



# Getting to a Whole School Approach: Lessons From School Effectiveness and School Improvement in ESD Research

# 5

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## Key Message

The key message of this book chapter is that implementing a whole school approach (WSA) for education for sustainable development (ESD) is challenging for schools, and an enabling organizational context is essential for its success. The chapter suggests that incorporating insights from school effectiveness and improvement research can help bridge this gap and provide a better understanding of how to implement an effective WSA for ESD.

## 5.1 Introduction and Questions to Answer

In this chapter, we will explore how knowledge from the fields of school effectiveness and school improvement can support and challenge the study of whole school approaches (WSA). Understanding schools as organizations in implementing and sustaining a WSA to education for

sustainable development (ESD) calls for a combined effectiveness and improvement perspective on the school, that is not inclined nor predisposed toward one or the other but maintains the strengths from both perspectives. In our attempt to shed light on this issue, we will visit horticulture metaphors while exploring what the seeds that get planted in schools need to grow into a healthy whole school approach, and ultimately support their students to build action competence for sustainable development.

Many scientific research and policy documents focus on the implementation of a whole school approach to effectively embed sustainability education into schools (e.g., Henderson & Tilbury, 2004; Mogren et al., 2019; UNESCO, 2020). Research has shown that collaboration, participation, and holistic school approaches, all important aspects of a whole school approach, lead to more effective learning, compared to hierarchical and individual learning environments. The Environment and School Initiatives (ENSI) network has a long history of investigating ESD practical interventions in terms of “what works” in praxis in various school contexts (Breiting et al., 2005; Mogensen & Schnack, 2010). In sustainability education, a WSA offers a theoretical perspective for a comprehensive approach (Hargreaves, 2008) guided by the following principles: structural support from the school organization, a holistic idea, internal structures and quality processes in a school’s organization,

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student-centered planning and management, and proactive leadership (Mogren, 2019). Policy on the implementation of ESD also follows the perspective of a WSA as UNESCO highlights the importance of such an approach in their roadmap to ESD (UNESCO, 2020). Yet, it is not evident how to put this theoretical perspective into practice, making it difficult for a school organization to adopt a whole school approach to sustainability education. Like a gardener who wants to transform their backyard from a sleek lawn into a flourishing, sustainable, and thriving garden, the school organization adopting a WSA to sustainability education will need, in addition to the theoretical understanding, the right tools, hands-on practical knowledge, and room for trial and error. Inspiration for these tools can be found—or at least sought—in empirical educational effectiveness and improvement research. Focusing on educational effectiveness and improvement can aid in implementing a WSA to ESD as a specific way of school organizational development and improvement.

Much of the research interest in ESD has, until now, been oriented to how curricula and pedagogy are the basis for defining and shaping a whole school approach toward ESD (Boeve-de Pauw & Van Petegem, 2018; Hargreaves, 2008; Kuzmina et al., 2020), or in gardening terms: What plants and fruits do we want and how should we cultivate them. The aim of such studies is often to describe interconnections between different aspects of the WSA, teaching practices, and students' sustainability literacy. As they do not aim to nor permit investigation as to how such interconnections come to be or can be changed within the organizational reality, they remain distant from the practitioners trying to create a resourceful organizational context that fosters the implementation of a WSA. Despite the recognition by a number of ESD scholars (Mogaji & Newton, 2020; Mogren, 2019; Scott, 2013; Verhelst et al., 2020), the elements that shape such an organizational context remain fairly uncharted terrain for ESD research (Kuzmina et al., 2020; Verhelst et al., 2020). As the WSA essentially touches upon the school as an organization, attempting to implement a WSA without

understanding how the school organization can enable this, would be the same as attempting to grow a garden without understanding the ecosystem it will grow in. In this chapter, we argue that the challenge of implementing a WSA is where we, as a research community, should direct our attention. By doing so, research can aid practitioners trying to understand their school organization and shape an enabling organizational context wherein a WSA to ESD can be implemented and anchored.

A first question that arises here is how this school organization should look and act in order to effectively implement a WSA to sustainability education. A promising, yet somewhat disregarded, perspective on the role of the school organization can be found within traditional school effectiveness research. Here, the school organization has been given an important role in facilitating educational effectiveness, thus recognizing its function as an enabler of effective education (Creemers & Kyriakides, 2010; Reynolds et al., 2014). The established field of school effectiveness has been going through a decades-long transformation, evolving into a synthesis of both school effectiveness (SE) and school improvement (SI) perspectives (Reynolds et al., 2014). This evolution combines the more formal, quantitative, organizational perspective of SE with the qualitative nature of SI and its focus on school culture and processes. Being a relatively young research area, ESD holds unique potential as it can benefit from the lessons learned in both fields of school effectiveness and school improvement in order to introduce ESD in schools in an effective manner that enables schools to embark on a journey of self-improvement. In fact, scholarly work on sustainability education and the role of the school organization within ESD applied aspects of both the SE and SI perspectives to their methodologies, thus making a first step toward a better understanding of how the school organization facilitates the implementation and outcomes of ESD (Mogren, 2019; Verhelst, 2021). Coming from an SI perspective, Mogren (2019) links ESD implementation to the school's general educational qualities and quality assurance process. The general quality criteria that are given specific

