



**Extensive collaboration in teachers for Education for  
Sustainable Development**

A study case of the Eco-Schools program

Catarina Alves  
Felipe Araya

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Supervisor: Sandra Jönsson

# ABSTRACT

Education for Sustainable Development (ESD) has been stated as fundamental in regards to achieve the Sustainable Development Goals set by the UN. This exploratory research aims to contribute to getting more knowledge about how promoting and strengthening ESD in the secondary school level, particularly, through the role of teachers and the way they can be engaged, prepared and supported to deliver knowledge and experiences for effective learning experiences of their students. Specifically, this study explores the benefits of collaboration between teachers within networks in relation to ESD and its limits. Using the lens of Teaching Communities (TC) which considers the theories of Communities of Practice (CoP) and teachers Professional Learning Communities (PLC) for analyzing the data collected. Also, the opportunities of Information and Communication Technologies (ICT) in this field as spaces that help in enabling collaboration are considered. The research is conducted by taking the case of the NGO Eco-Schools which provides a global program for ESD but has not formal learning communities. 10 teachers and 2 National Operators of Eco-schools were interviewed, and the main concepts mentioned were analyzed. The findings showed similarity with the characteristics and conditions of the theories used. However, the exploratory purpose of this research doesn't have statistical validity, therefore, further research is required. Although, information and communication technology provide valuable insights for developing quantitative tools.

**Key Words:** Education for Sustainable Development, teachers, Communities of Practice, collaboration, sustainability, NGO, informal learning.

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## LIST OF ABBREVIATIONS

NGO - Non-Governmental Organization

ESD - Education for Sustainable Development

TC - Teacher Communities

PLC - Professional Learning Communities

CoP - Communities of Practice

ICT: Information Communication Technologies

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# 1. INTRODUCTION

## 1.1. Overview

With the problems faced by the world regarding economic instability, the challenge of replacement workforce by technological advances, social pressure and climate change hazards, the newer generations have to be prepared to answer the challenges of the current and future world (ETS, 2002; Partnership for 21st Century Skills, 2008). According to Sterling (2001), teaching and learning practices have the capacity to guide people towards more sustainable behavior and lifestyle. Nevertheless, teaching sustainability gives teachers a new responsibility when educating their students, which was not requested from them before.

Considering this, the UNESCO created the concept of Education for Sustainable Development (ESD) that has been integrated in school curriculums around the world, but not in a holistic way (see 1.3.1). To close the gap, informal education, NGOs and teachers have an important role (see 1.3). Many teachers are putting it into practice in a voluntary basis through the development of non-formal and informal learning projects, using methodologies developed by Non-Governmental Organizations (NGO), which they partner with (Kieu et al. 2016; IGES, 2004; Yeshodhara, 2005).

Collaboration between teachers, social networks and communities of practice have also shown to have an important role in innovation in schools and teachers' development (see 1.3.4). In fact, these have shown to be very effective in the professional development of teachers in general and, in some cases, more effective than traditional methods (Hargreaves, 1992; Tripp, 2004; Niesz, 2007). This suggests that collaboration between teachers can be important for integration of ESD in schools. (Borg et al. 2012). Additionally, through Information and Communication Technologies (ICT) like social media and other networks, communication and collaboration have shown to become easier (U.S. Department of Education Office of Educational Technology, 2016).

Taking this into account, this research aims at understanding better the value of teacher collaboration in the implementation of ESD in schools when teachers are already engaged in programs of NGOs with standard frameworks. Using the study case of Eco-Schools, and the theoretical concepts of Communities of Practice (CoP), Teacher Communities (TCs) and Professional Learning Communities (PLC) to build a framework for analysis, the researchers conducted 10 interviews with teachers involved in the program and 2 with National Operators of Eco-Schools. With this, they hope to understand better the advantages and limitations of collaboration in this specific setting and comprehend more about how teachers are collaborating already as well as what is missing for improving communication and interaction. The research also trays to understand better how online virtual communicates can contribute to more effective collaboration since literature in relation to CoP and PLC promotes the use of virtual platforms and resources for efficiency and scalability.

## 1.2. Structure of the paper

The document describes initially the context in which the concept of Education for Sustainable Development was proposed as well as its meaning and scope. The first part presents also some of the main agents involved in the promotion of this concept and in particular the role of teachers and NGOs, it also introduces the opportunities of technology supporting the role of the agents. With this background, the problem researched by this study is presented followed by the aim and the research questions.

The theoretical background is presented as a framework that will be used after to analyze the data collected, where the concept of Communities of Practice is presented and contextualized for this specific field. After that, the design of the research expands the case of Eco-Schools as the base used for the

research, explaining their characteristics and its attractiveness for conducting studies. Then, the expansion of the methods used, its features and limitations are explained.

The results are presented after by answering the questions with the empirical findings and introducing the theoretical approach for analyzing and comparing it. A discussion regarding the implications of the analysis and the contributions of the research are shown after. The paper ends with a conclusion and recommendations for future research.

### **1.3. Background**

The following section aims at understanding the role of Education for Sustainable Development in the creation of more responsible societies, the challenges associated with its integration in schools and some of the ways to help solve them that were found in research. Thus, this part starts by introducing the concept and the origin of it, followed by an explanation of the difficulties associated with its implementation. The difficulties found have to do with the need of using alternative teaching methodologies and approaches that can able to promote interaction, exploration, critical and systematic thinking, needed to develop the skills, knowledge and capabilities in students essential to create responsible citizens. Further on, the importance of the role of school teachers will be explained and non-formal and informal ways of teaching and learning and learning-by-doing methodologies will be presented as necessary for both students and teachers. Then, the importance of teacher collaboration is argued, together with the related terms of social networks and communities of practice. These are presented as informal education methods, which level of effectiveness in teacher professional development has been seen by some as higher than other traditional teaching approaches, showing to be especially important to promote change in schools. The relation between teachers collaboration is no explicit in this section since there is no much literature around the subject. Nevertheless, some research found close to the theme, will be discussed. Finally, NGOs are presented as good platforms to deliver non-formal and informal education and ESD in schools, since they have the ability to find and close the gaps of education systems through the development of different types of initiatives, usually using interactive and participatory methodologies. The suggestion is that NGOs can have an important role in teachers education.

#### **1.3.1. Introduction to Education for Sustainable Development**

Sustainable Development (see 1.1) is one of the biggest challenges of today. According to the IPCC report of 2018, climate change threatens to change drastically the life of the many in a negative way if carbon emissions don't drop in the next eleven years (Hoegh-Guldberg, 2018). At the same time, the hazards of single-use plastics for the ocean and our health have become more evident than ever (Galloway, T. S., 2015). Other environmental problems threaten the sustainability of nations, but also societal problems are incorporated in most definitions of sustainability (Johnston, P., 2007). This includes problems like hunger, gender and racial inequalities, health problems and justice (Assembly, 2015).

Education plays an important role in ensuring sustainability since attaining it requires a change of mentalities (Duran, D. C., 2015). The Agenda for Sustainable Development of 2030 has developed 17 goals to be met in that year ("The Global Goals", 2019), being quality education the 4th goal. Despite being a goal in itself, quality education is seen as a tool to achieve all the other goals. This is translated in goal 4.7 that aims at ensuring "all learners acquire knowledge and skills needed to promote sustainable development" (Sustainable Development Solutions Network (SDSN), n.d). For that reason the United Nations created the concept of Education for Sustainable Development, that aims to "empower people to change the way they think and work towards a sustainable future" (Diemer, 2017, p.20). It does it by "equipping and empowering students with knowledge, skills and values that together create the awareness needed to drive change." (UNESCO, 2014, p. 8).

Although the youngest generations are the ones with less power to make a change in the present, they will take that responsibility in the near future, which justifies the need to bring Education for Sustainable

Development to the schools. (Bertschy et al. 2013). ESD uses pedagogy in an innovative way, promoting interactive, action-oriented and exploratory learning and teaching that allow transformational learning, based in critical and system thinking (Leicht, 2018).

### 1.3.2. Steps needed for further integration of ESD

School curriculums have an important role in creating awareness and improve knowledge and capacities of pupils, areas that have been appointed as key action areas for ESD (UNESCO, 2009b, 2009c, 2010; UNESCO World Conference on Education for Sustainable Development, 2009). Based on that the Evaluation Report for the Ten Years of the UNECE Strategy for ESD 2005-2015 states that 84% of member states are now implementing at least one topic of ESD in national curriculum frameworks of secondary school. Despite this, the report also acknowledges that there is still a lot of work to do. They and Garner et al. (2015) point out the importance of further integration of non-formal and informal ways of learning and describe them as essential for a fully holistic integration of ESD. Yasunaga (2014) agrees and also mentions both as a good tool to bring change to organizations like schools.

Non-formal education has shown to help “develop human capabilities, improve social cohesion and to create responsible future citizens” (Yasunaga, 2014). It can be defined as organized educational activities “which are not involved in the formal system of education (...) which foster the personal, social and professional development of people”, usually associated with learning-by-doing methodologies needed for ESD (see 1.3.1) (INFED, 2015). Informal education in the other hand is defined by “any activity involving the pursuit of understanding, knowledge or skill which occurs without the presence of externally imposed curricular criteria” (IGI Global., n.d.). The most significant difference between the two is that informal education is not a deliberate instructional program and it can happen in both formal and informal education settings since its related to the process of observing and socializing. This should not be undervalued since informal education has shown to play an essential role in the development of competencies (Barth and Godemann, 2007) and because around 70% of all human learning has shown to come from informal learning (Overwien, 2005, p. 340).

### 1.3.3. The role of teachers in Education for Sustainable Development and its challenges

Teachers have been recognized as key agents for sustainable development and sustainable behavior. At the same time reforming teacher education has been considered the third more important step for ESD implementation, after “rethink education” and “Raise public awareness” (Kieu et al. 2016). Nevertheless, similarly to student teaching, ESD teacher education seems to be more challenging than including it in the formal curriculums and requires also non-formal and informal education (Kadji-Beltran et al., 2014).

According to the progress report of the Decade of Education for Sustainable Development from 2005–2014, ESD when done right has shown to promote better teacher education. This happens because ESD challenges the preconceptions of learning, working as an incentive for much-needed reform in education. In fact, ESD promotes participation, interaction and practical experiences, not usually connected to mainstream teaching methods created in the industrialization era (Nolan, C.,2012; Leicht, A., 2018).

### 1.3.4. The role of teacher collaboration, social networks and communities of practice

Although the three concepts of collaboration, social networks and communities of practice are different, they are very much interconnected and serve the same goal, connect people in efficient ways. For the purpose of this paper and more easy comprehension, it may be worth to explain that social networks allow spaces for collaboration that can become communities of practice.

Collaboration and networking among different entities have been considered key to sustainable development, through giving voice to the individual stakeholders (Pearce et al., 2008). Collaboration between teachers, also defined as teacher’s collegiality, is a form of informal learning (Barth and



Godemann, 2007) that has been considered one of the best strategies to foster their professional development and innovation in the classroom. (Hargreaves, 1992). Accordingly, it has shown to be a good way to increase teachers' confidence and, consecutively, increase their willingness to experiment and take risks (Bird and Little, 1986; Rosenholtz, 1989). Tripp (2004) talks about the benefits of a teacher's network in Singapore, a program of the national Ministry of Education that promotes teacher collaboration. The researcher highlights the benefits of it by defining it as an excellent tool for continuous learning compared to other forms of learning, based on skills and facts learning of static environments. The author also mentions the importance of the collaboration happening in these social networks for changing mindsets and enhance teacher's professional development through an increase in their capacity to learn autonomously and manage knowledge. Additionally, Niesz (2007) wrote an article on the advantages of Teacher Networks as Communities of Practice (CoP), contrasting them with traditional ways of teaching and professional development. A deeper definition of the concept of Communities of Practice will be further explained in the next section, for now, using the words of the author, CoP is "the conceptualization of learning-as-social participation" (Hughes et al. 2013, p. 1991), something essential for the researcher that sees social practice as fundamental for learning. Niesz (2007) sees traditional professional development programs as more distant to the teacher's day-to-day work and less good at promoting change, which requires social support and time.

#### 1.3.5. ICT connecting schools around the world for ESD

*"Currently, those working for a sustainable development in a vast array of contexts all over the world are often duplicating efforts. In an era where a rapid transition towards sustainability is needed, such wasted effort is no longer tolerable". (Pearce et al. 2008, p.201)*

The efforts to change education through the implementation of ESD in schools is a world nations effort that has been recognized by UNESCO since like previously mentioned, most of its state members are already implementing topics of ESD in school curriculums and teacher training (see 1.3.4). Additionally, at the same time, more and more NGOs are helping in its implementation (see the following section). This means that all around the world, new methodologies, resources and programs have already been created and implemented and are showing to be successful. Despite this, many of these initiatives are isolated inside classrooms and schools (Dykes et al. 2013), which results in duplicated efforts that can be avoided if the stakeholders involved communicate and collaborate between each other. In fact, when fighting climate change has become an urgent need "the rapid transition towards just sustainability is needed, and wasted effort is no longer tolerable" (Pearce et al. 2008, p.201). Additionally, ESD, although it should be adapted to local needs in schools, it should acknowledge that fulfilling those needs has international effects that should be taken into account (UNESCO, 2007).

