericke, Anette Forssten Seiser, and Anna Mogren contributed to the conceptual work. Teresa Berglund performed the data analysis and all five authors participated to interpreting the data. Teresa Berglund wrote the draft of the paper. All authors critically reviewed and approved it before publication.

Disclosure statement

No potential competing interest was reported by the authors.

Funding

This study was supported by the Swedish Institute for Educational Research (grant 2017-00065).

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Appendix 1

Semi-structured interview guide

This interview concerns how you view the coordinator⁵ role in the development project that your school participated in regarding education and learning for sustainable development. The purpose of the research is to develop knowledge about how to work with teachers' professional development and what conditions coordinators need to be able to fulfil their assignments. Your experiences of the role as a coordinator can contribute to developing the conditions for similar assignments in other school development efforts. During the interview, you are welcome to tell me about your experiences from the project, but I am also interested in what aspects you view as important to account for in similar development work in environmental and sustainability education.

Check how much time is available.

- Please describe how your assignment as coordinator affected your work situation (physical and/or relational) during the development project.

1. View of the role with respect to aims and objectives

- Tell me about your work with ESD today. Has anything changed since the start of the ESD project (Physical/structural, relational, didactic)?
- Does the ESD coordinator role remain in some form? If so, what does it look like (Physical/structural, relational, didactic)?
- How would you describe your perception of the purpose and goals of the project? What did it aim to develop or change? (Follow up by asking if there are additional aspects than those mentioned).
- What do you think needed to change (at the school) to get there – to move in that direction? (Follow up by asking if there are additional aspects than those mentioned).
- How do you view the role of the coordinator in terms of being able to contribute to this development/change? (Follow up by asking if there are additional aspects than those mentioned).
- What do you find easiest and most difficult to achieve in terms of this development/change?

2. view of the role with regard to interaction with colleagues and school management

- *What expectations do you think there were among your colleagues and the school management about the project? On you as coordinator?*
- *How do you feel that the attitude towards the ESD work was among the teaching staff?*
- *Which role(s) and tasks do you think the coordinator should have in relation to his/her colleagues in a change/development work of this type? What can or should a coordinator contribute or create conditions for in relation to their colleagues?*

3. Significant factors in terms of organisation and work

- *What expectations did you have of the ESD project in terms of your prerequisites and tools as a coordinator? What did they look like?*
- *What prerequisites do you consider to be important in order for a coordinator to be able to contribute to the fulfillment of aims and objectives in a change/development work of this type? (physical and/or relational and/or learning-related – more?)*

4. Learning needs

(can apply to both ESD teaching and ESD facilitation).

- *How prepared did you feel to take on the role of coordinator?*
- *What tools did you feel you received in the ESD project in terms of taking on the role?*
- *Which tools do you think are important for a coordinator to bring with her/him before a similar coordinator assignment?*
- *What are the learning needs of a person who will have a similar coordinator role?*

5. Miscellaneous

- *Before we wrap things up, is there anything else you would like to raise in relation to what we talked about during this conversation?*
- *May I use the answers you gave during this conversation? (No publications will contain any information regarding name, name of school, etc.).*