importance to ESD-active schools are collaborative interaction, school improvement, student-centered education, cooperation with the local community, and proactive leadership (Mogren & Gericke, 2017). Coming from an SE perspective, Verhelst et al. (2020) developed a framework with a strong focus on tangible organizational characteristics of a school facilitating ESD effectiveness. Placing both perspectives into the equation fosters our understanding of how the organizational characteristics of a school enable an effective implementation of a whole school approach toward sustainability education.

Second, alongside the understanding of the organizational school context wherein the WSA has to be implemented, the everyday reality of education and schooling has to be taken into account (Mogren et al., 2019). Schools exist in a societal reality in which their organizational capacities can easily be overburdened. Simply adding sustainable development and sustainability education to schools' agenda is not only unfair but also its feasibility can be questioned if we want education to have an impact. Scott's (2009) question, "What can education do for sustainable development?" is more easily answered than put into practice. WSAs toward sustainability rely on the organizational capacities of the schools and the people within them. Although education plays a key role in anchoring sustainability in our societies, we should not unfairly assume that the entire responsibility for this lies with education and schools. Keeping this in mind, the second question Scott (2009) formulated might be more important: "What can sustainable development do for education?" As researchers, we ought to be conscious "that schools exist to educate young people, and they are not primarily agencies to drive sustainable development or any other social process" (Scott, 2009, p. 38). An understanding of the opportunities, pitfalls, and processes within a school organization is essential for an effective implementation of a whole school approach toward sustainability education.

## 5.2 The School Organization

A school transitioning toward a whole school approach for sustainable development requires the commitment of every actor at every level within that school: in the classroom with the students and teachers, the management, maintenance, etc. (Wals & Mathie, 2022). While essential for a successful and well-anchored WSA, the integrated coordination of all these actors is not self-evident. Simply assuming that a WSA will arise spontaneously if all the elements within the school decide on it would be the same as if our gardener decides that the neatly mown lawn has to spontaneously grow into a lush and biodiverse garden. If the gardener lets time pass, all sorts of things will indeed start to grow in the garden. However, after a certain period of time, they will notice that some plants wither, while others proliferate. They will have to consider how they can organize the different elements in their garden so that all species can thrive in an integrated and harmonic relationship.

A school implementing a WSA will have to look at different aspects within its organization and aim at effectively developing the necessary characteristics to enable a WSA to be anchored and implemented. Before thinking about how a school organization can facilitate the implementation of a WSA to sustainability, we need to agree about what we mean when we say "school organization." Whereas Wals and Mathie (2022) describe the flower model for a WSA which places vision, ethos, leadership, and coordination at the center, we hold that a wider view of the school as a professional organization with its own structures, resources, and aims offers a more fine-grained understanding of how the organization contributes to anchoring a WSA. With this, we do not intend to disconnect a WSA to ESD from the school organization, but rather argue that a WSA to ESD has its own specific orientation within the school organization. Also, aspects such as the school culture and ethos often remain hidden within the routines, structures, and ways of operating within the school and, therefore, might not be very tangible and thus hard to change for practitioners (Cameron & Quinn,

2011). In this organizational perspective, the school organization is a part of a whole school approach, but not the other way around. The school organization can be seen as the toolshed of the gardener, with all of the sowing seeds, seedlings, gardening tools, fertilizer, and other materials they will need to grow the garden. The gardener might even keep books on gardening and a sowing schedule in there. From a distance, one might find all the elements of a flourishing garden in that shed, but nonetheless, a lot of work and effort will still be needed in order to sow all the seeds and utilize all the tools and ideas. In a similar way, the school organization is the toolshed for a whole school approach: All elements of a WSA can be identified within the school organization, but in order for the school to be transformed toward a WSA, the organizational level of the school has to enable it.

Empirical research has shown that the school as an organization can enable effective sustainability education (Verhelst et al., 2022a). The framework of an ESD-effective school organization has been linked to student outcomes in ESD, namely the action competence of students in sustainable development. It offers a comprehensive overview of the different characteristics (i.e., tools in the toolshed) of a school for anchoring a WSA to sustainability education (Verhelst et al., 2022a). Before thinking about how to implement a WSA, we will visit each of the tools in our shed and have a look at the foundation on which the shed has been built (Fig. 5.1). The framework for which this toolshed is a metaphor is based on the conceptual literature study by Verhelst et al. (2020).