*"The Internet is an open, flexible and technologically accessible means of dissemination and communication. It is also a powerful tool for breaking the limitations of time and space that exist in traditional forms of teaching-learning" (Álvarez, 2005; Cabero, 2006; Tejedor, García and Prada, 2009)*

Wade (2012), through the Erasmus financed project conducted by seven European Universities called ICTeESD Project (Information and Communication Technologies enable Education for Sustainable Development Project), researched about the potential benefits and challenges of the technological platforms supporting the development of ESD communities of practice. For Wade (2012), the value of communities of Practice in ESD is characterized by "Strengthening local and global dimensions". They

do this by allowing participants to interact no matter location and time, resulting in a better understanding of local and global needs, which should be both considered when teaching ESD (UNESCO, 2007); “Creating new knowledge”, since it allows its practitioners to explore and combine different types of information, promoting complex learning by combining information of different sectors and disciplines; “Transparency, accountability and democracy”, since it enables a wide spread of ideas and resources of ESD and because the platform in itself is non-hierarchical, democratic and accountable; and finally “Engagement and action”, since these platforms strengthen collaboration and motivation of participants that have the potential to create reforms and influence politics (Ginsburg et al. 1991).

#### 1.3.6. The role of NGOs in ESD and teacher’s development in ESD

Overall NGOs have been playing an important role in ESD (Kieu, Singer, and Gannon, 2016), namely in teacher training and student teacher training (Kieu et al. 2016; IGES, 2004; Yeshodhara, 2005). In fact, some of the most recognized writers in the field of ESD argue that “working within current structures” is not the best approach for ESD implementation (Huckle, 1996). In the other hand, NGOs with interactive and participatory methodologies related to non-formal and informal learning have been considered essential for environmental education and sustainability (Mochizuki, 2016; Kieu and Singer, 2017) by organizations like UNICEF, USAID and the World Bank (DeJaeghere, 2000).

*“NGOs solve existing shortcomings of formal environmental education, which continues to be characterized by knowledge oriented approaches that do little to encourage behavioral change.”*  
(Kieu and Singer, 2017).

Its importance is particularly relevant in less developed countries since NGOs can compensate for financial limitations for implementation of ESD (Kieu and Singer, 2017). They have also been identified as one of the main drivers of ESD for the way they empower youth in the development of projects (Gross and Nakayama, 2010; UNESCO, 2009, p65; Kieu and Singer, 2017).

*“Non-governmental organizations (NGOs) with participatory and experiential approaches have made significant contribution to education for sustainable development (ESD) globally”* (Kie, and Singer, 2017).

Collaborations between different stakeholders have been identified as one of the key areas for action in ESD (see 1.3.1). Regarding this, the importance of partnerships between NGO and schools has been seen as essential by several authors for long term sustainability of NGOs education projects and for enhancing its qualities, by including them as extra-curricular activities in schools (IGES, 2004; Yeshodhara, 2005; Tilbury et al. 2005). Engaging teachers in these projects, through the establishment of local networks and meetings for discussion of methodologies and development of activities, has shown to build the capacity of teachers for teaching ESD and improve the effectiveness of projects (IGES, 2004).

### 1.4. Problem Statement

The objective of this section is to describe the research gap identified in the existing literature which is relevant to the present study. It starts by showing evidence of a gap between teachers knowledge and capacity to teach, followed by suggestions on how to solve it. Adding to the information presented above about the need for formal and informal learning methods, Kieu et al. (2016) also recommends further research on the role of bottom-up pedagogies and NGOs engagement in teacher training for ESD, while the researchers of this paper point out to a lack of information regarding the contribution of school teacher collaboration between school teachers in the implementation of ESD in schools.

#### 1.4.1. Lack of ESD training abilities and the potential role of NGOs in teacher training

Although ESD topics are now being implemented in schools all around the world, it has been suggested that there is a gap between teachers ESD knowledge and their ESD training abilities. One of the reasons appointed is the prevalence of top-down pedagogy (Kieu et al. 2016). Like previously mentioned, formal education and traditional methods of teacher training are not enough to bring the change needed. Additionally, formal and informal methodologies should be provided (see 1.3.2).

Plus, collaboration among different stakeholders has also been appointed as a solution for more effective ESD approaches to teaching (Tilbury et al. 2005); Glewwe and Kremer, 2006; Stanišić' and Maksic, 2014; Steel and Waner, 2007; Ferreira et al. 2006; Kieu et al. 2016). Taking this into account, and the known contribution of NGO for closing gaps in the education system (see 1.3.4), Kieu et al. (2016) and Kieu et al. (2016) have suggested future research to examine the role of NGOs in teacher education in ESD.

#### 1.4.2. Few research on the role of school teachers social networks in ESD

Teachers collaboration emerges as an interesting bottom-up approach for teachers professional development on ESD that could help close the gap mentioned above. The importance of school teachers collaboration and networking is reflected in research on ESD in the competencies that are seen required from them to able to implement it in class, trough “communicating and reflecting” (Rauch and Steiner, 2013). Additionally, it has also been considered an important tool for school teachers and teacher educators trying to implement ESD (Scott, 1994; Tilbury et al., 2005).

*“This approach saw participants engaged not only in resource development but also in professional and curriculum development.” (Tilbury et al. 2005)*

Tilbury et al. (2005), with the case study of Learning for Sustainable Environment Initiative (LSE), from Action Research Model (ACTS) investigated the role of social networks and collaboration for teacher educators in ESD. The researchers found out that, being ESD a relatively new concept that requires different teaching approaches and methodologies, it forces teacher educators to step outside their comfort zones and continuously experiment new ways of doing things. This way, teachers educators social networks have shown to give them the moral support needed to keep motivation levels up and, at the same time, they have used it as a source of knowledge and advice, through collaborative action research and co-creation of curriculums, resource materials, projects, etc. This was an international initiative that gathered teacher educators from 29 Asia-Pacific countries. This way, an additional challenge was to keep the project outcomes relevant for each country that was culturally diverse and with different needs and problems around sustainability. This was shown to be possible through constant dialogue and discussion. This is a case of cross-sector collaboration between UNESCO, an NGO, and Griffith University, a public organization.

Despite this, any information has been found regarding the value of social networks and collaboration of school teachers in ESD. This is particularly relevant because of the suggestion that bottom-up approaches as mentioned before (see 1.3.5) can help improve the integration of ESD in schools and because school teachers are the ones who directly interact with pupils of secondary school.

### 1.5. Purpose

This way, the present article aims at understanding the main benefits and limitations of collaboration between school teachers from secondary school involved in international ESD programs developed and supported by NGOs. With this study getting a better understanding of how a bottom-up teaching approach can contribute to an increase in the ability of teachers to deliver ESD to students is pretended. Additionally, this study will point to contribute to address the gap between ESD teachers cognition and ESD teaching abilities, by taking the suggestion of Kieu et al. (2016) and Kieu et al. (2016) and trying to understand the potential role of NGOs in teaching education, by providing spaces for informal learning, through teacher collaboration and networking.

Ultimately, this paper has the objective of contributing with further knowledge for better integration of ESD in schools and for goal 4.7 of Sustainable Development Goals that state that everyone all learners should “acquire knowledge and skills needed to promote sustainable development” (“The Global Goals”, 2019). Also pretends to give some insights in regards to promote the goals 17.6 about knowledge sharing and cooperation for access to science, technology and innovation and in the 17.17 which promotes encourage effective partnerships (“The Global Goals”, 2019)

## 1.6. Research Questions

This research pursuits to answer the main research question related to the benefits of enabling collaboration in the field of ESD. However, in regard to guide the study, three sub-questions are presented to guide the outcomes of the data collected.

**RQ:** How collaboration between teachers engaged in ESD through global programs of NGOs supports their role in Sustainable Development?

- a. What are the advantages of collaboration between teachers engaged in ESD through global programs of NGOs?
- b. What are limitations of collaboration between teachers in engaged in ESD through global programs of NGOs?
- c. What are the opportunities of ICTs to enable and promote collaboration and communication between teachers in NGO’s ESD global programs?

## 2. THEORETICAL BACKGROUND

The theoretical background aims to establish a framework for data analysis. Different approaches can be found while researching the benefits and challenges of collaboration. This way the researchers have chosen the concept of communities of practice (CoP) as an approach to the idea of effective problem solutions development, best practices transference and development of professional skills through collaboration, as Wenger and Snyder (2000) summarize. The following section goes through an initial literature review that connects these concepts, followed by the main definition and characteristics of CoP. The particular approach of teachers Professional Learning Communities is presented after, as CoP focused in teacher development. After that, a summary of the benefits of information and communication technologies and their opportunities in the specific field of ESD communities of practice are revised.

### 2.1. Communities of Practice and their characteristics

Lave and Wenger, who first develop the concept of CoPs in 1991, claim that when relating practice and community two things are done: (1) a more flexible characterisation of practice is used (2) a special type of community is defined: a community of practice. The authors also affirm that the term community of practice should be read as one, instead of taking the sum of its concepts. To do make the distinction they present 3 dimensions necessary to make a community of practice: i) mutual engagement of participants; ii) a joint enterprise, which reinforces the responsibility of participants for mutual accountability and; iii) a shared repertoire, related to the language, culture and artefacts that are created throughout the time (Wenger, 1998). Wenger also highlights that the generation of knowledge occurs when people interact in solving problem situations.

More recently, Pyrko et al. (2017) have affirmed that an essential concept that creates CoP is the idea of “thinking together”. They work around the idea of Michael Polany that “thinking together allows for developing and sustaining an invigorating social practice over time” (p.390), that defines the concept of indwelling. Using this concept, they state that CoPs are born by the trans-personal processes of people

thinking together. In the other hand, they also present some critiques to the idea to purposefully create CoP, especially with instrumental uses, defending the idea of spontaneous nature of the CoP. For them more than contributing to knowledge gaining, CoPs are able to develop the social formation of its participants. Plus they also defend that experts cannot be considered owners of the knowledge, strengthening the concepts of learning, meaning and identity.

The findings of Pyrko et al. (2017) don't go against Lave and Wenger (1991), they actually help to better understand them. "Instead thinking together stresses that tacit knowledge is shared only in the sense that it is redeveloped as people discover each other's performances in practice and they learn together and from each other, rather than being acquired or replicated", they affirm (p. 406).

In the other hand, Ardichvili et al. (2003) with a case study of communities of practice in a company, studied the motivation and obstacles of potential participants in CoP. The authors have found out that although employees perceive knowledge as a public good, there are several reasons why they get shy and hesitate to participate in sharing knowledge. Some reasons appointed are the fear that the information shared is not relevant; the fear of misleading their peers and potential criticism. These barriers become more evident if the knowledge shared has to be reviewed and approved by a management body beforehand. They also reinforce that active participation of a significant part of the members is strongly needed for the success of the knowledge-sharing function of CoPs. Additionally, the study mentions the findings of Osterloh and Frey (2000), who determined that intrinsic motivations are stronger than external motivations, such as money.

Ardichvili et al. (2003) also highlight on the background of their research the relevance of two main requirements for the success of a virtual CoP: willingness to share knowledge and willingness to use CoP as a source of knowledge. About the willingness to share knowledge, the authors defend that employees need to feel themselves as experts. It is easier for older managers and experts to feel the right to share knowledge, but also newer employees feel the need to "earn the right" to share their knowledge and should be able to do it. In regard to the willingness of participants to use the shared-knowledge available in the virtual network, Ardichvili et al. (2003) found that members of the community see the CoP as an encyclopedia where the information is available anytime they need it and also a problem-solving tool. Some people also consider this as a space to stay informed about the developments of the career or specific areas of their professions. The two main benefits are, first, that these social networks can help new people to get involved into the system and be productive faster, and second, that it incentives collaboration between people and units located in different geographical places. In the other hand, for this specific case, the barriers found for using the knowledge were classified into two groups: First, the redundancy between the knowledge exchange between people from informal groups that exist inside the company and the information shared in the CoP. The second group is the barriers related to the nature of problems and solutions, such as having too many answers to face a particular situation or the difficulties in replicating some processes.

