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# Building a Conceptual Framework for an ESD-Effective School Organization

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This study aims to identify the characteristics of the school facilitating ESD-effectiveness. Via a literature study we synthesized different notions of educational management in relation to education for sustainable development. The ERIC and GreenFILE databases were searched in combination with strategies such as citation chasing, leading to a total of 46 sources. This resulted in a framework that identifies eight characteristics of an ESD-effective school organization: sustainable leadership, school resources, pluralistic communication, supportive relations, collective efficacy, adaptability, democratic decision-making and shared vision. The identification of these characteristics could be a starting point for further research on ESD effectiveness and ESD at the school level. Furthermore, this framework offers educational practitioners working with ESD better insight into their school organization.

Keywords: education for sustainable development, school organization, education for sustainability, school leadership, school management, school effectiveness

**Introduction**

***Education for sustainable development at the school organizational level***

Since the UN Decade for Education for Sustainable Development (DESD; 2005-2014), education for sustainable development (ESD) has received an increased amount of attention, both in research and in the daily practices of schools (Boeve-de Pauw et al., 2015). Although ESD has several links with other educational areas, such as environmental

education (EE) and citizenship education (CE), it offers a different perspective on sustainability issues.

Firstly, the holistic approach of ESD combines environmental, social and economic viewpoints. These viewpoints are considered based on their past, present and future implications and on local, regional and global scales (Boeve-de Pauw et al., 2015; Öhman, 2008). Secondly, pluralism is another facet of ESD and is characterised by the attempt to recognise and partake in a dialogue, inclusive of different viewpoints, on issues related to sustainable development (Boeve-de Pauw et al., 2015; Lijmbach et al., 2002; Rudsberg & Öhman, 2010). Thirdly there is also the need for action towards sustainability. Within ESD, this need is increasingly linked to *action competence*, which is the intention and competence one has to undertake action for sustainable development (Mogensen & Schnack, 2010).

Research on ESD has increased over the last decade with publications in a wide array of contexts. Although this research, such as on ESD implementation programmes, ESD classroom management and ESD in higher education, is of great value, it is striking that ESD research on the school organizational level remains sparse (Boeve-de Pauw et al., 2015; Mogensen & Schnack, 2010; Mogren et al., 2019). Moreover, there is considerable documentation in the school effectiveness literature on the important facilitating role of the school organization (Creemers & Kyriakides, 2008; Scheerens, 1990; Teddlie & Reynolds, 2006), yet the effectiveness of a school organization towards ESD has received scant attention. Hence, the present study explores which school organizational characteristics are of importance when it comes to ESD effectiveness.

To investigate this topic, it is important to understand what is meant by a school. Within a school we define three different levels: the student level, the classroom level and the organizational level. This study focuses on the third level: the school organizational level. The school organization includes all the processes and entities within the school that transcend the

classroom, individual student and individual teacher levels and refers to all the organizational traits of the school. The main goal of this study is the identification of organizational characteristics of a school organization in relation to ESD effectiveness.

***What does it mean to be an ESD-effective school organization?***

In addition to the need for more scientific evidence on the role of the school organization, efforts in ESD and related fields (e.g., environmental education) should be effective (Boeve-de Pauw & Van Petegem, 2017; Scott, 2009). However, as ESD tends to remain rather abstract (Iliško & Badyanova, 2014), it is difficult to determine how the school organizational functioning influences the outcomes and effects of ESD. Evidence from the field of educational management and effectiveness research can aid in understanding what it means for a school organization to be ESD-effective.

Educational effectiveness research has a longstanding tradition of looking at the characteristics of a school to gain insight into school performance (Teddlie & Reynolds, 2006). Contemporary scholars on educational effectiveness have a multidimensional view on educational effectiveness wherein the school organization plays a conditional role in the outcomes at the student level (Creemers & Kyriakides, 2008; Scheerens, 1990; Teddlie & Reynolds, 2006).

When it comes to defining school effectiveness, it can be assumed that organizations strive toward certain goals, and the degree to which school organizations are able to achieve these goals, gives an indication of the effectiveness of the school organization (Nikel & Lowe, 2010; Scheerens, 2011). Critics of school effectiveness see this "goal attainment" as a normative assumption as if there is only one preferred goal. But this does not have to be the case, as (Nikel & Lowe, 2010) state that there is nothing within this understanding of 'effective' that demands that the actual nature of the aims or the process that has led to their selection become the focus (p. 596). In order to measure the extent in which school

organizations are able to achieve their goals, student outcomes play a key role (Frederick, 1987). The essence of school effectiveness research is thus looking for those (organizational) conditions that are facilitating output measures demonstrating the effectiveness of a school (Scheerens, 2016).

Placing this in the context of ESD, an ESD-effective school organization is, via a facilitating role, able to achieve the goals related to ESD. For example, sustainability competencies of the students might be facilitated via a classroom practices that are holistic, pluralistic and action-oriented (Sinakou et al., 2019). These practices can, in turn, be facilitated by given traits of the school organization. An ESD-effective school organization will be able to achieve their goals further extent when compared to a not so effective school, but otherwise similar, school. Notably, these learning outcomes should consist of more than knowledge on sustainability issues; possible outcomes can also take competencies, affective dispositions and other traits into account.

Educational effectiveness does not come automatically. Sammons et al. (1995) identified 11 factors that make up school effectiveness: professional leadership, a shared vision and goals, a learning environment, concentration on teaching and learning, purposeful teaching, high expectations, positive reinforcement, monitoring progress, pupil rights and responsibilities, home-school partnership and a learning organization. These factors can serve as an inspiration for schools aiming at educational effectiveness for ESD and can aid in identifying scientific evidence on schools organizational effectiveness towards ESD. However, not every factor is directly linked to the school organizational level. For example, purposeful teaching is not manifested at the organizational level, although the school organization can influence it.