The framework distinguishes two levels within the school organization and consists of eight characteristics. On the first level, sustainable leadership and the resources of the school shape the field on which the rest of the organization can be built. Sustainable leadership is distinguished by a holistic, integrated view of the past, present, and future, both locally and globally, when setting out a strategic course for the school organization (Hargreaves & Fink, 2006). It will actively initiate and advance all characteristics of the organization so that continuous learning and

development contribute to achieving the long-term holistic strategy of the school organization (Fullan, 2006; Hargreaves & Fink, 2006). Such leadership does not have to arise solely from the person of the school leader; multiple people within the school can take on sustainable leadership roles, regardless of their formal role within the organization (Verhelst et al., 2020). Nevertheless, support from the formal leadership within the school is often a requirement (Verhelst et al., 2021). Along with sustainable leadership, school resources make up the foundation of the organization. School resources refer to the available time, the people within the school organization, and the physical means such as infrastructure and finances. Sustainable leadership and the school's resources are in some way the foundation on which our toolshed stands. It is crucially important for the school as an organization that this foundation guarantees that the ground on which the shed is built "will not shift or be eroded with" in order to lock in the organizational characteristics of the school (Scott, 2013, p. 189).

In the toolshed of an ESD-effective school, six characteristics of a school organization can be found at the second level, all of which can be used as instruments in establishing a WSA. First, *pluralistic communication* is a reflective and critical dialogue among actors within the school organization. This style of communication leaves room for different opinions and perspectives and actively seeks to understand the perspective of others, even when this conflicts with one's own ideas. Next, an ESD-effective school promotes *supportive relations* among members of the school team, between the school and other schools, and with external partners. *Democratic decision-making* is a very powerful tool in anchoring a WSA within the school organization. By involving all relevant stakeholders in the decision-making process at the level of the school organization, the implementation and continuous efforts for ESD could face less resistance. Furthermore, a *shared vision* provides the school organization with a comprehensive sustainability education and offers the motivational basis within the school team to keep investing in it. Then, *adaptability* enables the school organization to

**Fig. 5.1** The tool shed for an ESD-effective school



adequately adapt the organizational functioning to internal and external demands as necessary. The final tool in the shed is *collective efficacy*, referring to the confidence of the school team in their capacities to positively affect student learning related to sustainability.

We envision these eight characteristics as the foundation and tools for implementing a WSA for sustainability education within schools. The manifestation of these organizational characteristics offers an insight into the organizational culture of a school. An enabling organizational context, that could be created via the characteristics described above, is essential to implementing any school-wide approach, in addition to—or even as a condition for—the pedagogical aspects of sustainability education.

### 5.3 Use and Potential of School Effectiveness Studies in ESD

Implementing a WSA as a “continual reflexive process a school, with all its stakeholders, embarks on and commits to” (Wals & Mathie, 2022, p. 4), will require that all organizational characteristics (i.e., the tools in our toolshed) are

directed at achieving that long-term strategic objective (Nikel & Lowe, 2010). “The degree of effectiveness is the extent to which stated (educational) aims are met” (Nikel & Lowe, 2010, p. 595). So an effective implementation of a WSA would mean that a school is able to “realize a holistic, systemic and collective effort toward sustainability as agreed upon by those affected” (Wals & Mathie, 2022, p. 2). When talking about a school striving for a strategic objective, the perspective of school effectiveness provides an array of opportunities to better understand the school’s organizational functioning and outcomes. This would also be the case if that objective is implementing a WSA to sustainability. While offering ample opportunities for the research field, school effectiveness in sustainability education remains a divisive topic. Some argue that the nature of ESD, revolving around complex topics that involve different and potentially conflicting belief systems and values, makes a universal approach toward “good” education impossible (Van Poeck et al., 2018). If we interpret this narrowly, it implies that school effectiveness research, in which the achievement of predetermined educational goals or learning outcomes are used as a measure of the impact (effect) of educational



efforts, is not possible within the domain of ESD since it would not be possible to put forward predetermined learning outcomes for ESD. Others propose conceptualizations of possible learning outcomes for ESD (e.g., Gericke et al., 2019; Olsson et al., 2020; Sass et al., 2021) which do allow for an exploration of the applicability of school effectiveness research in this domain, as we will argue below.