## **2.2. Teacher's Professional development, Communities of Practice and Professional Learning Communities**

Evans (2014) researched about how teachers grow professionally and the multidimensional componential structure behind. The author shares the common consensus that educational leaders must provide support on facilitating spaces of learning and development. The study mentions that professional learning and development is not necessarily intentional, but can also be situated and occur implicitly in CoP, or sometimes on unexpected ways on social interactions through informal education settings. The potential efficacy of coaching and mentoring is also mentioned in her research, supported by a literature review. She models the multidimensionality of professional development in a tripartite entity composed of behavioral, attitudinal and intellectual components. For Evans (2014) "professional development is the process whereby people's professionalism may be considered to be enhanced, with a degree of permanence that exceeds transitoriness" (p. 188).

Vangrieken et al. (2017) analyzed Teachers' Communities (TC) in the context of professional development, exploring in the concept of communities as a "collective arrangement in which learning can take place" (p. 48) and framing it into the specific field of teachers and teaching education. They analyzed two forms of TCs, Communities of Practices (CoPs) and teacher Professional Learning Communities (PLCs). While the second one is more linked to the educational sector, CoPs is a broader perspective that can be applied to several sectors. The definition of PLCs used by Vangrieken is a "community with the capacity to promote and sustain the learning of all professionals in the school community with the collective purpose of enhancing student learning" (Bolan et al. (2005) in Vangrieken (2017), p. 49). The characteristics needed to make a PLC are: i) supportive and shared leadership; ii) shared values, vision and goals; iii) collective learning and application; iv) shared individual practice and; v) supportive conditions (physical and human). On the other hand, the author defines CoPs using Wenger et al. definition and characteristics. With these two TCs, three main conditions were drawn for the success of the outcomes, meaning further teacher's professional development: a) Leadership, from who directs the operation of the knowledge community; b) dynamics and group composition collaboration spirit and heterogeneity, and; c) Trust and respect.

Stoll et al. (2006) define Professional Learning Communities (PLC) as "a group of people sharing and critically interrogating their practice in an ongoing, reflective, collaborative, inclusive, learning-oriented, growth-promoting way; operating as a collective enterprise" (Mitchell and Sackney, 2000; Toole and Louis, 2002; and King and Newmann, 2001 in Stoll et al. 2006, p. 223). The virtue of these communities, according to the authors remains in not only the simple act of sharing knowledge but in the broader cultural perspective that involves this collaboration to make it desirable, expected, inclusive, genuine, continuing and directed to critical thinking towards improving the learning outcomes of the pupils.

The effectiveness of the PLC depends on five elements, according to Stoll et al. (2006):

- Shared values and vision.
- Collective responsibility for student learning.
- Reflective professional inquiry, reflective dialogues and problem solving.
- A collaboration involving the staff on an interdependence connection, not only supporting, but creating together.
- Group, as well as individual, learning is promoted. Teachers are learners with their colleagues; they update each other and enrich the profession.

PLCs, in comparison with business organizational stages, have shown a less linear process over time, being more dynamic and fluid, continuously evolving, gathering knowledge and experiences regularly (Stoll et al., 2006). However, PLCs have a final purpose, and it is related to the outcomes in the education of the students: "An effective professional learning community has the capacity to promote and sustain the learning of all professionals in the school community with the collective purpose of enhancing pupil learning (Bolam et al. 2005, p. 145 in Stoll et al., 2006).

The processes of forming a PLC implies actions inside and outside schools, and can be seen by four approaches: i) learning processes, including formal development opportunities, incidental, learning, self-evaluation and individual and collective learning; ii) managing human and social resources; iii) administrating structural resources, such as time and space, that should be provided by the schools; iv) and interacting with external agents, pursuing support, partnership and networking (Stoll et al., 2006).

Other reasons that help creation and improvement of PLCs, according to Stoll et al. (2006) are the orientation of individual to change, the influence of the school context, such as size, phase, location, mix of pupils, history, among others, and external influences of local and broader communities, policy decisions and professional learning infrastructure.

### **2.3. The value of online network platforms in teacher's development**

Internet and respective online networks platforms have shown to be a good tool to promote collaboration and innovation in different sectors, namely the education sector. Specifically related to collaboration between teachers, with technology, teachers can not only work together with colleagues inside their own institution, but with other educators all around the world, making it easier to find professionals with common interests, expanding their perspectives, learning new teaching practices and share concerns, ideas, opinions, resources, etc (U.S. Department of Education Office of Educational Technology, 2016; Carpenter and Krutka, 2015; Hew and Hara, 2007). Taking this into account, many teachers have started to engage in informal learning through online networks and communities of practice (Macia and Garcia, 2016), which they have considered to be a meaningful source of professional development (Duncan-Howell, 2010). These have shown to “provide “ongoing, self-directed, bottom-up learning experiences, as opposed to traditional teacher professional development activities, such as formal workshops and courses.”(Trust, 2016, p.290). However, Jones and Preece (2006), has also uncovered some of the challenges of online network communities, regarding potential tensions between local contexts of problems and needs and access to knowledge and answers that have been implemented in different places of the globe. In other words, generalizing answers for problem-solving can be a mistake, since each classroom has a unique context. This way, teachers have to be able to adapt answers found in online networks to their own context, requiring a personal reflection to distinguish what knowledge is available and what knowledge can be used by them (Trust, 2016).

### **2.4. Theoretical background and literature review synthesis**

The benefits of collaboration can be extensive, also different ways of collaboration can be seen, particularly in the ambit of education, as shown in the first part of this paper. The purpose of collaboration has personal and practical utilities, in the personal aspect, professional development and motivations are essential for engagement. From the practical point of view collaboration, improves the results of practices and methods. As Stoll et al. (2006) indicate, TC, and specifically CoP for teachers and PLCs, can be seen as effective collaborative communities of teachers for teacher peer-learning and peer-learning, supporting each other through connected networks.

Despite the central concept about CoP developed by Wenger, the revised authors allow expanding the vision in relation to the specific field of teachers and teachers learning defining evident characteristics that can be found in these communities. There is strong evidence in relation to the shared spirit require for the success of this spaces, demanding similar visions, values and goals, as presented in Vangrieken (2017) and Stoll et al. (2006). These authors also show the genuine interest for bidirectional collaboration and, specially for teachers, the important priority in relation to students benefits.

The inclusion of online platforms in this section relies on the reiterative findings in the literature aiming at collaborative networks in this direction. Due to the purpose of this research and the established research questions that consider “global ESD programs provided by NGOs”, the authors of this study decided to include this extension to go deeper in the possibilities of global collaboration and interaction, facing spatial complexities. Thus, according to the mentioned statements of Macia and Garcia (2016), informal or hidden teachers communities can be found regarding the benefits of technological platforms and devices, with that, new benefits, challenges and limitations can emerge. As indicated by the referred authors of this section and bringing back the findings of Wade (2012), the internet and its possibilities open a vast world for collaboration.

## **3. METHODOLOGY**

This section describes in detail the orientation of the research, taking into account the concepts of epistemology and ontology, respectively related to the authors perspective of knowledge and reality (Berman Brown, 2006).

Epistemology, defined as “sub-discipline of philosophy concerned with the truth status of knowledge that can be achieved either by observation or by inference” (Bellamy and (6), 2012, p. 61), is approached by the researchers identifying themselves as social constructivists, since they believe that culture and context play an essential role when trying to gather knowledge and that knowledge (Derry, 1999; McMahon, 1997).

The ontological perspective, defined as “that sub-discipline of philosophy which is concerned with the question of what exists, and what status we are ascribing, especially to unobservable, abstract things” (Bellamy and (6), 2012, p. 61). Considering the epistemological beliefs of the authors, it is coherent to approach this research from a subjective perspective over what reality is, a position that is characterised by a relativist ontological perspective (O'Grady, P., 2014).

## 4. METHODS AND RESEARCH DESIGN

### 4.1. Case-study Approach

Case studies have been given special credibility for papers with research questions of “how” and “why” (Robson, 1993). Plus, they are seen as a good method to conduct qualitative research since it allows researchers to explore and understand the different views of the participants (Creswell, 2013). Further on this is a method that has been used a lot in research related to education, especially as a way to evaluate the impact of educational programs (Stake, 1995; Merriam, 1998). Although that is not the purpose of the study, the paper aims to understand better the perceptions of teachers over the utility of communities of practice in further engagement in ESD. This approach fits not only the perspective of Creswell (2013) but also Merriam (2009) and Stake (2006), that defend that case studies aim to develop an in-depth analysis of a certain topic.

For the purpose of this thesis the case study of Eco-Schools has been chosen. A proper presentation and synopsis of the organization will be presented further on in this section. For now, it is relevant to state that the Eco-Schools is an international program part of an NGO that aims at bringing Education for Sustainable Development to schools through engaging school staff and students in learning-by-doing methodologies to promote knowledge and more responsible and sustainable behavior in school students.

### 4.2. Case presentation - Eco-Schools

#### 4.2.1. Overview of the program and reasons for choosing it

For the purpose of this research, its authors have chosen the case of Eco-Schools, a program with head offices in Copenhagen that was created in 1992 as a part of the Non-Governmental Organization Foundation for Environmental Education (FEE). The program is defined as “Education for Sustainable Development (ESD) in Action”. Their goal is to develop responsible behavior in youth by promoting learning-by-doing methodologies and non-formal education in schools. They do this by empowering kids and teenagers to develop projects that can have a positive impact on their communities and the world. Additionally:

*“Eco-Schools is a fundamental initiative which encourages young people to engage in their environment by allowing them the opportunity to actively protect it. It starts in the classroom, it expands to the school and eventually fosters change in the community at large”* (Federation for Environmental Education., n.d., p.5)

The case was chosen based on its particular characteristics, namely its global dimension and, consecutively, potential to boost the integration of ESD in schools worldwide, its nature, since NGOs with their non formal and informal methodologies have shown to be one of the main drivers of ESD and in students and teacher development (see 1.3.6) and, the leading and supportive role teachers have



in the program. Also, this case becomes even more relevant because of its current plans of starting a platform for teacher learning in ESD, according to the interview the researchers have had with Eco-Schools main office. This way, in a practical manner, this research can help the Eco-schools organization to explore new ways of how they can help teachers to mainstream ESD in their schools by promoting teacher collaboration.

#### 4.2.2. Program description and processes

The Eco-Schools program combines natural and social sciences to understand in a holistic way. This way, although most activities are related to environmental focus activities, Eco-Schools with a interdisciplinary and systematic approach and learning-by-doing methodologies allows students to develop projects aimed to answer and connect both local and global issues and skills associated with ESD education (Boeve-de Pauw et al. 2011), namely critical and systematic thinking, proactivity and collaborative decision making (Whitby, 2019).

Through the program, students get involved in the environmental management policies of the their school and they create and implement environmental projects within the school and in the surrounding community. For a school to be part of the program, it needs to undertake a 7-step process to become officially an ECO Campus. Although it is extremely flexible, it serves as a guide to action. The first step of the process is to gather various stakeholders within the school that are committed to working together to form an ECO Committee. The remain steps can be summarized as being a guide to find, develop and monitor projects relevant to environmental awareness and preservation. The program is led in the schools by a school coordinator, normally a teacher.

*“Undertaking the Eco-Schools programme is a long-term journey and it can take time for schools to implement the different elements of the framework and engage their staff, students, and community with it”.* (Parklandprimary.co.uk, 2019)

The Eco-Schools program also provides a series of themes and resources to guide and inspire schools, teachers and students, which include a Lesson Plan for teachers. For excelling partner schools in environmental education, Eco-Schools rewards them with the Green Flag award, considered the last step of integration of the program in schools. They also encourage collaboration between schools and teachers, but there is no formal way or platform to do so.

#### 4.2.3. Spatial, cultural and language complexity of the program

The global dimension of Eco-Schools is an advantage in terms of its potential impact in ESD globally. Nevertheless, like in any other organization, the bigger it is the greater its complexity, which can limit the potential of their programs at a certain level. With a presence in 51000 schools from 67 countries, Eco-Schools have to manage different domains of spatial complexity (Tolbert and Hall, 2016), regarding cultural and language differences and different school curriculums and regional problems. With this, the central office had to learn how to deal with these complex factors, developing a leadership model that would allow them to adapt the program to every place they are in. International researches like GLOBE have been studying multicultural leadership for years and defining their commonalities and difficulties (Northouse, 2016). To solve this, Eco-Schools partner with NGOs from countries in which they are located, which they call National Operators. The role of National Operators is to manage the Eco-Schools present in their country by increasing the visibility of the program, supporting school coordinators, developing and strengthen teacher’s development for the creation of more meaningful projects, between others (Federation for Environmental Education., n.d.). Also, because spatial complexity is not only international but also local, National Operators often organize national assemblies and seminars to reunite the teachers' leaders from the country (Federation for Environmental Education., n.d.).

#### 4.2.4. The role of teachers and inter-schools communication in Eco-Schools

Previous researchers have acknowledged the importance of the role of NGOs in teachers professional development, regarding ESD (Kieu et al. 2016; IGES, 2004; Yeshodhara, 2005). Taking into account the involvement of 1.4 million teachers in the Eco-Schools program (Andreou, 2019), it may be to expect that Eco-Schools is having some positive influence on their professional development ESD. Although they have not yet developed any project specifically targeting teachers, they have told the researchers of this study, they are taking steps in that direction.