***Filling the gap: Towards a framework for an ESD-effective school organization***

Given the evidence on the facilitating role of the school organization in educational effectiveness (Creemers & Kyriakides, 2008; Scheerens, 1990; Teddlie & Reynolds, 2006) as well as the factors Sammons et al. (1995) identified, the lack of evidence on the school organizations' influence on ESD is a concern. It is therefore desirable to pay more attention to the school organization as a key facilitator for achieving educational effectiveness in relation to ESD.

ESD literature often has presented ESD as an educational ideal wherein there is a predisposition towards school improvement. In this paradigm, it is argued that ESD does not have a final destination to reach and that there is no need for measurement and effectiveness thinking. Opponents of effectiveness research in ESD even argue that collecting empirical evidence is inherently normative, which could hinder the further implementation and organic development of ESD (Block, Goeminne, & Van Poeck, 2018). For them, ESD is seen as an educational ideal that implies qualitative education, which contributes to sustainable development as an effect of this education. Hereby, quality is seen as a commitment of the school to continuously improve to attain this ideal (Mogren & Gericke, 2017a, 2017b; Vare & Scott, 2007). This school improvement perspective, wherein educational practitioners and researchers aim at continuous improvement towards an ideal, can arguably lead to a situation in which the processes are treated as more important than the actual learning outcomes.

In line with educational effectiveness researchers, such as Teddlie and Reynolds (2006) and Mortimore and MacBeath (2001), we argue that this gap is apparent between the school improvement perspective and the educational effectiveness perspective should be bridged. We contend that an educational effectiveness perspective that does not put the guiding educational ideal aside, but rather measures the extent to which extent this ideal is met, will provide the school improvement perspective with evidence on what works

(Creemers & Reezigt, 1997). By providing this evidence, school effectiveness supports the educational ideal of ESD as this effectiveness is orientated at mapping the extent the ideal is met, without assuming or stating that this course of action is the only valid course for the school organization (Nikel & Lowe, 2010). In order to do so, it is necessary to describe the goals for the school organization and measure the characteristics and learning outcomes of a school so that it is able to set goals in improving its effectiveness (Teddlie & Reynolds, 2006).

With a number of scholars addressing the lack of a systematic and empirical perspective in ESD research, recent years have seen a steady shift towards a more empirical way of looking at ESD (Boeve-de Pauw et al., 2015; Bormann & Nikel, 2017; Singer-Brodowski et al., 2019; Waltner et al., 2018). Such an empirical and effectiveness focused perspective, in combination with the need for research on the school organization, requires a framework that incorporates the characteristics of a school organization linked to ESD effectiveness. Developing such a framework will increase our understanding of the catalyst function a school has on ESD outcomes. The proposed framework also could provide practitioners with the necessary tools to achieve desired learning outcomes of ESD.

The present study therefore aims to develop a framework that could grasp the characteristics of an effective ESD school organization. With the development of this framework, we will establish a baseline for an ESD-effective school organization. To generate this framework, we will synthesise different notions of school organizations in ESD literature together with existing theories of educational management. This will provide us with a framework that offers insight into the different characteristics of an ESD-effective school organization. The scope of this present study lies at ESD in the context of compulsory education (i.e. primary and secondary schools) and seeks to answer the following question: Which characteristics of the school organization facilitating the effectiveness of ESD are

addressed in previous research? Answering this question will enable us to incorporate these identified characteristics in a conceptual framework.

**Analysing literature on ESD-effective school organizations: Methodological approach**

Given the specificity of the information they offer, single educational studies are not suitable to draft a comprehensive framework. Therefore, a review of the relevant literature is a valid approach to establish a framework for an ESD-effective school organization (Davies, 2000; Gough, 2007; Hallinger, 2013; Murphy et al., 2007). As the key objective of this study is the development of a framework that identifies the key characteristics of an ESD-effective school organization, the most fitting review methodology is a critical review, as described by Grant and Booth (2009). In their definition, a critical review shows that the researcher has 'extensively researched the literature and critically evaluated its quality' (Grant & Booth, 2009, pp. 93-97). A consequence of this methodology is that it might not be as systematic as a traditional literature review. As the goal of this study is the development of a conceptual framework and not an exhaustive overview of the available literature, a critical review appears to be the most fitting methodology.

*Search and selection process*

The search for and selection of relevant sources for this study was a two-step process. Initially, we searched scientific databases for relevant, peer-reviewed journal articles that primarily focused on ESD (Gough, 2007; Witziers et al., 2003). The sources included in this critical review had to meet certain criteria (Hallinger, 2013). First, they needed to have a focus on the school organizational level and had to be linked to ESD or related areas (e.g., environmental or citizenship education). Since environmental and citizenship education have several similarities with ESD (Krnel & Naglic, 2009), theory and research in these areas

provide valuable insights into ESD. We limited our database search to sources published from 2000 until 2019. This way, research produced in the years leading up to the UN Decade for Sustainable Development (DESD; 2005-2014) was included. Furthermore, sources reported in English and Dutch and both qualitative and quantitative sources were included. Finally, since this study addresses ESD in primary and secondary schools, sources that focused on a different education level (e.g., kindergarten and higher education), or were outside the scope of formal and compulsory education, were excluded.

**Table 1: Overview of search queries**

| Search query[1] | # hits | # relevant[2] |
|---|---|---|
| ESD AND school organisation | 16 | 3 |
| Education for Sustainable Development AND school organisation | 9 | 3 |
| Education for sustainability AND school organisation | 8 | 3 |
| Education for Sustainable Development AND school management | 13 | 2 |
| Education for Sustainability AND school management | 6 | 1 |
| ESD AND School culture | 9 | 2 |
| Education for Sustainable Development AND School culture | 6 | 3 |
| Education for Sustainability AND School culture | 11 | 4 |
| Education for Sustainable Development AND School leadership | 9 | 7 |
| Education for Sustainability AND School leadership | 5 | 3 |
| ESD AND School leadership | 15 | 4 |

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[1] Both ESD and Education for Sustainable Development were used as search query. When any noteworthy differences were found, both search results are reported.