So, notwithstanding the above caution toward effectiveness research, the call for empirical evidence concerning the effects and outcomes of ESD exists and the argument that researching sustainability education ought to contribute to an understanding of what makes such an education effective is commendable (Boeve-de Pauw et al., 2015; Boeve-de Pauw & Van Petegem, 2018; Laurie et al., 2016; Verhelst et al., 2022a). There are, however, differences between the traditional school effectiveness perspective and the way it has been operationalized in research on school effectiveness in ESD. School effectiveness research studies which factors make schools “effective” (Nikel & Lowe, 2010), identifying those that influence the learning outcomes in relation to the objectives of the school and its education (Chapman et al., 2016). Traditionally, school effectiveness sought to identify the characteristics and factors that make schools effective in contributing to student learning (Chapman et al., 2016). For schools striving for largely similar goals, this would not be a notable issue since they could compare their organizations to one another to fine-tune them for the most effective configuration (Leithwood & Louis, 2006). Implementing a WSA toward sustainability requires an approach in which schools take their own specific context and goals into account. Since this is something that has to be shaped by everyone involved in the school, there will be little chance that a universal solution, appropriate for every school, exists. Yet, contemporary school effectiveness research is more conscious of a cultural understanding of schools’ organizational processes, in contrast to a somewhat outdated focus on formal organizational elements (such as teacher–student ratio), with a shift from “input/output” to “input/process/output” (Reynolds

et al., 2014). Consequently, an empirical and effectiveness-focused perspective can very well provide insight into the school’s own processes and characteristics and give an indication to schools about how firm their ground is for the implementation of a WSA to sustainability education.

Identifying the tools (i.e., the different organizational characteristics, see Fig. 5.1) a school organization can invest in when implementing a WSA and having a clear understanding of the school’s current characteristics, provides a good starting point to agree upon the baseline of a school’s necessary preconditions for a WSA on ESD. Important here is that the focus of this effectiveness perspective is on the characteristics that the school organization intends to use in order to attain its goals. Like a gardener who checks that they have a good rake and enough potting soil, the school organization verifies that all the organizational characteristics required to implement a WSA are in place at the school. Recent studies have not only indicated that it is possible to measure the school characteristics of an effective school organization for sustainability education (Verhelst et al., 2022b) but they have also connected the characteristics of an ESD-effective school to action competence in ESD as a learning outcome for sustainability education (Verhelst et al., 2022a).

By making the organizational characteristics of a school implementing a WSA to sustainability education explicit, schools can be offered insight into their specific school characteristics, processes, and policies (Verhelst et al., 2022b). Analyzing the organization prior to implementing the change makes it possible to find out where the strengths of the school lie and which qualities they possess to transform their sustainability education into a school-wide approach. At the same time, the school can also gain insight into possible barriers for such a transformation (Verhelst & Lambrechts, 2015). Establishing such a baseline can provide a valid starting point for self-reflection and helps schools to set their own goals for organizational development. Knowledge about the starting position and the intended progress is especially essential since the lack of such

knowledge could lead to a lack of consensus on ESD within the organization (Mogren, 2019). Mapping the starting position for implementation creates clarity and consensus regarding the expectations. If the gardener puts their seeds in the ground without checking what kind of substrate it is or which places get much or little sunlight, they cannot give the seeds every opportunity to grow. That said, identifying the requirements for effectiveness is a necessary but not sufficient condition for the school to develop and improve on this knowledge.

#### 5.4 Use and Potential of School Improvement Studies in ESD

Even with all their tools in the toolshed, our gardener will still need to work with and understand the context of their garden. A lot of gardening needs to be done; by using the different tools in the toolshed and putting them to use toward the same goal, the gardener will reap the fruits of their efforts (Fig. 5.2). Likewise, the school has to put forth equivalent effort. The different orga-

nizational characteristics are present in the school and the school has to put these different parts together toward the bigger picture: the implementation of a WSA toward ESD. These processes have been the focus of research in school improvement research, which investigates how schools improve via the investigation of processes within schools (Chapman et al., 2016).

School improvement builds on a *totum pro parte* idea, which implies that the whole school organization is more than the sum of the different aspects and characteristics within the organization. School improvement research was developed as a response to one-dimensional, reactive judgments of schools (through student outcomes) that were present in traditional school effectiveness research (Reynolds et al., 2014). However, the development of school improvement research is more oriented to a coordination of effectiveness and improvement than on replacing one with the other (Reynolds et al., 2014). From its conception onwards, school improvement advocated an approach that improves supporting factors within the organization, such as school leader and teacher processes, in order to enhance stu-



**Fig. 5.2** Applying an improvement perspective on the different tools in the toolshed

dent learning while being reflective toward the contextual aspects (Creemers & Reezigt, 1997).