It is also worth mentioning that, despite the size of its network, the Eco-Schools program do not have yet a platform where teachers and respective students can communicate with other Eco-Schools either from their region or parts of the world. Nevertheless, the regional meetings organized by the National Operators aim at incentive that collaboration. Eco-Schools have also had meetings with platforms like eTwinings, the online European platform for teachers interaction, but any partnership is known up to the moment of this research.

### 4.3. Secondary Data

The collection of secondary data is used to determine the context and background of the research. Documents related to the origin of the conceptual framework of environmental education and education for sustainable development have been collected. In addition, other studies and thesis about different aspects of the case study e have chosen of Eco-Schools are revised to widen the understanding of the program itself. A revision of documents related to virtual communities of practice in the ambit of education are used to support the approach of the theoretical framework and complement it with their insights in this specific field.

### 4.4. Primary Source of Data

#### 4.4.1. Meetings and emails with the main organization

Before choosing the case study of this thesis, an informal physical meeting was held with two of the main responsibilities of the Eco-Schools program. With this first meeting was possible to understand better the context of the program and the structure of the organization. After this, several emails were exchanged, until the final decision was taken to use the case. A second meeting was held, this time through video conference with the main responsible of the program. In this last meeting understanding the future perspectives of the organization and their interest in investigating the role of teachers in the Eco-Schools program was achieved. The aim and purpose of this research were changed in the discourse of these contact, although teachers have always stayed at the center of the research and discussion between the different parts.

#### 4.4.2. Documents and online official information related to the case

An exhaustive pursuit of the available online information was gathered for a better understanding of the program, its goals and methodologies. The main goal of this process was setting the framework to develop the tools for the main method of data collection, as well as understanding the structure and scope of the program.

#### 4.4.3. Mobile and online Interviews

The primary source of data used consisted of 12 in-depth semi-structured interviews (Holstein and Gubrium, 2003), with open-ended questions directed to three main target groups: secondary teachers engaged in Eco-Schools programmes (10) and Eco-Schools National Operators (2). In-depth interviews are considered to be a suitable method of data collection because they allow the collection of more detailed information compared to methods like surveys. They are also able to provide more relaxed environments that can make interviews more comfortable to share and give information (Boyce and Neale, 2006). The reasons for choosing in-depth semi-structured interviews have to do with this and the lack of in-depth research around this specific segment, as well as the need for validating the foreseeing

problems and underlying assumptions. Through interviews, it is possible to determine the specific concepts, words, impressions and feelings related to the topics asked. As an exploratory research, the purpose is to define the main codes, categories and concepts expressed by the interviewees. The concepts and keywords can become important for future quantitative research when developing surveys or other types of quantitative data collection methods, used for creating more representative findings of the population being researched.

Due the economic, time and location constraints for reaching the population researched (Holstein and Gubrium, 2003), as the sample interviewees selected are located in different countries, the use of telephone calls and other digital platforms were preferred. According to Holstein and Gubrium (2003), this method offers some advantages, since it reduces the effect of the personal characteristics of the interviewer, providing more significant uniformity between interviews because the vocal voice and deliveries are more standardized. Plus, it has allowed researchers to optimize their time and money resources. Despite this, there are also disadvantages, that will be further explained in the limitations of the research (see XX). The platforms used to conduct the interviews were Whatsapp and Skype. Each call lasted around 40 minutes.

The aim of the questions developed for the teachers of Eco-schools aimed at understanding the potential need and motivations for teachers collaboration for supporting their work and the ways they prefer to use it. These interviews were taken between the period of May 8, 2019 to May 22, 2019. The interviews were divided into four groups of questions, each one with different goals. The first, understanding the reasons and motivations behind their engagement in the program, as well as the advantages and disadvantages. This will be useful to unveil gaps in the program. Then, a second block of questions focuses on how they communicate with other teachers and where do they get information for solving problems, improve their knowledge and stay updated on information regarding the topics related to the program, also this part goes through the ways they connect in terms of spaces and platforms. One goal of this section is to find out if there are already implicit informal communities of practice among the local network also the relationship they have with teachers from other regions and countries. A third section is related to a more specific way of communication that is virtual platforms, its value for teachers, their willingness to use it and its limitations. The final group of questions ask directly about an internal platform for communication between Eco-Schools. General information about country, city, name of the school, number of students, time of being part of the program, years the teacher has been teaching and time of the teacher being engage with the program is answered by email before the interview.

The two interviews directed to the National Operators of Eco-Schools are less structured than the ones for teachers. The goal of these interviews is to understand better their responsibilities, the kind of support requested from teachers and their perception about the flow of information between teachers of Eco-Schools and the importance of collaboration in general. The findings of this interviews, although included in the data analysis, will be especially important to provide background information for the case presentation and for setting the context and understand the overall perception of the importance of collaboration of teachers from someone that has contact with all Eco-Schools of a country. In relation to this last point, having the opinion of two National Operators, although not statistically relevant, can help the researchers understand better indirectly the general needs of teachers of Eco-School teachers of that country. Both interviews took place on May 22, 2019. Initially, general information is asked about the size of the network and the number of years of experience in Eco-Schools of the interviewee. The objective of these questions is solely to understand better the context of the environment in which they work, to help researchers interpret their answers. Then the interviews are conducted to understand the communication flow between them and schools and the kind of situations in which schools require their help. It will be important to understand the kind of information shared and what platforms are used. Finally, interviewing National Operators will help researchers put into context the answers of respective teacher interviewees from that same country, although this paper will not make explicit comparisons or judgements throughout the data analysis.

Compare the approach of the national operators with the vision of the school teachers is relevant to understand how they are understanding and fulfilling the needs of the Eco-Schools projects. Finally, the last part of the interview is focused on the incomes they can get by having a participative platform for communication within the Eco-Schools network their willingness to support it by promoting interaction and knowledge sharing, as well as acting as moderators of the interactions.

#### 4.4.4. Sample Selection

The Eco-Schools organization facilitated the sample selection of both Eco-School teachers and National Operators. Regarding the teacher interviews, the research authors have provided the organization with guidelines of the profile of desired interviewees that aimed at ensuring diversity at different levels, namely age, gender, country of teaching, years of teaching experience, years of Eco-School experience and including both awarded and non-awarded Eco-Schools of the Green Flag prize (see XX). Although the requisites were met at a certain level, it was not possible to assure the rigor of every dimension, because of the complexity of work that would require from Eco-Schools organization. Instead, the organization prioritized the country diversity of teachers, by sending an email to all National Operators, one per each country, explaining the aim of the research and requesting two contacts of teachers from the respective country. The Eco-School organization after receiving the answers redirected them to the researchers, and researchers would then send an email to the email addresses of school teachers appointed by the National Operators, by order of emails received. In total 26 teachers were contacted, from which 13 have answered. From the ten interviews, it was possible to collect answers from secondary teachers from seven different countries, from five different continents. From those, three were developed countries (Malta, Spain and United States of America) and three developing countries (Serbia, Kenya and Qatar) (United Nations, n.d). The average teacher interviewed had 45 years old, 19 years of teaching experience and 7 years of Eco-school experience. Five interviewed teachers taught science-related subjects, four other taught subjects related to social sciences and one was a teacher of computing. Gender equality was poorly represented in these interviews since only one teacher was male. Additionally, only one school had not received yet a Green Flag prize. For a better understanding of the sample selection for teachers interviewees see Appendix 1 (10.1).

Regarding the interviews with National Operators, the researchers sent emails to the six National Operators of the countries represented in the teachers' interviews. From these, three have answered, but only two interviews were conducted. The researchers have decided not to share the countries of these interviewees since it could be easy to identify their identity.

#### 4.5. Data analysis

The data is analyzed from a deductive approach through the method of content analysis by defining categories and considering the opportunities and expressions that fit in that category, as Silverman (2014) explains.

The presentation of the findings in this document is conducted firstly by reviewing the transcripts of the interviews (see Appendix 2 - 10.2) to be able to find key concepts that can help us answer the questions and after, by answering each of the three sub-questions. Further on the main research question is answered by comparing the outcomes of the data collection with the theoretical framework. Further on, by synthesizing the themes and concepts found for each section defined in the interview guide is developed, looking for similarities and particularities. Special interest in classifying the advantages and disadvantages related to the main topics of each section, that means: in relation to the program, in relation to communication and collaboration and in relation to online platforms for interaction.

The theoretical framework to this analysis is based on the theory of communities of practice (CoP) and its communication and learning mechanisms, contrasting the findings with the characteristics of learning communities as well as its similarities to the features of CoPs. The theories are used to compare the findings with the main conditions describe constituting a teacher community (TC), considering CoPs

and teachers Professional Learning Communities (PLC) as two different but similar understandings of teachers learning communities.

This way of presenting the analysis serves at the end to evaluate the potentiality existent in global networks whether they were existent and supported by the leading organizations by providing spaces for collaboration and, therefore, the constitution of the mentioned TCs namely CoPs and PLCs.

#### **4.6. Research Limitations**

The objective of this section is to present the limitations of the research that can have impacted its findings. These are related to the understanding and interpretation of the concept ESD, the methods, the sample selection and the data collection. Firstly, it is important to mention that ESD and environmental education, although being different concepts, they were not differentiated in the research. Different understandings of Education for Sustainable Development are present. Despite there is an official definition given by UNESCO, other approaches as Environmental Education and Ecological Education can be found in the literature.

Regarding the choice of in-depth semi-structured interviews as the primary source of data chosen, despite its advantages, they also carry some limitations. There is a possibility that the answers of the interviewees were impartial. Participants may feel tempted to hide their personal weaknesses, placing difficulties on external factors (Boyce and Neale, 2006). Video conference interviews can also carry additional limitations, due to the reduction of social cues and lack of information and standardization of the interviewees' environment. Due to lack of quality of some video calls, two interviews were carried out over mobile call, without images, which means that it was not possible to see the body language of the interviewees, a recognized source of information for in-depth interviews (Opdenakker, R., 2006). Language barriers can have resulted also in research limitations since neither the interviewers nor most of the interviewees were English native speakers, so over explanations or misinterpretations can have occurred. One interview was conducted in Spanish by an interviewer native Spanish speaker, although, internet connection problems due that interview affected the communication. Additionally, the theme of the interviews regarding teachers' collaborations was stated in the body of the first email exchanged with them, which can have influenced their answers, even if the researchers did not mention collaboration until the second part of the interviews. Plus, as interviewed teachers are the teacher-coordinators in their schools, they may be biased when answering questions regarding, for example, the advantages and disadvantages of the program (Boyce and Neale, 2006). Furthermore, the researchers cannot guarantee the impartiality of the choice of teacher interviews, since National Operators had the possibility to choose teachers themselves. Thus, it is possible that they have chosen teachers with whom they have the best relationship or the ones with the best performance in the program. This may mean that researchers have missed gathering the opinion of people less engaged in the program, which could have been relevant for the research. This brings another limitation of the method of interviews, the size of the sample. Since interviews are time-consuming, the size of the samples are not statistically representative and thus generalizations are not possible to make (Boyce and Neale, 2006). Additionally, the lack of training on interviewing techniques of the interviewers is also a limitation of this research, that affected the interview process and also the development of the interview guides, the time management and conduction of interview could be affected (Boyce and Neale, 2006).

#### **4.7. Reliability, Validity and Generalisability**

The method and tools developed can be replicated in the same population in the future or with a different sample in the same population, and the results should be similar, unless the general context changes. The application of the method to other similar programs could work changing the name of the program. As it is a qualitative tool for exploratory purposes, quantitative tests cannot be applied, but as the interviews conducted were the same for all the sample, and the answers similar, it showed reliability. Nevertheless, the consistency with the research itself can have some issues related to the limitations.

The validity of the research has the issues stated in the limitations section since several elements could have biased the sample. Although, for the general goal, the main results are consistent.

The results of the research cannot be generalised, since the sample itself and the sample size is not necessarily representative, due to the informed restraints. Despite that, the potentiality of the results to develop a quantitative tool with statistical generalisable purposes is valid.

## 5. FINDINGS AND ANALYSIS

This research is led by the main question “how collaboration between teachers engaged in an ESD global program supports their role in Sustainable Development?”. To answer it the findings will be presented and analyzed in this section. Initially, a summary of the general outcomes is given to provide a general context to teaches reality within the project and motives to engage in EDS. Further on, each of the subquestions previously developed will be answered to. Finally, the findings are combined with the theories presented in the literature review and the background information regarding the current work developed in ESD. The objective is to help to interpret the outcomes of the research through the lens of the theoretical understanding of TC and, specifically, CoPs and PLCs to be able to answer the main question.