[2] Doubles in the same query are excluded. Doubles in other search queries are included.

Use of the EBSCO search engine enabled us to search two databases simultaneously. The first database consulted was the Educational Resources Information Centre (ERIC), which is regarded as the most comprehensive database in the field of education (Evans & Benefield, 2001). The second database was GreenFILE, which has an environmental and sustainability focus. Table 1 provides an overview of the search queries used and the number of 'hits' to which they led. The Boolean operator 'NOT' was used to exclude the following words: higher education, college, universities and university. The resulting sources were first screened based on their titles and keywords. If these were connected to the scope of this study, a further screening based on the abstracts was carried out. The database search led to a total of 16 selected sources.

In the second step of our search process, we expanded our search via methods such as citation chasing, searching Google Scholar and reviewing handbooks on educational management. In accordance with Witziers et al. (2003), we screened the reference lists of the sources we found as well as sources that cited those that we had discovered to obtain additional sources for any undiscovered sources. The Google Scholar search engine was used to look for relevant sources that were not found in the databases. Finally, as this study aims to develop a framework for the ESD-effective school organization, handbooks on school organization and administration were screened for relevant sources (Witziers et al., 2003). The work of Hoy et al. (2013) provided a starting point for this stage of the review. In this second search round, the same criteria, as described, were also used when selecting publications. However, while the initial database search focused on peer-reviewed journal articles, the second search round also included other types of sources, provided they had clear links with the subject and a sound methodology that ensured their validity and reliability. Moreover, since a vast amount of the research on educational and organizational management was conducted before 2000, this date-criterion did not apply on relevant sources with a focus

on educational or organizational management. Sources found in the second search round were first screened based on titles and keywords and then on their abstracts. Via citation chasing, Google Scholar and a review of handbooks, an additional 30 sources were selected, setting the total number of sources used in this critical review to 46. Annex 1 provides an overview of the consulted sources.

*Method of analysis*

After the screening of the abstracts, all of the selected sources were thoroughly read by the first author. During this first read, different school organizational aspects related to ESD-effectiveness that came forth in the literature were highlighted and categorised with similar aspects. Initially, the factors identified by Sammons et al. (1995) guided this process of categorising. Of these 11 factors, the following eight factors could be linked to the school organization and were therefore of great value when categorising the different aspects found in the literature: professional leadership, a shared vision and goals, high expectations, positive reinforcement, monitoring progress, pupil rights and responsibilities, home-school partnership and a learning organization. Additionally, via a process of reading, rereading and critical reflection by all authors, a table containing 16 initial categories was developed (Cohen et al., 2011).

The different text fragments taken from the sources were placed under the best fitting category. If needed, one text fragment was attributed to two or more categories. This categorisation of the text fragments initially took place on the basis of the wording of the text fragment, taking into account synonyms, field-specific vocabulary and the context and origin of the source consulted. By analysing the text fragments attributed to different categories, similar or related categories were combined. Throughout this process, one researcher did the initial coding, the other researchers provided critical feedback. The quality of the coding work was evaluated by the entire team of researchers during various consultation moments. This

process resulted in the identification of eight characteristics of an ESD-effective school organization. Table 2 features an overview of the initial 16 categories, their connection to Sammons' factors and the 8 characteristics that were derived from these. Annex 2 provides examples of text fragments that were attributed to the final characteristics via this process of categorisation.

**Table 2: Overview of initial 16 categories**

| Initial Category | Characteristic of the ESD-Effective School | Related factor of educational effectiveness (Sammons, 1995) |
| --- | --- | --- |
| School culture | Intertwined within the eight characteristics | Learning organisation |
| Collective efficacy | Collective Efficacy | High expectations, positive reinforcement |
| Curriculum | Schools resources | N/A |
| Structural characteristics of the school | Schools resources | N/A |
| Communication | Pluralistic Communication | N/A |
| Supportive relations | Supportive relations | High expectations, home-school partnership |
| Involvement of the whole school | Supportive relations | High expectations, learning organisation |
| Responsiveness to external demands | Adaptability | Home-school partnership |
| Adaptability | Adaptability | Monitoring progress, learning organisation |

| | | |
|---|---|---|
| Leadership | Sustainable leadership | Professional leadership |
| Durability | Sustainable leadership | Monitoring progress |
| Distributed leadership | Democratic Decision Making | Pupil rights and responsibilities |
| Learner participation | Democratic Decision Making | Positive reinforcement |
| Vision | Shared Vision | Shared vision and goals, learning organisation |
| Task of the school | Shared Vision | Shared vision and goals |
| Well defined ESD-program | Shared Vision | Shared vision and goals |

*Ensuring reliability and validity in the present study*

With clear and consistent descriptions of the different steps and methods, we aimed to foster the reliability, validity and replicability of this study to the best of our abilities. Since this study aims at building a conceptual framework for an ESD-effective school organization, theoretical validity is of the upmost importance. As Maxwell (1992) noted, theoretical validity determines how valid a piece of research is as a theory for a phenomenon. In this study, certain steps were taken to ensure theoretical validity. Firstly, several (peer-reviewed) sources, both within the field of ESD and from the field of school organizational management, were used as a primary source of information. Secondly, the different definitions and concepts applied in the sources were closely compared in such a way that similar concepts could be described in the same way.