As argued by Von Bertalanffy (2003) and Scherp and Scherp (2007), keeping focused on the big picture of school improvement and inquiring about all contextual components that are supporting and facilitating education in schools' organizations, raised the quality in education in a more substantial way compared to what can be recognized in its individual parts. School improvement is generally put into practice through innovation and action (Fullan, 2006) rather than through the reactive action and knowledge obtained via school effectiveness research. Within ESD research, the school improvement perspective is often reflected in case studies of individual schools (Laurie et al., 2016) and international comparisons between schools and educational systems via qualitative methodologies (Iliško & Badyanova, 2014; Miškolci et al., 2016; Müller et al., 2021). School improvement research has allowed an in-depth description of good examples and role-model schools and aligns the school's own development within school improvement frameworks. The above-mentioned case studies and qualitative studies offer insight into how these existing parts of a school organization reinforce or oppose each other when interacting with contextual structures and processes, which goes beyond a mere sketch and allows for a holistic description of the transformation and improvement within the school. School improvement research in an ESD context serves the purpose of finding new solutions to societal problems and securing required knowledge in education. Education is often found to reproduce society rather than develop it. ESD challenges this paradigm and one of its aims is to continuously change education (Jucker, 2011).

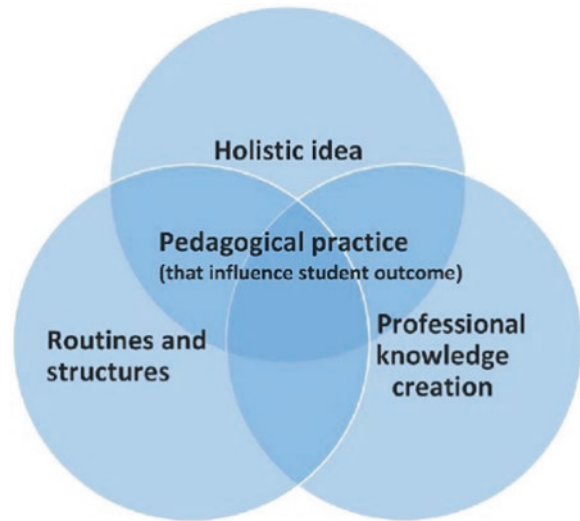
Mogren et al. (2019) operationalized the Scherp school organization model, a school improvement tool, in order to aid the investigation of those educational aspects that drive transformation in ESD schools (Fig. 5.3). This model holds the ability to both understand quality in education by the established dimensions in the model and to also understand what drives increased quality in education by improvement

processes. The analogy of the gardener's tools and labor provided a fitting way to understand the school effectiveness perspective, enabling us to tell which tools or which techniques contribute to more effective gardening. The Scherp school organization model, however, allows us to put on the school improvement lens to investigate the improvements in how skilled our gardener becomes over time and how well they learn to use their tools. The quality of education as measured by the Scherp model is, in our metaphor, dependent on the gardener's skill at mastering a wide range of tools. They will increase the garden quality the better they can handle all these tools together as they become more skilled. Quality arises, for example, when they arrange plants and flowers growing together so they can share and divide sun and energy with each other in a way that makes them stronger together as an ecosystem than they would be as individual plants, similar to the holistic assumption in the Scherp model that indicates quality in education.

Looking at a school organization via the lens of the Scherp school organization model (Mogren et al., 2019), four dimensions can be distinguished: the holistic idea, routines and structures, professional knowledge creation, and the pedagogical practice. The holistic idea refers to the degree that schools have an articulated, holistic idea of their aims concerning student outcomes, along with the pedagogic methods and perspectives that should be applied to realize this vision. Creating, understanding, and implementing a holistic idea is part of the operationalization of this dimension in Scherp's model. The routines and structures dimension concerns the degree to which stability and security are maintained, and teaching is protected from disturbances through routines, scheduling, locations, and teachers' working units. The professional knowledge creation dimension refers to disturbances in everyday pedagogical practice that could indicate that the general educational (and particularly teaching) arrangements of the school do not match changes in the outer world or community, and thus should be adapted. Lastly, the pedagogical practice dimension indicates the learning and teaching situation in the school. Ideally, teachers