### 5.1. General findings

The general findings obtained from the first part of the interviews describe the perceived advantages and disadvantages of teachers in relation to the program, the motivations for their engagement and the process from creating to finalizing a project. By doing will be possible this getting to know how they are currently collaborating with other stakeholders, if they share the same motivations and values and what are their current needs.

The conclusions are that teachers engage in Eco-Schools for both personal and professional reasons. Regarding professional reasons, because of their role of educators, teachers feel the responsibility to take ESD into the schools. Plus, teachers interviewed are responsible for subjects closely connect with ESD issues, like science and social sciences. This way, it is easier for them to connect the projects of Eco-Schools with formal curriculums of their classes. Additionally, they see the implementation of ESD as a practical learning-by-doing pedagogical methodology that is beneficial for the learning process of their students. Nevertheless, and despite the connections between the subjects they teach and ESD, they expressed the lack of tools and time for combining the two approaches and implement projects, since curriculums are usually quite strict and because most times Eco-Schools is a side project for both teachers and students. Further on, personal motivation is also quite important for the involvement of teachers in the program, especially because most of them work as volunteers. In relation to this, passion and sense of urgency for ESD were mentioned as reasons for the engagement of teachers. This has been expressed not only by teachers themselves but also by National Operators. High levels of engagement and enthusiasm from students and recognition from both students and school staff were also mentioned in the interviews.

In relation to collaboration between teachers, although the first set of questions for teachers does not include collaboration related topics (e.g. communication, network, support, help) they mention it when asked about reasons for engaging in the program and its benefits and limitation. In fact, while some teachers are able to build informal networks for collaboration, some others are not yet inserted in any groups, which explains the fact that collaboration comes as both a benefit and limitation. This way, collegiality is found to come from different sources. Most of the interviewed teachers recognize that their first source of support is their peers in their schools, secondly, they reach the National Operators. Through the interviews with National Operators, the researchers got to know that they indeed receive a lot of questions from teachers related to collaboration with other Eco-School coordinators. Nevertheless, the main reasons mentioned to go to their peers in the first place is related to the particular context of the school and its students and their individual characteristics. In fact, some of these other

teachers that the interviewees engage with, although they are not Eco-Schools leaders in their schools, they have already gained some experience after participating in several projects being familiar with the Eco-Schools methodology and processes.

Although all interviewees acknowledge the advantages of international collaboration, only some of them interact with teachers from Eco-Schools from other countries. The process of collaboration between teachers varies from teacher to teacher, mainly because there is not a platform that facilitates the connection or a standard process. Related to collaboration with teacher colleagues, some schedule periodic meetings for collaboration with the Eco-Committee, while some others admit that the process is organic. For communication with teachers within the same region and country, some say to have started the contact in the periodic gatherings organized by National Operators, others through chat groups created by the National Operators. From this is it possible to see that, despite the absence of standards processes for collaboration between schools, Eco-Schools understands and promotes collaboration between teachers within the same country. Finally, most teachers collaborating with teachers from other countries said to have started the contact through their own initiative, by asking contacts to National Operators.

## **5.2. What are advantages of collaboration between teachers in ESD global programs?**

Like mentioned above, teachers in the interviews mention collaboration when talking about their motivations and benefits of the program, even before being asked questions related to that. This may mean that collaboration is perceived as an important part of the teacher's work in Eco-Schools. In fact, they see this contact as a good tool to get new project ideas and to get support in the implementation process. Some of them even participate in informal online teacher networks in platforms like Facebook, Whatsapp, Skype and Google Classroom for communication and exchange of ideas, to get inspired, to organize collaborative projects and partnerships, share experiences and successful stories of projects, discuss ideas and common challenges, as well as exchanging contacts and references. Overall they see collaboration as essential to keep themselves motivated. This relation between collaboration, support, inspiration and motivation has also been acknowledged in previous research, since working with ESD requires new concepts and methodologies which processes can become frustrating (see 1.3.1). The results showed that this process was seen not only like a space to be inspired, but also to give inspiration and receive feedback from their work. Also, National Operators interviewed acknowledged the importance of the role of collaboration between teachers, saying that levels of motivation are closely related to whether they are involved in communities or not. They have also stated that one of the most frequent inquiries they get from teachers is how they can get in contact with other teachers.

Additionally, a big general limitation expressed related to the Eco-Schools program was the time-consuming that projects can be. Nevertheless, interviewed teachers indicated that collaboration, interaction and more communication can tackle this situation by reducing the time in researching new knowledge and looking for problem solutions and project ideas, by having direct access to shared materials, story experiences and advice from their professional peers. The time efficiency of collaboration has also been expressed in other research.

Another challenge faced in the implementation of programs like Eco-Schools is the lack of financial support, needed for the development of some projects. Most times, teachers need to find on their own sources of income by researching new ways of funding. Considering this, and because this is a common need and responsibility of them, teachers can inform one another about fundraising opportunities, or they can help by simply the process by which they have been able to do it. This is a suggestion made by two of the interviewees, one teacher and one National Operator. Plus, because teachers can decide to create collaborative projects, the extensive dimension of these projects can allow them to be more suitable and attractive for funding.

Particularly about joint projects with schools from different countries, which is possible because of teacher collaboration, they were mentioned as an opportunity for students to interact with others from different cultures. Being ESD strongly embedded within globalization and its issues, greater cultural

understanding, results into promoting teamwork, tolerance, empathy and peace between different nations.

### **5.3. What are the limitations of collaboration between teachers in ESD global programs?**

Collaborating and participating in networks, although it has the potential to improve the efficiency of their work, by saving time in research, it requires also time available to be engaged in these communities. This way, despite the potential of collaboration, teachers may not have the time needed to start being involved in these communities, even if it can result in time-saving in the medium-long run. This was identified as one of the biggest challenges for one of the teachers interviewed, since although she/he understood the value of collaboration and wishes to be more engaged in collaborative partnerships, she/he cannot find the time to start searching and building the connections. In fact, additional time demanded by Eco-Schools program preparation and implementation, added to the hours related to their curricular teachers' work, usually overcome teachers and limits their time for other extra activities. Time constraints, in general, was a factor indeed highly repeated by most of the participants, specially since several of them take the lead of the program as a side project. When asking directly about participate in networks or virtual platforms for collaboration and interaction with other teachers of Eco-Schools the time element was indeed highlighted, some of them pointing specific time that they would be able to spend weekly on this.

When asked about international collaboration, although all understand its perceived value, some of them said acknowledged that ideas coming from international sources can be disconnected to local realities. Problems, challenges and opportunities can be different in different regions, which means that relevant and successful projects in some areas, may not be relevant outside their geographical, economic and social context. At the same time, language and cultural barriers can also be a problem, although it was difficult to evaluate in the interviews made since almost all interviewees spoke English. In the other hand the teacher interviewed in Spanish, which English capabilities were limited, acknowledges that although language could a barrier for her if she had to communicate with non-Spanish speakers.

### **5.4. What are the opportunities of ICTs to enable and promote collaborations and communication?**

Many studies have studied the role of virtual online platforms for the professional development of teachers (e.g. Communities of Practice, Professional Learning Communities, among others) and collaboration between teachers (see 2.3). Thus, this section's objective is to explore the potential willingness and obstacles for teachers to engage in this kind of platforms.

Teachers are already using the internet to share and acquire knowledge through different platforms. The question is if they are willing to change the way they communicate and if they see the value of a global and universal network. When asking them, all teachers have acknowledged the value added of a global online networking platform for Eco-schools that would allow them to communicate with people from their region but also from all around the world. They have seen this as a way to make communication more efficient, a way to get diverse and faster feedback and a way to enlarge their networks, as well as more knowledge gaining.

Regarding the disadvantages and limitations of this platform, some teachers have mentioned the fact that these platforms leave aside schools where internet is not accessible, creating outgroups. Plus, there is the risk of low engagement that would make the platform lose its value. The fact that different regions of the world face different problems and have different school curriculums and resources has also been appointed as a possible limitation of the relevancy of content shared.

The possibility to share videos of classes around the world was the feature most mentioned by interviewees. The possibility to include a translation system has been perceived as important to overcome the language barriers some teachers may have, as well as the possibility to customize the type



of information that appears in the feed related to environmental themes, regions, etc. by filtration methods. The option to chat has also been appointed as essential to allow space for more profound levels of collaboration. Option to make calls and video-conferences has been also mentioned.

The responsible organization, Eco-Schools in this case, should be responsible for keeping engagement levels high and for deleting content that is not connected with the aim of the platform. Some people even mentioned the possibility for members to report inappropriate content, a feature that exists in other online platforms. They should assure the basic levels of security of information. However, concerning the question of who should assume the moderator role, the findings were not entirely clear. Some of them indicated that the main organization should not be moderators of the content shared, pointing that they shouldn't filter or choose content shared, as that could be used to manipulate information shared and weaken the access to freedom of speech, while others went more for the argument of providing content, information, filtering possible undesired content and expanding the shared knowledge, especially in regards the language differences.

For keeping engagement levels high, the main organization, in collaboration with the National Operators and teachers, should develop content to share and spread, collecting information from different schools and countries and spreading them throughout the network, as well as sharing updated information about topics of general interests in relation to education, sustainability and the organization itself.

Besides, the multiple languages present in the network could imply a difficulty for the access of several members. Since many teachers do not speak English or their skills are limited, some people and regions could be limited to smaller subgroups. Some of the teachers interviewed, to overcome this issue, mentioned the need of certain levels of translation, indicating automatic through a software platform or online service and either selected material filtered by the main organization and translated to the main languages.

The opinion of National Operators can also be specially relevant for this question, taking into account they have a broader perspective of the needs of teachers in their country. Both interviewees thought that an online network platform for Eco-schools would be relevant, not only for teachers but also for themselves, since this platform could make their job more efficient in terms of time. Plus they see it as a way to be able to spot problems from far, which would help them to do a better job.

## **5.5. Collaboration supporting teachers' role in ESD programs**

Now that general findings were presented, and sub-questions of research were responded, it is easier to answer the main research question: How amplifying collaboration between teachers engaged in ESD through global programs of NGOs supports their role in sustainable development? To do this, both background information, theoretical concepts and findings will be combined. After that, an approach to answering the question will be presented.

### **5.5.1. Theories, previous research and findings**

Previous research had stated the importance of collaboration and networking for sustainable development (Pearce et al. 2008). Furthermore, collaboration between teachers has already been studied by authors like Barth and Godemann (2007), Hargreaves, (1992), Bird and Little (1986) and Rosenholtz (1989), who acknowledge its importance for teacher confidence, and innovation in the classroom. Additionally, UNECE (2015) and Garner et al. (2015) have appointed the need to use further non-formal and informal education methods for a holistic integration of ESD in schools (Yasunaga, M., 2014). Finally, NGOs have been seen as key drivers of sustainability in schools in the development of both teachers (Kieu et al. 2016). All of this research has helped the researchers of this thesis understand, prior to the investigation, that collaborations between teachers engaged in ESD through programs developed by NGOs bring value added to ESD and sustainable development. Nevertheless, through the

contribution of this research will be possible to get a deeper knowledge on the process, contribution and limitations of that specific type of collaboration.

The Teaching Communities (TC) presented above and, more specifically, Communities of Practice (CoP) and teachers Professional Learning Communities (PLC), propose efficient appreciations about networks for professional development through informal collaboration. They help comprehend the requirements of networks and networks' participant characteristics for effective professional learning. Taking this into account, the findings are in accordance with the main characteristics of the theory presented. In fact, when the interviewees were asked about the features they would like to have in the platform, they have mentioned some of the main characteristics that Vangrieken et al. (2017) had identified as crucial for Teacher Communities, namely the need for the leader organization, in this case, Eco-Schools, to promote engagement, share general information and keep teachers updated. This can be contradictory since TCs like CoP cannot be forced and they are supposed to emerge organically (Pyrko et al. 2017). The need for diversity of participants and spirit of collaboration, stated in Vangrieken et al. (2017) as conditions for success of TLs, can be seen in this case, since teachers come from different cultural and geographical perspectives, as well as teaching subjects, and because all of them have shown the interest for more collaboration opportunities. Additionally, the condition for success, trust and respect, can be related to the suggestion of teachers to have in this platform an entity that deletes inappropriate content from the network platform.

Bringing back the ideas of Evans (2014) about the need for leading organizations, in this case, the Eco-schools, to provide spaces of learning and development, Eco-Schools are already promoting this spaces through the periodic gatherings organized by National operators. With this, like the results of the interviews have shown, they have promoted interaction and inspiration spaces, that went beyond the event since some teachers used the opportunity to exchange contacts. These networks developed afterwards can be considered informal networks and eventually CoPs, that are happening by exchanging of emails, messages in WhatsApp groups or video conferences in platforms like Skype.