**A conceptual framework for an ESD-effective school organization**

Drawing on the literature review, we identified eight characteristics that are assumed to contribute to the ESD effectiveness of a school and incorporated them into a framework. On the subcontextual level, which refers to the school organization level context and not the

larger educational context (e.g., regional, state or federal level) in which the school as a whole is situated, two characteristics set the field for six central characteristics. On the subcontextual level, school resources and sustainable leadership were identified as important characteristics. The six characteristics on the central level are pluralistic communication, supportive relations, collective efficacy, adaptability, democratic decision making and shared vision. Figure 1 gives a representation of the different characteristics in our proposed framework for an ESD-effective school organization. In the following section, we will first describe the two subcontextual characteristics of an ESD-effective school organization. We will then closely examine the six characteristics on the central level. Finally, we elaborate on the division between the subcontextual and central levels and the relationship of the various characteristics.
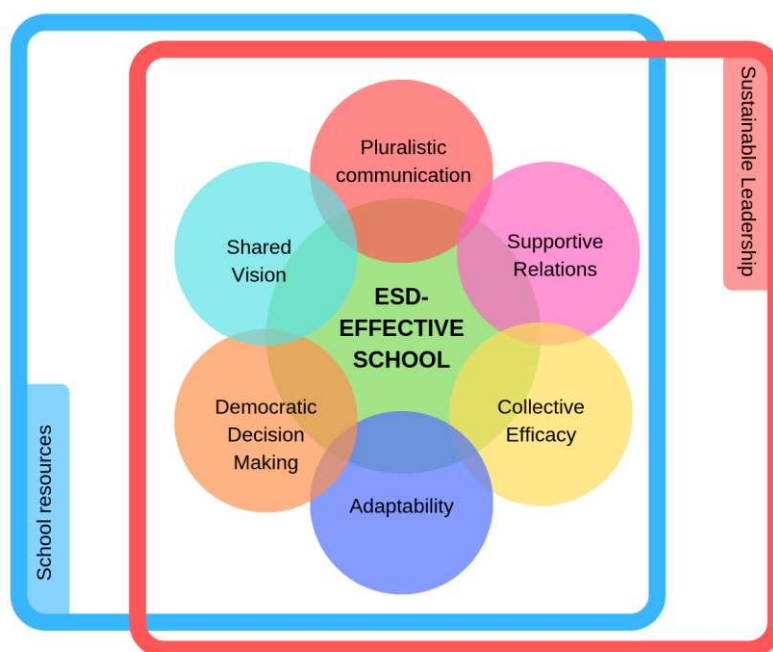


*Figure 1: a representation of the framework for an ESD-effective school*

### *Characteristics of an ESD-effective school organization on a subcontextual level*

### *Sustainable leadership*

School leaders are often seen as the initiators and play a key role in an ESD programme and

its implementation at a school (Bennell, 2015; Carr, 2016; Zachariou et al., 2013). For example, they factor into paving the path for a shared vision, allocating the resources of the school and setting up communication channels to facilitate ESD in schools (Bennell, 2015; Carr, 2016; Harris, 2018; Iliško & Badyanova, 2014; Kadji-Beltran et al., 2013; Leo & Wickenberg, 2013). As Hargreaves and Fink (2006) stated, 'Sustainable educational leadership and improvement preserves and develops deep learning for all that spreads and lasts, in ways that do no harm to and indeed create positive benefit for others around us, now and in the future' (Hargreaves & Fink, 2006, p. 17). Building on Hargreaves and Fink's definition, Iliško and Badyanova (2014) commented that a long-term strategy wherein continuous improvement with respect for both past traditions and recent innovations is necessary for a successful school organization. Both descriptions incorporate the holistic aspect of ESD - namely, an integrated view of the past, present and future, here and elsewhere. These descriptions also place school leadership in the position as a catalyst for ESD. Based on these descriptions for sustainable leadership, it is clear that school leadership for ESD is similar to the base principles of sustainable development.

This concept of sustainable school leadership found in ESD literature can be substantiated with more managerial approaches towards school leadership. The model of *transactional and transformational leadership* (Bass, 1985; Bass & Riggio, 2006) has been considered in ESD literature focusing on school leadership (Wildy & Pepper, 2008). This model describes three types of leadership: transactional, transformational and laissez-faire. The laissez-faire leadership style involves the absence of leadership or a lack of commitment. This absence of leadership could, in some situations, be a well-considered action by the leader. On the other hand, this style may also lead to negative results for a school and school team (Hoy et al., 2013). Transactional leadership is characterised by the exchange of rewards for efforts and responding to the needs of subordinates. Moreover, transformational leadership

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goes further than the mere exchange of rewards. It involves a proactive style in which four I's are central: *idealised influence, inspirational motivation, intellectual stimulation* and *individual consideration* (Bass & Riggio, 2006). Transactional and transformational leadership are complementary rather than contradictory (Kelchtermans & Piot, 2010). This discourse has also been present in ESD literature on school leadership. In ESD literature, the terms *transmissive* and *transformative* are often used when discussing the ESD-implementation process. These terms are highly similar to the transactional and transformational leadership perspectives (Mogren & Gericke, 2017b). Mogren and Gericke (2017b) found that Swedish school leaders use a combination of transactional and transformational strategies when implementing ESD. (Sammons et al., 1995) also highlighted the importance of school leaders and the sustainability of their leadership when it comes to school effectiveness. According to Sammons (1995), professional leadership and the monitoring of progress are two important factors for effectiveness.

*School resources*

Based on the literature, we found that school resources involve three components: time management, professional structure and physical structure. In order for a school to be ESD effective, these three components should facilitate the central characteristics of a school (Leo & Wickenberg, 2013).