**Fig. 5.3** The Scherp school organization model derived from school improvement research and introduced in an ESD context (Mogren et al., 2019)



and pupils create learning platforms together, handling situations in the learning interaction in a manner that promotes the students' learning of new knowledge. These four dimensions are indicators for quality within the school organization: The degree to which actors in the school (school leaders, teachers, and students) are motivated by a holistic idea, embracing the organizational routines and structures, professional knowledge creation, and the practical pedagogic work (Scherp, 2013). This is made visible in the model (Fig. 5.3) where the increased overlap of all the circles and an extended middle overlapping part indicates a raised quality in the school organization. The Scherp model reflects an understanding of education that Biesta (2013) and Jickling and Wals (2012) argue for—not only that education is a matter of receiving professional knowledge of known practices, but also that education should provide learners with a sense of responsibility and freedom to actively change the future of society. Thus, the Scherp model has been developed to clearly distinguish what progress in educational practice actually means in organizing schools. The dimension of professional knowledge creation stands for the degree of transformative organized education. A low connectedness to that dimension with the other dimensions of the model signals a hierarchal and structured school but one that lacks the drive for change and transformation. For instance, should our gardener not

feel the urge to improve themselves when it comes to their professional gardening knowledge, and sticks to what they have always known, they may continue to use pesticides to get rid of pesky aphids. If, however, they do hold an improvement perspective toward gardening, the discrepancy between the desired results of their work (holistic idea) and their actual work (routines and structures) would lead to rethinking their professional knowledge and they would find that ladybugs are in fact also a great way to fight off aphids without hindering the pursuit of their holistic idea.

At the basis of the school improvement process lies a transformative education in which interventions and initiatives can sprout in order to foster organizational change toward educational quality. Identifying the discrepancy between any of the four dimensions of the Scherp model for school improvement acts as the starting point for initiating such improvements. The approach of transforming education by school improvement initiatives rather than merely measuring high quality via individual parts of an effective organization is thus thought to be progressive, systematic, and takes the whole school organization into account (Scheerens & Demeuse, 2005). The leading paper on WSA (Wals & Mathie, 2022) takes this a further step in its presentation of WSA, summarizing it as a tool for continuous collaborative processes of change to realize

ESD. This continuous change is often called the transformation of education and deals with processes that can be studied and found in research based on school improvement. School improvement research in a transformative ESD context serves the purpose of finding new solutions to societal problems and securing the knowledge required for education, aiming for continuous change in education (Jucker, 2011). School improvement research addresses how education could be organized in a reflective relation to material and time, thus challenging set structures and routines.

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### 5.5 Combining School Effectiveness and School Improvement Toward a WSA

The contradictions and similarities between school effectiveness and school improvement are difficult to pin down. Both are, at the same time, closely related and yet opposed to each other. On the one hand, when school effectiveness research first emerged, researchers assumed, in a rather haughty way, that making their findings known was enough to make schools and teachers achieve effective change. Evidently, seeing teachers and schools merely as implementers of the knowledge arising from school effectiveness research, without providing the necessary ownership of this knowledge and support for its implementation, did not and does not work (Stoll et al., 2016). On the other hand, a continuous process of change within a transformative education demands a lot from the policy power and capacity of a school, policy, and support that may not be sufficiently present within the school organization. The expectation that all schools are able to shape such a trajectory sustainably is likely to be based on the same fallacy as that of the school effectiveness researchers. To illustrate it with the example of our gardener: Just telling them what the most efficient ways of gardening are or what tools to use will not enable them to apply them in the context of their own garden. At the same time, there can be no guarantees that they know completely on their own how to shape the process of

effective gardening without receiving any kind of input or feedback. Improvement research would point out *how* the gardener can transform the small seedlings to floral splendor. *What* leads them to achieve the desired results is identified by effectiveness research. Striving toward a flourishing garden requires attention to both the what and the how of gardening. Overcoming the fallacies to which school effectiveness and school improvement fall victim on their own requires incorporating both approaches. The incorporation of school effectiveness and school improvement led the field of school effectiveness and improvement to evolve into an established research paradigm that generates theory via continuously developing methodologies with a strong focus on multiple measures of the outcomes and processes of “good” education (Chapman et al., 2016).

This contemporary school effectiveness and improvement perspective is starting to find its way to ESD research, despite earlier mentions of “toward effectiveness measurement in ESD.” From a school effectiveness perspective, Verhelst et al. (2022a) answered the question of “what” makes a school ESD-effective in the form of tangible organizational characteristics of a school. The framework for an ESD-effective school, as described in Sect. 5.2 of this chapter, describes what makes a school ESD-effective based on conceptual foundations, qualitative empirical support, and quantitative statistical grounding. First, it provides a clear framework, useful for both research and practice, describing various organizational characteristics contributing to ESD within the school. Second, the development of a quantitative measurement instrument for this framework, the Education for Sustainable Development School Organization Questionnaire (ESD-SOQ) (Verhelst et al., 2022b), allows us to measure and investigate the characteristics in a reliable and valid way, thereby fostering our understanding. Moreover, making these characteristics measurable also allows for educational practitioners to become acquainted with what is under the hood of their school organization, offering valuable information on the tools they, as a school organization, have at their disposal.

Feedback and (self-)evaluation of the school's organizational functioning is essential to set the course for ESD implementation within schools (Mogren et al., 2019).