Analyzing the findings based on the observations of Ardichvili et al. (2003) about successful CoP the willingness to share and the willingness to use the knowledge remains as a critical factor for the actual effectiveness of the network, and particularly in virtual platforms, since the interactions of these kinds of platforms can have delayed answers. The interviewees manifest their interest and willingness to participate on digital platforms for collaboration, in both perspectives, sharing and using, although, about sharing, several interviewees manifested a lack of self-confidence concerning expose their experiences, showing more interest in acquire knowledge rather than contribute their own. This feeling was also noticed by Ardichvili et al. (2003) and classified as a potential barrier. The mentioned lack of time to participate is also a potential obstacle for the success of virtual CoPs.

Stoll et al. (2006) presented five elements to characterize PLCs (see 2.2). The most notorious element identified is shared values and vision. This is relatively evident since the interviewees are engaged in a program with defined values, based on specific concerns related to social and environmental sustainability. This could also be seen in the interview results since teachers seem to have the same motivation for engaging in the program. Also, reflective professional inquiry, meaning constant willingness for improvement, can be inferred from the interviews in relation to their professional motivations towards ESD and willingness for enhancing the learning experience of the students. The collective responsibility, as well as the interest in collaboration and group and individual learning, were shown as characteristic desired from the teachers and disposition to actively participate.

#### 5.5.2. How amplifying collaboration between teachers engaged in ESD through global programs of NGOs can support their role in sustainable development?

Collaboration has several benefits in supporting the participants involved. The theories developed in this field have unveiled that the success of collaborative communities is based in certain conditions. Common values and shared visions seem to be indispensable, although not enough for creating learning communities. Collaboration is based on interaction. Therefore, the exchange of information is required.

In addition, the information needs to be relevant and related to the interest of the agents participating in the act. This way the mentioned willingness to share and to use the platform is also crucial.

In the specific area researched, collaboration on ESD can offer multiple resources in different purposes. Eco-Schools teachers can feel isolated or that they are struggling with an enormous challenge, specially in the early stages of implementation, as mentioned. Thus, collaboration can support, providing elements not only practical or knowledge-related, but also a space in which sense of belonging can be found, enhancing engagement and strengthening the value of networking, growing the collective responsibility, the interest in collaboration and group and individual learning, as presented above and indicated by Stoll et al. (2006).

For teachers to keep updated and motivated in ESD, it is important to expand it throughout the educational system. Collaboration can help to do this, by reaching and engaging new agents while empowering and tighten networks' relationships. Finally, networks can enable spaces where innovation and co-creation can emerge as a result of the exchange, improving not only the quality of the resources but also ESD on its foundations.

## **5.6. Discussion**

As shown above, the findings show accordance in relation to the theoretical framework. They present strong similarities with the characteristics of CoPs and PLCs. Despite formal TCs were not present in the examined sample population, the relation presented in the analysis demonstrates mainly the potentiality of enabling spaces for interaction. This would contribute to improve the effectiveness of the program, the efficiency in the process of teachers' formation and strengthen the engagement of the the agents within the network, and specially, the teachers.

The context of an NGO as manager of the program enhances the relevance of the shared values factor required for the occurrence of teaching networks communities. As the main organization is already based on strong social beliefs that are shared by the members of the network, several of them got involved to the program after realizing their personal awareness in the issue of sustainability and sustainable development.

The potential benefits of improving collaboration systems and promoting communication through networks tackle the lack of ESD training abilities, the potential role of NGOs in teachers' preparation and the need for including non-formal and informal education in ESD (see 1.3.1).

Communication and collaboration can also address the isolation teachers face many times, as Dykes et al. (2013) has described, although that issue seemed to be not so relevant in the case of Eco-Schools case, since all teachers were already collaborating with others or they had already the support of the National Operators. However, some answers regarding the first years of the implementation of the program, showed that loneliness was stronger.

# **6. CONTRIBUTIONS**

The present document offers practical and theoretical contributions related to the findings obtained. The following section pretends to explain the benefits of this research on the two following perspectives.

## **6.1. Theoretical contribution**

As the analysis of data collected was conducted through the lens of the theory of Communities of Practice (CoP) and Teachers Communities (TC), considering CoPs and teachers Professional Learning Communities (PLC), this research, through a deductive method of data analysis, showed to support the theory presented. Despite the fact that the size of the sample is not statistically represent the population

being researched, the number of interviews conducted were important for a qualitative study of these characteristics.

## 6.2. Practical contribution

From a practical perspective, these findings provide good information for the organization in analysis to investigate the possibility of further promotion of collaboration within their community of teachers. Recommendations about requisites and conditions were captured. Nevertheless, more research is suggested, although, the present results offer a bottom line to formulate new tools for deeper research.

By considering ICT resources to overcome the natural limitations of a global network also contributes in delivering main guidelines for understanding the necessities and demands of the members of the network in regard to this form of communication and interaction, where the central organization has a relevant role in moderation and promoting interaction.

## 7. CONCLUSIONS

Collaboration is a priority when talking about sustainability, it was settled in the Sustainable Development Goals (SDGs) targeting to 2030. The goal 17, as it was numbered, opens in its point 17.6 knowledge sharing and cooperation for access to science, technology and innovation and in the 17.17 encourage effective partnerships ("The Global Goals", 2019). The same way, the necessity of expanding sustainable practices for sustainable development is a need that must be tackled, and the urgency of addressing the climate crisis through behavioral changes and rise of awareness throughout the population should be the first concern on every society.

Education for Sustainable Development has been described as one of the strongest ways to embed sustainable awareness on the people, especially in younger members of the society, which are in early learning stages of their lives (UNESCO, 2014). However, although ESD is now starting to be included in teachers curriculums and continuous learning, educators, formal education has been suggested not to be enough to provide teachers and students with the needed capabilities. Plus, the consciousness of sustainability and ecological behavior in many cases rests in personal motives rather than a global awareness. Still, the role of teachers and educators for a sustainable future is critical. Thus, prepare educators for teaching ESD requires a collaborative effort involving different levels of educations and organizations, from higher education institutions to NGOs and societies themselves, promoting engagement and participation in programs.

The case of Eco-Schools presented in this study aims to understand the opportunities of collaboration between teachers to support continuous professional development through informal education in the particular subject of ESD. Particularly, this research presents a description of the benefits and limitations perceived by members of this international network of global ESD program, provided by an NGO without a formal system of collaboration and communication between teachers. Beyond that, the findings showed that collaboration is desired and, moreover, informally implemented at a certain scale. The outcomes of the interviews conducted to highlight the benefits of more collaboration and communication in relation to support the implementation of the program in the schools, finding solutions to common contingencies, but also open the boundaries for new forms of teaching and learn for students, through international collaboration and conjoint conducted projects. This not only promotes environmental awareness, but the interaction with different cultures, languages and paradigms give experiences to students in regards to empathy, respect and socialization.

The theories of TCs and particularly CoPs and PLCs, as described in Vangrieken et al. (2017), provided an interesting approach to the analysis for comparing the expectations and demands of a learning community. These theories help by enriching and validating the outcomes of the research since they have been tested and revised for already several years on diverse studies and sectors of society.

In addition, to expand communication and interaction by breaking boundaries and overcoming barriers, nowadays, the availability of information and communication technologies (ICT) helps on improving the accessibility to knowledge. Although, due the time demanding task that can be searching for specific information and developing material, collaboration through virtual platforms provide a potential co-creative space that can improve the efficiency of the access to knowledge, information and direction.

Ultimately, the significant contribution of partnerships between NGOs and other agents, in this case, Eco-Schools and schools worldwide with very different profiles coming from public and private administration has provided an important contribution to the expansion and promotion of ESD and sustainability awareness, experience that must be supported, expanded and replicated in order to reach more spaces for engaging more actors into the path of Sustainable Development.

Education is the seed that must be planted to grow a sustainable future. Sustainability is a task of everyone and teaching younger generations to take care of the world they are living in is the hope needed for repairing the damages provoked for generations misunderstanding the limits of nature, reaching boundaries that today are affecting the entire ecological system of the planet. Awareness must not be only knowledge and consciousness, but concrete actions and behaviors towards sustainability. Days of thinking are over, acting is mandatory now, and young generations are claiming for that.

## 8. RECOMMENDATIONS AND FUTURE RESEARCH

The captive sample of teachers of Eco-Schools offers an interesting space for researching in the subject of Education for Sustainable Development, particularly because of the described characteristics of the structure and scale of the program. And not only the field of collaboration is interesting, but also inquire on its effectiveness, potentialities and complexities. Until now, several theses have been written using this case as a base, and more fields to be researched are still open.

Regarding the limitations declared for this research and on its exploratory purpose, more research is suggested out of the findings showed on this document. Quantitative research is needed to obtain representative results regarding the perceptions of the benefits and limitations found out of the interviews conducted as well as the potential for the creation of an online network for teachers for ESD.

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# APPENDICES

## A1. Teachers Interviewed: interviewees profile

Question/ Name	Gender	Country	Age	Teacher experience	Eco-Schools Experience	Subjects Taught	Green Flag Award
Int. 1	F	Bahamas	43	20	4	General Science	Yes
Int. 2	M	Kenya	47	23	3	Computing	No
Int. 3	F	Qatar	52	28	17	Language Arts and Learning Service	Yes
Int. 4	F	Kenya	40	16	12	Business, Geography, Environment al Management , Travel and Tourism	Yes
Int. 5	F	Serbia	61	28	7	Biology and environment al science	Yes
Int. 6	F	Malta	39	17	11	Geography	Yes
Int. 7	F	Malta	33	8	4	science and physics	Yes
Int. 8	F	Spain	28	1	1	Physics, Chemistry, Biology and Geology	Yes
Int. 9	F	USA	52	29	10	Science	Yes
Int. 10	F	Serbia	55	20	4	Geography and Ethics	Yes

## A2. Data analysis - Key words

Themes	Concepts / Freq	Example quotes
In relation to the Eco-Schools Program		
Motivations	Personal (10) Collaboration opportunities (4) Awareness (7) Will for change Profession (9) Students (5) Profesional Development (3) Student Engagement (3) Relation to their subject (8)	"encourage students to rise engagement with the environment" "you want to take the school beyond to certain levels" "teachers get motivated by other teachers" "I want to teach a little bit more" "I was always trying to connect" (before) "also it has made me meet teachers from other schools within the country and outside countries." "students awareness and uh, they're ability to think outside the box and be agents of change"
Benefits	Teacher collaboration (4) Interdisciplinaire (3) Community (3) Involvement (2) Environment (5) Skills development (4) Useful in the classroom (3)	"I'm happy because the program is very good" "Can be connected to other subjects" "the passion we build on our students" "networking with other schools within the country and other countries"
Limitations	Collaboration opportunities (3) Time (8) Extra-curricular (2) Isolation (2) Money (5)	"organize meetings with people in the board with other Eco-Schools" "We don't have enough material related to environmental protection" "balance the difference of the curriculum between countries" "implementation can be a challenge because of the school administration" "the process of becoming an Eco-School is time consuming" "So I have my job as a teacher and then I do this role as on top of that" "So you have to make arrangements to meet the students after school or Saturdays."
Help and support	Online browsers (5) National coordinator (5) Teacher colleagues (6) Outside teachers (4) Research (1)	"I do research a lot on what other schools are doing, not only across the country, but across the world" "the biggest thing is communicating with people outside of your school" "we deal with those at our sustainability committee committee level"

		"I do research a lot to find out what other schools are doing and uh, that's where I get ideas"
In relation with other teachers and how they communicate		
Presence of communication	Yes (9) No (1)	"there is a few school that I am in touch with" "I communicate not just within our country, but across the world"
Frequency of communication	<1 week (3) 1-4 weeks (4) Once in a while (2)	"we meet within the school twice a week" (teachers of the schools) "at least two times a month" (others Eco-School teachers in the city)
Communication Platforms	Email (9) Whatsapp (6) Facebook groups (1) Skype (3) Google Classroom (1) eTwinings (1)	"having a tool is the more important thing" "by email I inform other Eco-Schools in Belgrade and they are invited" "WhatsApp, email and Skype"
Content of conversations	Ideas (7) Collaboration projects (3) Experiences sharing (8) Best practices (7) News (3) Discussion (5) Fundraising (1)	"we mostly talk about the projects we are getting in the schools" "how to prepare some things to prepare the activities" "research of Eco-Schools, to find out what they are doing, what activities they're doing"
Value of communication	Motivation (4) Development (4) Quality (3) Efficiency (2)	"you often are in a classroom or a school and you become isolated from what's going on around you. And it's that networking that, that keeps the energy going" "I think it's that kind of sharing that's really powerful that we do with one another" "people can share and, and keep motivated, you know, they have, they have a plan"
Reach of communication	Regional (10) National (8) International (4)	"talking to teachers within the region in much more valuable" "more casually, not in an organized way"
In relation to online platforms		
Internet usage	Everyday (9) Frequently (1)	"as a teacher I use internet a lot"