Time management within a school consists of planning and scheduling subjects and timeslots. These can be scheduled in a specific manner to facilitate pluralistic, interdisciplinary and integrated methods of teaching and learning (Mogren & Gericke, 2017a). For example, by arranging the lessons so that there is room to integrate ESD in different subjects, it becomes easier to work in a pluralistic and interdisciplinary way. Moreover, as

research has shown that teachers often see ESD as more work (Gyberg & Löfgren, 2016),

efficient and integrated planning might reduce teachers' workload.

The *professional infrastructure* of a school refers to the different professional

positions and how they are grouped and organised. It is closely related to Hoy et al. (2013)

description of 'structure' and practical examples can be found in for example grade level

teams or subject area departments within the school organization. A school's professional

infrastructure can support ESD effectiveness by for example forming formal teacher teams

that allow for a pluralistic and holistic corporation (Mogren & Gericke, 2017a). By organising

teacher teams in which teachers of different, ages, cultures, subjects and other features are

represented, teaching and, by extension, learning could take a holistic and pluralistic

approach. As with planning, the professional infrastructure can aid in minimising the

workload of teachers. For example, by efficiently structuring who works with whom, channels

for supportive relations are facilitated, which in turn might reduce the workload.

Lastly, the physical infrastructure of the school was identified in the literature as a

component of schools' resources (Kuzich et al., 2015; Schelly et al., 2012). By setting an

example for sustainable development in the way a school is built and run, a school working

with ESD invigorates its sustainability principles. Additionally, it also sets an example for the

students, teachers and everyone working and learning in the school. Examples include

investing in solar energy and a 'green' playground.

While there are other parties that may influence the allocation of the school resources

(e.g., the school group or other governing institutions), this is largely the responsibility of the

school leader. The pluralistic aspect of ESD implies that this allocation occurs in a democratic

manner, in which the school leader is a key figure. It is the leader responsibility to allocate the

appropriate resources and time that the integrated and holistic way of teaching ESD requires.

For example, in regard to the teaching staff, the school leader is responsible for supervising

and facilitating the work of different teacher teams and allocating resources for teacher development programmes (Kadji-Beltran et al., 2013). When school leaders can allocate the resources of schools so that they facilitate ESD, the implementation and functioning of ESD will be more effective (Iliško & Badyanova, 2014; Leithwood & Jantzi, 2008). On the other hand, an incorrect allocation of resources could negatively influence the self-efficacy of a school leader and, by extension, the effectiveness of ESD (Leithwood & Jantzi, 2008).

### *Central characteristics of an ESD-effective school organization*

*Pluralistic communication*

*Pluralistic communication* refers to the way in which different actors in a school, such as the teachers, students and school leaders, communicate. It is the process of conveying messages from a sender to a receiver and occurs through the formal or informal networks of the school organization (DeFleur et al., 1993; Hoy et al., 2013). The pluralistic pedagogy of ESD requires a specific type of communication. It is characterised by the attempt to recognize different viewpoints and get these to participate in a dialogue (Boeve-de Pauw et al., 2015; Lijmbach et al., 2002; Rudsberg & Öhman, 2010). This idea can be transferred to the organizational level, where communication needs to take different viewpoints and critical voices into account and provide space for reflection.

While effective communication is an important characteristic of an ESD-effective school organization, this is often a point of issue in ESD (Leo & Wickenberg, 2013). Since sustainable development and, by extension, ESD are difficult and complex concepts (Bormann & Nikel, 2017; Gyberg & Löfgren, 2016; Wildy & Pepper, 2008), effective communication is essential to obtain a common understanding of them (Leo & Wickenberg, 2013; Schelly et al., 2012). Leaders of ESD-active schools have indicated that open and direct

communication channels, both within the school an in the external environment, are important when implementing an ESD trajectory (Mogren & Gericke, 2017a).

In an ESD-effective school organization, communication is completely integrated and high functioning and has open communication channels (Leo & Wickenberg, 2013; Mogren & Gericke, 2017a). In a pluralistic and open communication climate, there is a willingness to learn from the experiences, viewpoints and arguments of others. In such a climate, communication is more descriptive, oriented, spontaneous, empathic, on an equal level and provisional (Haney, 1967).

*Supportive relations*

As a part of a school organization, people can feel supported by other members of the organization or by people outside of it. These supportive relations lead to a more integrated way of working. By working together, issues related to the implementation of ESD are easier to overcome. Within these relations, individuals' high expectations of themselves as well as their external partners can aid in school effectiveness (Sammons et al., 1995). Research on the implementation processes of ESD has shown that this support can manifest itself at different levels: within the school, between school leaders, between schools and with outside partners.

*Supportive relations within the school team*. When teachers have the opportunity and are willing to share knowledge and experiences with each other, they obtain access to more knowledge to become skilled educators for sustainable development. They also facilitate the development of a collective drive for action towards implementing ESD in the school (Bennell, 2015; Henderson & Tilbury, 2004; Iliško & Badyanova, 2014; Kuzich et al., 2015). This support between individual teachers is only possible if teachers are given the opportunity to form and take part in supportive networks (Bennell, 2015). For example, a school can set up a teacher room that facilitates the exchange of information among teachers.

*Supportive relations between schools.* Research on the implementation of ESD has shown that supportive school networks provides participating schools with insights into their own functioning via outside supervision, collegial learning, a platform for knowledge sharing and increased motivation (Henderson & Tilbury, 2004; Mogren & Gericke, 2017a). These supportive relations between schools can also occur at an international level. This presents the possibility to learn from international contacts, thus increasing the opportunities for pluralistic and holistic perspectives (Bennell, 2015; Mogren & Gericke, 2017a).