Mogren et al. (2019) answered the "how" question by studying the implementation of general educational qualities and quality assurance processes in schools, leading to the identification of four guiding principles of schools' organization that promote transformative ESD. The focus of the four guiding quality principles goes to the organization of the school, where "organization" is understood as a verb that can occur at different levels of the school (i.e., how is the school organized). In the framework of an ESD-effective school, in contrast, the school organization is seen as an *entity*, a structure, within the school. The first principle of school organization is collaborative interaction and school development (Mogren et al., 2019). This supports and actuates the idea that school development is an ongoing process of change and will raise the quality of the school if everyone takes responsibility for and supports the desired direction of education. The second principle, student-centered education, deals with the relationship between students and staff in education. Both the planning and the organizing of the school should consider the students' interests, conditions, and needs. Moreover, student-centered education enables students to practically connect their learning to a local or global context they find important, which contributes to higher quality. This connection to the local and global context is also apparent in the third principle: cooperation with the local community. Students must be encouraged and supported to cooperate with society by exchanging information and networking. Higher quality in education can provide insight into the workings of social stakeholders such as institutions of higher education, local decision-making organizations, enterprises, and cultural institutions. The last principle is proactive leadership and continuity, which describes a leadership style that is based on collective learning and implemented through scaffolding toward work on ESD. Problem-solving and conflict resolution are used to maintain continuity and to seek solutions

among the employed teachers and other staff rather than seeking them from outside the school organization. These four quality principles make the organization and implementation of ESD within the school visible (Mogren & Gericke, 2017). They relate to how the school attunes its organization to the context and are thus context dependent by nature. It is precisely this context-dependence that illustrates the overlap between school effectiveness and school improvement. Answering the "what" provides insight into the context in which the "how" is answered.

As argued above, implementing a WSA to ESD requires a thorough understanding of the school organization and the school as an organization. The allegory of the gardener and their garden illustrates the need for answers to both the what and the how. They need to know what they start off with in terms of soil, climate, and tools in their toolshed in order to know how they can shape their gardening as an ongoing process of change, planning, and organizing the garden into a flourishing patch of nature, in connection to the local and global contexts, with a focus on learning and a step-by-step journey toward their dream garden.

Appropriate ways to implement a WSA to ESD can be unraveled via an effectiveness and improvement perspective by looking at what aspects of a WSA or ESD are already present in the school organization or in the schools' organizational functioning. A WSA to ESD would include components such as building capacity or institutional practices (Wals & Mathie, 2022), components that may or may not be present in the school as an organization. Effectiveness-oriented research could shed light on what characteristics of the school as an organization contribute to these components. As a hypothetical example, pluralistic communication as a characteristic of a school organization might make it easier to establish institutional practices as staff members can openly discuss these practices among themselves. Conversely, knowing that this characteristic is not yet strongly developed within the school might influence how they take on the challenge of implementing a WSA to ESD. While general knowledge on organizational characteristics is

helpful for understanding schools as organizations, it remains important to acknowledge the unique position and context of each school. Characteristics or practices of one school are not always transferable to other schools, although there is evidence that many aspects are, in fact, generalizable (Jarl et al., 2017). Each school is unique, although school organizations can obtain testable insights into what might be important general structures and processes for specific educational purposes by studying other schools (Hargreaves, 2008).

Next to the guidelines for implementation, school effectiveness and improvement would allow schools to adopt actions and practices which foster desirable outcomes for students. From a school improvement perspective, this can be done by using certain actions or functions in the school organization argued to contribute to high-quality education to improve the outcome for the students (Mogren, 2019). By linking the organizational characteristics of a school to student outcomes of ESD, Verhelst et al. (2022a) answered the question of what makes a school organization ESD-effective. Combining both the SI and SE approaches results in a valuable holistic approach to what schools and education can do in the pursuit of educational quality. A gardener striving for a flourishing garden will always be attentive to both perspectives. Without looking to the intended results and the tools that they intend to use, they cannot make statements about the quality of their garden, and without knowing how they want to strive for a flourishing garden and acknowledging what they value, they cannot define quality in their gardening.

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## 5.6 How We See School Effectiveness and School Improvement Anchored in ESD Research

Scott (2009) asked, “What can education do for sustainable development?” and “What can sustainable development do for education?” In his later work, Scott (2013, 2015) has studied ESD further in the way the whole school body aligns

to ESD. His theoretical contribution suggests that a “firm ground” is needed to find answers to his questions. Scott (2013) means that the school organization plays a pivotal role in cultivating the firm ground which helps schools to be open to change by an established vision, to allocate resources appropriately, and, where the organization is part of a social learning community, to provide a systematic view of the world. The idea that education has an active role in changing societies is easier to put forward in relation to theories than to operationalize. Research has shown that schools are often overwhelmed by the amount of change and new agendas thrust upon them.