ESD social network Interest	Excitement (6) Interest (3)	"Have you heard about eTwinning? (...) I learn from their experiences, they learn from my experiences" "By Skype, by mails, we also have this Facebook group" "WhatsApp is the most use social media for me" "for collaboration that would be a fantastic tool." "I think that would be super, I think it would be a very, very useful tool"
ESD social network Value	Efficiency (3) Information (3) Experience sharing (5) Motivation (2) Ideas sharing (4) Knowledge (4)	"sometimes you don't need to reinvent the wheel" "I use it more to get other people's knowledge" "I'm always getting things emailed to me" if you're sharing it, you're doing it because you want other people to" "I think it would be more efficient...passing information,...getting feedback would be much faster."
ESD social network Limitations	Overwhelming (4) Few organization Time (6)	"people sharing things that are not true" "I think there's thing that work for one school that may not work for other school" "online communication is not face to face. So that practical ability is not there." "It needs to be interactive" "The other thing to look at is the information that is there. Does it add value?"
ESD social network desired features	Translation system (4) Video uploads (4) Materials folders (4) News feed (2) Theme filters (2)	"communicates news and communications that would like to pass" "especially if it was done regionally, I think it would be a lot, a lot more powerful" "or you could select, I only want to see posts about litter from schools" "some sort of ability to chat with people like to set up" "be able to attach a video of what you're doing and others can watch"
Organization role	Monitoring (4) Avoid spam (3) Create content (2)	"the moderators should be the Eco-Schools" "So you really have to check on, Internet safety for that particular sites. Eco-Schools has to assure that" "Secondly, the organizations should just let the system work by itself without manipulating it. " "if what is published is not the objective of the platform, it should be deleted"



## A.3 Interview Questions

### A.3.1 Questions for teachers:

- In relation to the program:
  - What are your motivations for engaging in the program?
  - How would you explain Eco-Schools to a teacher that doesn't know about it?
    - Which advantages and limitations would you tell her/him?
  - If that same teacher would engage in the program...
    - What would make her give up on the project?
    - What could make her engage more in the project?
  - How is it like when you decide to create a new project?
    - How do you get new ideas?
    - How does the process look from having the idea to concluding it?
    - What do you do when you are faced with a problem? Who do you ask help? What do other teacher do?
    - What is the support role of Eco-Schools? What could they help more?
- In relation with other teachers communication and collaboration
  - Do you communicate with other teachers about Eco-Schools?
    - Who are they?
    - With which frequency?
    - How do you communicate?
    - What do you talk about?
    - What is the **value** of those conversations?
    - How could that communication be improved? What **limits** it?
    - Where are they located?
  - What is your opinion about regional, national and international communication of Eco-Schools teachers?
    - Benefits and limitations of each
- In relation to online platforms
  - What is your relationship with internet?
    - How frequently do you use it?
    - Do you use internet to share knowledge? knowledge of eco-schools?
    - Do you use internet to look for knowledge? knowledge of Eco-schools?
  - Do you participate in digital platforms? What are the benefits and limitations?
- Hypothesis: Imagine there was a platform where you could communicate with teachers of eco-schools from your region and all around the world.
  - What would be the value? And the benefits?
  - What would be the disadvantages?
  - Would you participate? And other teachers from your school?
  - What things should it provide so that you would participate regularly in this platform?
  - What things would prevent you from using it less often?
  - What should be the role of Eco-Schools organization in this platform?
    - What should they do and should not do?
  - How do you feel about sharing ideas/knowledge with others in this platform? In which situations would you do it and not do it?
  - How do you feel about getting ideas/knowledge from this platform? In which situations would you do it and not do it?
  - How do you think that language differences can affect communication?

### A.3.2 Questions for National Operators:

- **About the program:**
  - ESD
  - What are the main benefits of the program? What are its limitations?
  - In your opinion, has Eco-Schools reached its full potential? Why? What is missing?
- **About the Role of National Operators**
  - What are the functions and responsibilities of a National Operators
  - What makes some teachers more and less engaged in the Eco-Schools program? What distinguishes teachers more and less engaged in the program? What makes teachers give up on the project?
  - What is the difference between the role of a teacher coordinator and other Eco-School teachers of the same school? What makes a teacher, an eco-School teacher?
- **Communication**
  - How do you communicate with Eco-Schools? With whom? Which frequency? Which platform? what kind of things do the y ask you
  - How do you communicate with the main office? What do you communicate? Which frequency? Which platform?
  - How do teachers collaborate with each other? What is your role in that? What is the perceived value of this collaboration? What are the results of this collaboration?
- Imagine there was a platform where teachers from eco-schools could communicate with each other, regionally and internationally.
  - What would be the value? And the benefits?
  - What would be the disadvantages?
  - Which teachers would participate? How often? Which teachers would be resistant to participate?
  - What things should it provide so that they would participate regularly in this platform?
  - What things would prevent them from using it often?
  - What do you think should be your role in this platform? How do you think this would impact your work?
  - Do you think the existence of a common online network platform could help in the integration of new teachers in the Eco-Schools?
  - Do you think the existence of a common network platform could help less motivated teachers to be more motivated?
  - How do you think a platform like this could impact the professional development?
  - What could be the impact of this platform in the projects developed in schools?
  - Do you think it would help in you role? How?
  - Do you think it would help in you role? How?

## A.4 Teacher interview transcripts (2 examples)

### A.4.1 Teacher Interview – Example 1

Researcher 1:	00:26	Thank you very much for accepting being part of this interview. Um, just to let you know, this is a completely separate from
Teacher 1:	00:26	
Researcher 1:	00:37	Eco-Schools. It's our thesis, um, our thesis research. So the only thing is we're working with them to get context from you, uh, but any of the information you'll give to us will directly report to them or something. Also, we would like, we would like to record this interview. Is that okay for you? [...]
Teacher 1:	01:10	Yes, I saw them, but unfortunately due to the pressure of my work, I didn't have time to respond. I'll still respond to them.
Researcher 1:	01:21	[...] So to explain a little bit about our research, we want to understand better the role of teachers in, um, Eco-Schools and how we can help improve, not improve, but supports the work in our Eco-Schools could support better that work. Um, can I start with some questions? Okay. Perfect. So the first questions I related to the program, um, in the first question is if you were asked to explain the Eco-Schools projects to a teacher that doesn't know anything about it, how would you explain it in a short sentence?
Teacher 1:	02:19	Okay. The Eco-Schools is a program that focuses on improving school environment and at the same time of school activities. Um, uh, also looking at, uh, developing leaders from [inaudible] or fundamental change. So as such, um, looks at training and, uh, building, um, uh, um, the ability to initiate environmental programs and projects in the school that can be used. As, um, that can be used as case studies and platforms for environmental change. So in my view that is what Eco-Schools is all about.
Teacher 1:	03:14	And if, um, this teacher would ask you the advantages, um, of this program for you as a teacher in, in for the students, what would you say?
Teacher 1:	03:41	As a teacher? Um, my passion for the environment I's been as quite, quite, quite much. And so Eco-Schools gave me a

platform to express my ideas and my views on what needs to be done, um, in any school environment. Uh, secondly, um, it has built, um, my innovative skills, okay. and also it has made me meet teachers from other schools within the country and outside country. And listening to them exchanging idea of it's really spread my networks. And for me that has been very good. Uh, for the students. I have seen most of my students get lots and lots of opportunities for them to express themselves about what they think and feel about the environment. they have had opportunities to participate in environmental challenges that has actually developed, um, they awareness and uh, they are ability to think outside the box on them as agents of change toward comfy do. Uh, at the same time it has developed a passion for the environment in my students because of their environmental activities were done, like the cleanup, planting trees, all these activities I've really made my students have a lot of passion for the environment. And uh, I've had quite a number of them after high school, my meetings to do and my told him to take it all because of the passion that they built while the last two dates. Okay. And, um, and also it has given them the exposure of course, because of networking. They meet with students from other schools in the country and outside the exchange process.

- Researcher 1: 06:27 a little bit more. In the next block of questions, we'll have some more questions about, um, the networking part that you're talking about and also about, so you've talked to us a little about the advantages, but what things could the program improve? So this, the organization that supports, so the Eco-Schools, what other things could they, um, supports or where do they have room to improve also, or limitations of the program.
- Teacher 1: 07:07 Okay. Okay. I think one of the challenges is being able to balance between the Kenyan systems course and um, the British curriculum schools.
- Researcher 1: 07:26 Why British?
- Teacher 1: 07:27 In Kenya we have these schools that are some of the Kenyan system [inaudible] education system and we have other private international schools that take the British curriculum system. And we have others that do the american curriculum system. So because of the differences in these different curriculums, there has been a challenge in balancing the activities that are appropriate to the district schools. Two, because being a challenge on taming the school calendars are

totally different. So sometimes you find they want to put on activity at a particular date that favors only the Kenyan schools or only International schools. So being able to get timing that will favor all schools, whether they are Kenyan system schools or the British curriculum schools. That's being a challenge.

- Researcher 1: 08:43 you were going to say something else? Maybe?
- Teacher 1: 08:47 Yes, I was saying that um, sometimes their implementation of eco school projects can also be a bit of a challenge when from the school administration. Some of these projects may require time and resources with some school administrators do not feel, uh, why, why should we invest in this? You know. Like if you're planting trees, you have to buy the seedlings. So sometimes the resources or finances, you need to be able to buy new siblings become a challenge. And not all schools, administrators are quick tool. It's terpene and you're not support and assist. But, but that's just on a small scale. Most of the schools have been very supportive.
- Researcher 1: 09:42 Okay. Very good. And um, let's see. Still talking about this teacher that you're talking about, the program, if she will decide to join the program, what do you think could be difficulties that this new person, this new teacher would face? So that could maybe even make her give up or what difficulties could or could this teacher face in the beginning,
- Teacher 1: 10:11 Number one, the process of becoming an Eco-School is time consuming. You must be dedicated. So if you lack the dedication and the commitment, you may not be able to succeed in implementing this program. Secondly, which requires the discipline of the learners because they must own the projects and they'll run with within
- Teacher 1: 10:44 what did you say? It's um, you said the words but I didn't understand the,
- Teacher 1: 10:49 okay, I'm saying, I'm saying that you need, your learners to be quite disciplined.
- Researcher 1: 10:56 Ah, the learners. Okay.
- Teacher 1: 11:00 Yes. The students because they must own the project and run with the, you cannot do everything as a teacher. Okay. So, you need time to train your students and build capacity in them, which are, has to be done outside the classroom time. So you have to make arrangements to meet the students after

school or Saturdays. So it's, it's quite, it's quite rigorous and involving, you need to be very patient and committed as a teacher. The other challenge, MMM MMM. The, the, the challenge of convincing the school administration that this is a worth project. Strategic as a school, most administrators don't understand what Eco-School is all about. Okay. So when you tell them you need students on a saturday to do a particular project. Some of them do not understand why, you know, and it, it takes time for them to get convinced that it's something that is worth doing. And it's just because they do not have last time Eco-School programs. So you really need to take time with the head of school and the are the members of this coal management to explain to them what the program is all about and how it's going to be a value to this school and to the learners.

- Researcher 1: 12:37 Okay. And then by the contrary, so that's probably our difficulties, but what could make this teacher engage more in the projects?
- Teacher 1: 12:49 So the passion,
- Researcher 1: 12:55 Passion and the, but what things if existed in the problem could have these new teachers, um, basically retention rates so that these new teachers are easily integrated in the Eco-Schools. What things could, um, Eco-Schools as a project provides to help, to help to answer these limitations that you've, you've told us.
- Teacher 1: 13:20 I think continuous develop of Eco-School teachers through teacher training of class because the teachers also need to ask their time to be able to actually meant it. So I think more teacher training from the Eco-Schools to help teachers be able to understand and implement the program.
- Researcher 1: 13:46 Okay. Um, and um, know about you when you say where do you decide to create a projects? How do you get new ideas?
- Teacher 1: 14:05 Oh, one from research. I do research a lot to find out what other schools are doing and uh, that's where I get ideas, not just within our country, but across the world. So I get, I do some, research of Eco-Schools, to find out what they are doing, what activities they're doing and from those, which I am able to do. Yes.
- Teacher 1: 14:31 How do you communicate? How do you communicate with the teachers from other Eco-Schools? From other countries and in your country?

Teacher 1: 14:42 Yeah, that's yes, yes, yes. They are few that I'm in touch with the Eco-Schools coordinators.

Researcher 1: 14:52 By email, by WHATSAPP, by Facebook. What is the platform you use?

Teacher 1: 14:58 WHATSAPP, email and Skype.

Researcher 1: 15:03 Okay. Yeah. So you, you talk to the coordinators of these countries to get new ideas?

Teacher 1: 15:11 Yes, yes. We share ideas and uh, we also bring a students from both schools to exchange ideas, also using the same platform, but for students mostly we use skype and the Google classroom learning platforms.