*School leaders' supportive networks.* Several sources found that school leaders often engage in supportive networks with each other when implementing ESD at their schools. School leaders obtain the most support from other school leaders (Leo & Wickenberg, 2013; Mogren & Gericke, 2017a). This support consists of the exchange of knowledge and ideas for implementing ESD (Mogren & Gericke, 2017a). Lastly, these supportive relations also allow school leaders to set high expectations for themselves and their colleagues (Leo & Wickenberg, 2013; Sammons et al., 1995).

*Supportive networks with outside partners.* In order for a school to achieve ESD effectiveness, support from outside partners is important. Examples of external partners include the (local) community, parents, guidance services and external experts (Bennell, 2015; Mogren & Gericke, 2017a). For instance, teachers and school leaders might need further professionalization to obtain the necessary skills for implementing and working with ESD in their schools (Zachariou et al., 2013). Sammons (1995) referred to the partnership between schools and the parents as 'home-school partnership'.

*Democratic decision making*

Evidence has shown that in order for a school to be ESD-effective, shared or distributed leadership is needed (Bennell, 2015). *Distributed leadership* means that both teachers and

pupils are involved in the decision-making process of a school (Hargreaves & Fink, 2006; Nikel & Lowe, 2010). Research findings that have indicated school effectiveness is linked to the level of involvement of pupils, teachers and other stakeholders in decision-making processes, substantiate this need for a democratic approach to decision making (Leithwood & Mascall, 2008; Sammons et al., 1995). The role for the school leader is to oversee and steer this process and step in if necessary (Mogren & Gericke, 2017a).

The pluralistic aspect of ESD also implies a democratic decision-making process. A democratic and distributed way of decision-making can strengthen attributes of ESD, such as different viewpoints, critical thinking and reflection. This might, in turn, lead to a school climate that is open to ESD (Mogren et al., 2019).

*Shared vision*

A school incorporating ESD will often have a common, school-wide understanding of what they as an organization mean by ESD, why they feel a need to incorporate it and what they hope to achieve by working with ESD. Research has shown that such a shared vision is essential for an integrated and school-wide effective school policy towards ESD (Boeve-de Pauw & Van Petegem, 2011a; Iliško & Badyanova, 2014; Leo & Wickenberg, 2013; Mogren et al., 2019; Sammons et al., 1995). However, it is not easy to set the baseline for a shared vision since a common understanding of ESD is often inconclusive (Cars & West, 2015; Zachariou & Kadji-Beltran, 2009). During the process wherein the school gives meaning to its understanding of ESD and the shared vision that comes with it, all participants should understand that there is not a single correct understanding of the concept. Therefore, it is important to set ground rules for this process. Common ground can be found in the central principles of ESD: holism, pluralism and action-oriented. If the various stakeholders communicate about how these concepts are integrated in a school, it will lead to the

development of a shared vision. ESD will then be the guiding vision for the school (Leo &

Wickenberg, 2013).

Although a single understanding of ESD is not always possible or necessary for a

school to be ESD-effective, attitude towards ESD should be a crucial aspect of this vision.

Research findings on ESD, EE and CE have presented three possibilities regarding schools'

stances towards ESD (Boeve-de Pauw & Van Petegem, 2011b; Kavadias & Dehertogh, 2010).

Self-determination theory (SDT) offers a way to describe such stances (Deci & Ryan, 2008).

SDT considers several types of motivation, such as intrinsic and external motivation and the

lack of motivation or amotivation (Deci & Ryan, 2008). When linked to the different stances

of schools towards ESD, three main types of motivation for ESD are observable. The first

possibility is that schools not involved with ESD and do not view ESD as their responsibility.

In other words, they do not see it as their task and refrain from engaging in ESD-related

activities. They adhere to the obligated curriculum and the ESD-related subjects that might be

found in there. These schools have an *'amotivation'* for ESD. A second possibility is that

schools experience an external pressure for ESD. These expectations can, for example, come

from a higher governance level that seeks to implement ESD in education (Scott, 2009) or

from other school leaders who are engaged in ESD (Leo & Wickenberg, 2013). By

responding to these external demands, a school is externally motivated to work on ESD (Deci

& Ryan, 2008). Another example of external motivation can be found in schools that engage

in certification and other programmes due to the prestige these offer. However, research has

shown that these programmes do not always lead to the desired outcomes, which might

suggest that external motivation is not the best option for achieving ESD effectiveness

(Boeve-de Pauw & Van Petegem, 2017; Krnel & Naglic, 2009). Lastly, schools might view

ESD as something that they regard as intrinsic to their organization. This *internalised*

*motivation* often starts with a small number of teachers within the school team, but it results in

an 'oil stain' that spreads throughout a school and becomes a characteristic of it (Krnel &

Naglic, 2009; Mogren & Gericke, 2017a). The engagement of the whole school in ESD will

aid in its successful implementation (Henderson & Tilbury, 2004). In addition to the obligated

curriculum, a school that is strongly internally motivated towards ESD might be able to add

the shared school vision to this curriculum. This if often referred to as the hidden curriculum

of the school (Carr, 2016).

*Adaptability*

*Adaptability* refers to the way schools adapt to internal and external demands or opportunities

for change. An effective school is able to respond to these demands and can improve by doing

so (MacBeath & Mortimore, 2001). Linked to the factors described by Sammons et al. (1995),

an effective school should be learning while meeting these demands. These demands will or

will not initiate a change discourse. For change to be sustainable, a school should have a

holistic perspective to change whereby it looks at the valuable aspects of the past in order to

change the present and aim for a more effective future (Hargreaves, 2007).

When changing, schools can adapt two strategies: single loop organizational learning

or double loop organizational learning (Argyris, 1976). In *single loop organizational*

*learning*, the organization adjusts by incorporating new elements in the existing procedures

and value system of the organization (Argyris, 1977, 2002). Implementing the new knowledge

does not change the underlying and existing organizational values. With *double loop learning*,

the organization changes by altering the procedures and values on which the organization

itself is based (Argyris, 1977, 2002). School personnel ask 'Why do we do it like this?' prior

to implementing a change (Argyris, 1977, 2002).