Answering Scott’s (2009) first question on education’s contributions to a sustainable society requires us as researchers to move away from the idea that school effectiveness and school improvement as research paradigms are sufficient to implement a transformative form of education. As Stoll et al. (2016) indicate:

Researchers who want their effectiveness findings to be taken seriously have to find ways in which to help practitioners to engage with them in such a way that they can make the kind of meaning that enables them to use these findings to enhance their practice (Stoll et al., 2016, p. 363).

Research on answering what education can do for sustainable development has to take a step back and indicate how research can aid education in implementing education for sustainable development. Our proposed combination of school effectiveness and school improvement tools could incorporate temporary ESD goals, highly relevant to a local context (as understood and operationalized in practice by school improvement tools) within a highly effective environment for learners that are taught in collaborative, participatory, and flexible environments (identified by frameworks of ESD effectiveness). Yet, this perspective with a focus on effectiveness also has its challenges within the area of ESD, particularly concerning the pluralistic and democratic foundations of ESD (Öhman & Östman, 2019). These foundations are to some conflicting with the “normative” tradition of effectiveness

research (Van Poeck et al., 2018). However, as we laid out in the section on school effectiveness, we do not strive toward the narrow “normative” perspective on school effectiveness. By seeing effectiveness as the degree to which a school is able to meet their aims, an effectiveness perspective can facilitate the pluralistic and democratic principles of ESE. In this reasoning, the school itself decides where it wants to go as an organization and the characteristics of the school organization can be improved in order to reach that goal.

Bringing together research and practice into an effective synergy is not a unique challenge within ESD. School effectiveness and improvement research has already taken several steps to bridge this gap. These steps also show the compatibility of the retrospective school effectiveness thinking and the change-oriented improvement perspective. Stoll et al. (2016) formulated suggestions about how to incorporate research into school and classroom practices, such as manageable units of meaning in accessible formats. Our metaphor of the flourishing garden shows that some tools related to effective ESD and some processes to align with the local context are a positive way forward. However, quality in education and the way our garden is developing can be improved by means of an increased understanding of the possible tools and skills needed in gardening. In line with Stoll et al. (2016) idea of presenting possible ways forward in practice, we claim that neither effective nor improvement characteristics of ESD play against each other; instead, they strengthen each other as ESD implementation is operationalized. Another suggestion by Stoll et al. (2016) on how to translate research into practice is to explore the reactions and responses to research findings in ways that connect with experiences in the local context. The school improvement model of Scherp opens up room for such discussions through the professional school development dimension where teachers, school leaders, and students plan for changes in a collaborative manner is also suggested by Stoll et al. (2016). Also, self-analysis and the work of prioritizing first or next steps in development is one of the suggestions to use

research in practical education by Stoll et al. (2016). The literature shows that there is more than one way to reach well-functioning ESD in schools (Mogren, 2019; Verhelst et al., 2021). Some schools start with the inner structures to establish support in the school organization (more related to school effectiveness) while other schools reach out to society to make education highly relevant for students’ learning (more in line with school improvement). Mogren et al. (2019) show that the combination of the two in a school they studied is leading to a WSA of high ESD quality. The inner structures of ESD enabled student initiatives to engage with society, leading to the reciprocal transformation of both society and education.

The second question put forward by Scott (2009), “What can sustainable development do for education?” is given an answer by our approach to study education developing in practice based on the combined theory of school effectiveness and improvement. New ways of organizing education are needed to make learners active participants in their schools. We claim that our combined model drives a transformation of education toward collaboration, participation, and action, by using tools well-rooted in education (effectiveness and improvement) to embrace ESD in its operationalized form. In ESD, temporal, static structures in the school organization constantly need evaluation to make sure they support the improvement process toward ESD. Schools are also at different places in the implementation process and face different conditions. Different schools will need different drivers, but the knowledge they gain in the field will help them discover more general patterns of operationalized ESD as WSA. In that sense, sustainable development can offer education guidance on transforming itself toward new educational practices and perspectives, linking together the first and second questions of Scott (2009).

To implement a whole school approach for sustainability education, we do not only need the school organization to be open to change toward ESD, as Scott (2013) describes the “firm ground” of ESD, but also need it to be well functioning



and able to practice in the way exemplified by the two ESD models of effectiveness and improvement in this chapter. Accordingly, we propose that the firm ground of ESD also needs to be fertile. Looking at a WSA to ESD via school effectiveness and school improvement allows for the identification of what is likely to enhance ESD within the school and how this is likely to be done, thus providing a firm and fertile ground (Mogren, 2019; Verhelst, 2021).

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