In ESD literature, two perspectives on how schools as organizations might tackle

change have been put forward: transmissive and transformative. These two perspectives show

similarities with the concepts of single and double loop organizational learning. The

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*transmissive perspective* focuses on implementing new aspects, such as an ESD programme, within the existing school procedures (Hargreaves & Fink, 2004; Mogren & Gericke, 2017a). The *transformative perspective* relies more on adapting and developing the school working procedures (Hargreaves & Shirley, 2009).

Since critical thinking and reflection are essential aspects of pluralism within ESD, we can expect for an effective ESD school to address the issues of how to adapt, implement and measure change in a critical and reflective manner. It is important for the presented issue to receive an appropriate response. While there is sometimes a need for single loop strategies, at other times, an organization will need to undergo a more thorough transformation via double loop learning.

*Collective ESD efficacy*

*Collective efficacy* refers to a school team's conviction that their efforts will have a positive effect on the student outcomes and their high expectations of what the school and its pupils can achieve (Bandura, 1997; Hoy et al., 2013; Sammons et al., 1995). Experiencing a feeling of efficacy means that one feels able to properly perform a task. It is not about the actual ability; instead, it pertains to the ideas one has regarding her or his perceived ability (Bandura, 1997). Sources have shown that collective efficacy is a crucial aspect of student achievement and school effectiveness (Hoy et al., 2013; Leithwood & Jantzi, 2008; Leithwood & Mascall, 2008).

There are four sources of collective efficacy (Bandura, 1997; Hoy et al., 2013): mastery experiences, vicarious learning, verbal persuasion and the affective state of an organization. When a school team experiences success after a demanding task, it contributes to building collective efficacy. Moreover, when these success experiences or *mastery experiences* are frequent, they will support the collective efficacy of a school. *Vicarious* or

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*indirect experiences* are the second collective efficacy source. Stories of other teachers or

other schools are an example of this source type. *Verbal persuasion*, which is the third source

of collective efficacy, refers to all the verbal arguments that enforce the idea that a school is

capable of performing its task. On its own, verbal persuasion is not likely to have a substantial

impact. However, when included with one of the other sources, it can strongly facilitate the

collective efficacy of a school. The final source is *the affective state* of the school. How

schools manage stress and other disruptive forces will influence how they interpret certain

challenges, which will in turn influence the collective efficacy. The four sources listed above

will steer the collective efficacy of a school team and, in doing so, will influence the effort,

persistence and success of the school as it undertakes certain endeavours (Bandura, 1997; Hoy

et al., 2013).

Due to the positive effect of high collective efficacy on school performance, it is an

essential aspect of an ESD-effective school organization. A school with a high sense of

collective efficacy will see itself as more capable of successfully achieving ESD related goals,

which may then lead to more effective results.


***Interconnectivity among the characteristics of the ESD-effective school organization***

In the previous paragraphs, we described the eight characteristics of an ESD-effective school

organization: sustainable leadership, school resources, pluralistic communication, supportive

relations, collective efficacy, adaptability, democratic decision-making and shared vision.

When studying the different characteristics of an ESD-effective school organization, it is

important to be aware of their interconnectivity. On the subcontextual level, the school

resources and sustainable leadership set the stage for how the six central characteristics are

manifested. These two subcontextual characteristics also impact each other. For example, the

resources of a school are not infinite, which limits a school leader's distribution of them. This

connection between resources and school leadership will shape the organization of the school, hence influencing the central characteristics. The central characteristics also mutually influence each other. The way that one of the characteristics is organised will influence the presence of the other characteristics. For example, when several channels for pluralistic communication exist within a school, the way in which a school team communicates about their vision on ESD will greatly differ when these channels are not available. The interconnectivity between the different characteristics is illustrated in Figure 1, which depicts the characteristics at the central level as overlapping circles within the squares of the subcontextual characteristics.

Finally, it is important to note that culture is not seen as a separate characteristic. Each characteristic of an ESD-effective school organization, at both the subcontextual and central levels, will have notions of an ESD culture incorporated within it. The ways in which the different characteristics are expressed within the organization reflect the ESD school culture. For example, an ESD-effective school organization will know a culture in which the importance of supportive relations is embedded in the organizational values.

**Conclusions and implications for the field of ESD**

***Situating the framework for the ESD-effective school organization in the field of ESD***

This study provides a comprehensive framework that examines ESD from the viewpoint of the school as an organization. Based on the literature, we were able to identify eight characteristics, two subcontextual and six central, which lead to ESD effectiveness within schools. On the subcontextual level, we distinguished sustainable leadership and resources of the school. On the central level, pluralistic communication, supportive relations, collective efficacy, adaptability, democratic decision-making and shared vision were identified as being important characteristics for an ESD-effective school organization.

Although ESD has been a research theme in recent decades, insufficient evidence has restricted claims on schools' ESD effectiveness. However, recently, research has shifting towards the idea that the effects and impact of ESD should be measured in a more empirical way (Boeve-de Pauw et al., 2015; Bormann & Nikel, 2017; Singer-Brodowski et al., 2019; Waltner et al., 2018). The framework presented in this study supports this shift towards a more empirical way of examining at ESD.

### *Limitations of the study and need for further validation of the proposed framework*

While this study achieved its goal by identifying the characteristics of a school organization argued to influence ESD effectiveness, it is important to note the confinements and limitations of the study and research design.

An important delimitation to this study is the fact that it mainly focused on the conceptual development of the framework. A way forward from this delimitation could be found in checking how schools that are already actively engaged in ESD see the different characteristics of the ESD-effective school organization. By adding an empirical layer to the framework, its validity could be further substantiated. The focus of this study on the identification of the different characteristics, so the specific relationships between the different identified characteristics were not the main subject of investigation. Nevertheless, there is reason to believe that the different characteristics are interacting and interfering with each other in a more dynamic manner than is shown in Figure 1. Further empirical and quantitative research is needed to unravel these relationships. A better understanding of the characteristics' dynamic relations could greatly affect the ESD effectiveness of a school. Another delimitation can be found in the focus of the search and selection criteria on formal education. Other (educational) areas might provide valuable insights in ESD-effectiveness of school organizations, but these fell outside of the scope of the current study. Furthermore, since most of the sources were situated in a Western European and Anglo-Saxon context,

further research is also necessary to determine how this new framework will hold its ground in a different cultural setting. Comparing the framework to literature that has featured different contexts can achieve this, but we argue that empirical validation in a different cultural setting will provide deeper insight into how generalizable the framework is.

While steps were taken to conduct the study in a rigorous way, ensuring its reliability and validity to the best of our ability, there is still a need for further validation of the framework. Firstly, given that it is impossible to guarantee that all possible relevant sources were found in by search, we attempted to provide a clear and concise description of our search and selection criteria and strategies. Nevertheless, it remains possible that during the search, we failed to identify other relevant sources. Secondly, as the categorisation of the text fragments involved some level of interpretation, researcher bias might have an influence on this process. By actively looking for critical feedback and continuous examination of our analyses, we strived to limit this.

### *Importance for further research and practice*

The identification and incorporation of the different characteristics of the ESD-effective school organization paves the path for further research on ESD effectiveness and the key role of a school, as an organization, in this. By adding the perspective of the school as an organization to the ESD field, the important catalyst function of the school towards ESD effectiveness is highlighted. However, as the dynamic model of educational effectiveness by Creemers and Kyriakides (2008) shows, other levels are also of importance in determining educational outcomes and effectiveness and must be taken into account in future research The framework presented in this study provides a basis for school effectiveness research in the field of ESD. Since school effectiveness research has shown that schools play an important part in determining learning outcomes (Scheerens, 1990), a framework such as presented in this study offers valuable insight into school ESD effectiveness. We hypothesise

that schools that perform well on the different characteristics will be more effective when it comes to ESD. Nevertheless, future research, linking the school organizational characteristics to educational outcomes remains needed to gain insight in how the characteristics facilitate those outcomes. The similarities between several of the identified characteristics and the 11 factors for school effectiveness (Sammons et al. (1995) also signifies the importance of these characteristics. Moreover, given the connection between the field of ESD and other educational areas such as EE, we argue that the proposed framework for the ESD-effective school organization can be inspirational for effectiveness research in the area of EE. While the identified school characteristics are linked to ESD, the similarities between educational areas as EE and ESD make that schools working with ESD will have notion of at least some aspects of EE.

As it stands, the newly proposed framework for an ESD-effective school organization can provide a reference for school leaders, pedagogical counsellors and others working with and for ESD at the school level. By showing which characteristics influence the functioning of the school organization concerning ESD, the school organization can use the framework to look at its own functioning when implementing of reforming an ESD programme. In the end, further valorisation of this framework could lead to several instruments for schools working with ESD. For example, this framework might be operationalised in a measurement instrument that can be used to measure and compare the ESD effectiveness of the school with teacher and student outcomes related to ESD. Other practical appliances might include a self-evaluation tool or a roadmap that aids schools towards ESD-effectiveness. When schools are more aware of their organizational ESD performance, they can obtain a better grasp of the purpose of ESD: to provide pupils with the necessary competencies to ensure a sustainable world.

**Acknowledgements**

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Annex 2: Examples of text fragments attributed to each of the eight characteristics

| Characteristic | Text fragment | source |
|---|---|---|
| Sustainable leadership | "Sustainable educational leadership and improvement preserves and develops deep learning for all that spreads and lasts, in ways that do no harm to and indeed create positive benefit for others around us, now and in the future." –p.17 | (Hargreaves and Fink, 2006) |
| School resources | "Without exception, the teachers regarded this as a duty that increased their workload." –p.294-295 | (Gyberg & Löfgren, 2016) |
| Pluralistic communication | One conclusion is that principals need to be more aware of the ways that communication can improve, and the need for on-going dialogue aimed at defining key concepts such that the staff can engage in in-depth discussions about sustainable development." –p.414 | (Leo & Wickenberg, 2013) |
| Supportive relations | "This criterion states that it is important for school leaders to help, support and exchange ideas with other school leaders in order to understand different ways of implementing ESD."-p.983 | (Mogren & Gericke, 2017a) |
| Collective efficacy | "Efficacy is a key variable in better understanding effects in most organizations." –p.497 | (Leithwood & Jantzi, 2008) |
| Adaptability | "A school organisation with a transmissive perspective aims to transfer knowledge or values from one person to another. Conversely, a school organisation with a transformative perspective | (Mogren & Gericke, 2017b) |

| | | |
|---|---|---|
| | adopts an approach whereby both the learner and the organisation itself must change (i.e. undergo transformation) in response to changes in the outside world." –p.995 | |
| Democratic decision making | "Political dimension of sustainability in this school has been practiced by developing a dialogical and democratic decision making processes among the administration and staff members. Each teacher has a voice in deciding upon the best ways of transforming the culture of school towards a more sustainable." –p.43 | (Iliško & Badyanova, 2014) |
| Shared vision | "However, critics have pointed to that environmental or ESD distinction programs can be ineffective because educators responsible for the programs differ greatly in their understanding of ESD. The definition of and understanding of ESD differs not only between countries but also within a country." –p.14 | (Cars & West, 2015) |