Researcher 1: 15:50 okay. And so also when doing the project, do you communicate with teachers in your own school?

Teacher 1: 15:58 Yes. Yes. Eco-Schools is a whole school project and uh, we involve other teachers in the eco school committee. we involve other teachers in the staff meetings where we share with them what, what is happening. Okay. So, um, uh, also encouraging the teachers, encouraging teachers to use the environment as teaching platforms,

Researcher 1: 16:35 What is the environmental teaching platform?

Teacher 1: 16:42 We have a subject called environmental management, which is examinable and it is taught from year 10 to year 12.

Researcher 1: 16:53 Okay.

Teacher 1: 16:54 So that is one. Oh That is one platform that we use and the other one is trough professional development, continuous professional. It's usually part of our trainings that we do.

Researcher 2: 17:20 Okay. Um, hi. I haven't talked yet. I'm Felipe. It just one question. Hey, this platform is a virtual platform or it's a offline platform?

Teacher 1: 18:09 we use online platforms mainly Skype, And Google classroom. But Google classroom is mostly for students from both schools. so I open a Google classroom all that up and then I invite my students and also invite students from this quarter we are partnering with as long as they have g may not.

Researcher 1:	19:08	Okay. Okay. Okay. Yes, yes. So let's see. You, you have a project and you're faced with a problem or a challenge. Who do you talk with? Do talk with other people rather than the ones you've mentioned?
Teacher 1:	19:25	yes, they're the, the Eco-School office in Kenya is very active and they are very supportive. Okay. So I'll always call the programs manager and share if there are frustrations and then we discuss. They are very supporting.
Researcher 1:	20:00	Okay. And, um, yeah. When, when you communicates with the w w we did with this other teachers, other teachers, this community that you communicate with, which frequency do you communicate with them?
Teacher 1:	20:17	It's mostly active during the time period and, uh, if we are starting a project, then the initial communication is normally weekly. Okay. But then after that the follow up communications can be monthly.
Researcher 1:	20:51	Um, this, so how could this communication that you have with other teachers and Eco-Schools all around the world and in your country, how could this communication be improved?
Teacher 1:	21:07	I think if if time would be blocked out for specific time within maybe a fortnight's very one week, a fortnight and then, and then the, this consistency because sometimes, uh, due to different school interruptions, which affects their consistency. Um, the other thing is I think working on ICT infrastructure because sometimes, uh, it can be a bit frustrating. You're trying to reach other schools on Skype. The Internet is down... So looking at how schools can improve the Internet infrastructure that, who, that would help a lot. Yeah.
Researcher 1:	22:27	Yeah. And um, what in in terms of international communication that you have, there's benefits, but then there's all, and when you communicate with them on, when you try to develop these projects with other schools from around the worlds, there are benefits and there are also a disadvantages.
Teacher 1:	23:10	I'll say the programs are quite enriching for me. That's one of the benefits that I've seen both for the teachers and for the students. uh, uh, number two, the learners experience. so the learners are able to look at problems from different view, not just from one view.



Teacher 1:	23:37	Okay.
Teacher 1:	23:38	Be able to compare and contrast what they are doing and what others are doing. So it's a benchmarking platform. Okay. Oh, uh, the potential problems is, um, uh, time consuming, learners have to balance the implementation of the program with academia work. So we have some learners who are not able to strike a balance between the academics and doing equal school project. So that becomes a challenge.
Researcher 1:	24:23	Okay. But in this case, more like, the difficulties of the developing this projects weeds, the, regarding to the Internet, to the communication with international schools, with other schools. Okay. So no, not international schools, schools from other countries.
Teacher 1:	24:43	Uh, uh, I think there's thing that work for one school that may not work for other school. So you really have to see the, you already have to see if the information you're getting and see what works for you and what doesn't work for you.
Teacher 1:	25:08	And then, um, the other thing is to see this online, online communication is not face to face. So that practical ability is not there. Okay. So you can easily be the more theoretical, you have a lot of information, but practically how it works becomes a challenge. How do you see now if you have to do an exchange program, it's quite expensive.
Researcher 1:	25:42	Okay. So from what you're telling me, you use the Internet to share, do you use Internet to share your knowledge, the knowledge that you also have? Yes. Yes. You do. It's through these platforms that you've mentioned mostly, right?
Teacher 1:	26:00	Yes, yes, yes. Okay. Um, okay.
Researcher 1:	26:08	We've talked about this. So now we're getting to the last parts of, um, of the interview. It's regarding an hypothesis. So basically, you know, in research, uh, we are testing the idea of the creating a, a platform, a universal platform where teachers can collaborate with each other. So this, there's this hypothesis that is, imagine there was a platform where you could communicate with teachers of Eco-Schools from your region and all around the world. Huh? What will be the value for you of this platform?
Teacher 1:	26:56	I think that would be super, I think it would be a very, very useful tool and dye, especially for collaborations or collaboration that would be a fantastic tool.

Teacher 1: 27:06 And what would be the benefits compared to this informal platforms that you're already working in because you already are working in some flex in some way. We did international schools. So what would, what, what is the value added to that? What to improve?

Teacher 1: 27:21 I think it is a be more efficient. And uh, I think, uh, passing information, getting feedback would be much faster. and uh, I'm just, I'm just thinking that, um, uh, you could use different forms or passing the message, like you be able to attach a video of what you're doing and others can watch. I think it would be more efficient. Okay. Yeah.

Teacher 1: 27:59 And now what about the disadvantages compared to the platforms that you're using already?

Teacher 1: 28:08 Uh, uh,

Teacher 1: 28:09 I'm not sure, but I'm just thinking designing that would be quite expensive. And number two, uh, I'm thinking about not for us as a school, but for other schools that dont have internet access. What about them . Okay. And this especially like most of all, eight for four system schools back in the village, they want to participate but they do not have Internet access okay. It would be to be a problem for them.

Teacher 1: 28:41 Okay. And um, yeah, so do you think, I'm, from what I could hear from you, you would participate, but what about other, other teachers that you know in your region, you think the, the ones that have access to the Internet, do you think they would use it regularly?

Teacher 1: 29:00 they would be willing to use it, no. Be more than willing to embrace it.

Researcher 2: 29:07 And then what things should this platform provides that will make you participate regularly in the platform? So it's something that you would use in your daily day,

Teacher 1: 29:19 It needs to be interactive. Uh, something that uh, you are able to get immediate feedback, to a question or a comment that you are forced it. that uh, you can be able to share videos. perhaps. Yeah.

Researcher 1: 29:51 Okay. What things would prevent you from using it less so what things would make you use it less often? Yeah. So the opposites, what things would not be so attractive to use it if when you use it?

Teacher 1: 30:57 are there limitations to using it? I think if you have so many people who can access the platform, but you're only getting the participation of a few, I think it would become boring.

Researcher 1: 31:18 Okay. Yeah. And um, what, what about the role of the Eco school? So, not the main organization, they will be creating this platform. But what else, what should be their role in the platform? What kind of role should they have when managing the platform?

Teacher 1: 31:40 That's looking for advices that somebody could use to, um, cause you know, online platform me is a vulnerable to virus. So people, really need to trust the site, but uh, what you're going to use. So you really have to check on, uh, Internet safety for that particular sites. You didn't see anyone he tool to use it for me, I want to really be sure that the site is safe for me to open.

Researcher 1: 32:25 Okay. Anything else? Yeah.

Teacher 1: 32:33 The other thing to look at is the information that is there. Does it add value?, yes.

Researcher 1: 32:41 So you're saying that you think

Teacher 1: 32:49 a platform that is challenging, that will develop my analytical skills to brodden, the knowledge of the information that you, you're getting up just for the basics.

Researcher 1: 33:08 Okay. But so you think, um, the role of the organization will be to filte?

Teacher 1: 33:16 Yes. Oh yes, yes, yes, yes. Okay.

Researcher 2: 33:22 W W who do you think should be the moderator, the central offices of Eco schools or the teachers themselves, like had a internal designation of the moderators?

Teacher 1: 33:38 Uh, I think both, in such a way that it is, it's the responsibility of all of us.

Researcher 1: 33:53 Okay.

Teacher 1: 33:53 Yeah. So like for example, the teacher can point out this and this is what is happening, but shows on their central organization.

Researcher 1: 34:04 Okay. Yeah. what's, do you think it still limits to the work of, of the organizations? So what things should the organisations nods, do and not citizen? Uh, yeah. Not to do in the platform.

Teacher 1: 34:35 I think the organization should not be discriminating [inaudible] to who is participating in the platform. Secondly, the organizations should just let the system work by itself without manipulating it.

Teacher 1: 35:00 Okay. But, um, previously you told us that, uh, you think it should filter the content? So if they filter the contents, yeah, they will have to choose if what you post is what you publish is valuable or not. Do you think they should do this or,

Teacher 1: 35:21 yeah, I, if what is published is not the objective of the platform, it should be deleted

Researcher 1: 35:45 like spend like spam basically.

Teacher 1: 35:48 Yeah. Wow. Okay. Yeah.

Researcher 1: 35:51 So maybe a system, there should be a system to report things that are not okay.

Teacher 1: 35:58 Yeah.

Researcher 2: 36:07 sorry, what, what about the language? Do you think there will be language barriers? Yeah,

Teacher 1: 36:23 the language. I think English is more world acceptable.

Researcher 1: 36:35 Okay. What about the teachers that don't speak English?

Teacher 1: 36:44 That's all saying. Uh, you could use a, I don't know where that would be possible to include a translator data, uh, or something that could translate for teachers from non English speaking countries to their own language.

Researcher 2: 37:44 yeah. Just a couple of things that I, I would like to know. Who was the one who started the ECO schools program in your school? The,

Researcher 2: 38:22 How did you learn about the program? How did you, did you, did you know about it?

Teacher 1: 38:29 Oh, okay. Um, my previous call where I walked, I usually take the program also. But um, from my previous call I got to know him through, um, a teacher friend of mine was in

another school and uh, give me the contact for the Eco-School

Researcher 1:	39:37	Thank you. I wish you a very good day as well. Thank you. Thank you very much.
Teacher 1:	40:12	Thank you very much. All the best in your project.

#### A.4.2 Interview with Teacher – Example 2

Researcher 1:	00:00	You have the busy week and now I'm taking too much time. Have you weekends
Teacher 2:	00:04	I am well drinking glass of wine.
Researcher 1:	00:12	I think that's good to make you lose to answer our questions. Maybe you remember more things. Okay. First of all, thank you for your willingness to participate in our research. Um, we now have some more information about you. We decided to send those basic questions to save some time in our interview. Um, so you know also a little bit already about us. We are teaching, we are doing our masters in leadership for sustainability and we're working with Eco-Schools, uh, to try to understand the role of teachers in their program and how it can also be improved. We're going to try to do some video, but I hope you will not interfere with our communication. By the way. This is Felipe.
Researcher 2:	01:06	Hi,
Teacher 2:	01:07	how are you?
Researcher 2:	01:10	Fine, thank you, nice to meet you.
Researcher 1:	01:12	Um, so, and to explain you a little bit more of this, we want to do is to understand the role of teachers and also how it can be, are we can give them more, not more power to make them leaders inside the school as well. And how we can, we can make that happen. So we want, we will start with some questions about the program. Okay. And although we're working with Eco-Schools or with the project, we are not connected with them, which means this is completely independence and we will not share your answers with them. Okay. So don't worry about that. It's completely trust. Transparent's we do need to record the interview. Uh, I hope it's okay. Yeah.
Teacher 2:	02:05	I would have brushed my hair. I just came back from the swimming pools.
Researcher 1:	02:09	No problem. No problem. Um, okay. And then also something else if so, we see that sometimes because sometimes the interviews can, um, get excited with the question and start talking about other stuff. So I hope you

don't mind. That's a, we try to manage the conversation while we talk. Okay. Um, okay. So our first questions are again about the program. And, um, I will do, explain. Hey, hey, hey, remember the passwords? He was calm. They'd call something, right. Hey, maybe it's better if we disconnect the video. Is that okay for you?

Teacher 2:	04:01	Yeah.
Researcher 1:	04:02	Okay. To make sure we can go until the end. Okay. If you can also just connect your video, that will be better I think.
Teacher 2:	04:21	Huh. Could you help me how to just connect by video.
Researcher 2:	04:25	There's this screen, there's an option to come there. I got it.
Teacher 2:	04:31	No, I don't have an option. That's the weird thing or full screen.
Researcher 1:	04:36	Okay. Then we'll call you again and make just the audio.
Teacher 2:	04:53	Okay. Perfect.
Researcher 1:	04:55	So can you hear us? Yeah, I can hear you. Okay, perfect. So I was going to the first question, which is, um, how would you explain the echo schools program to a teacher that has never heard about it?
Teacher 2:	05:15	Um, I would, I think it's best described as a vehicle for creating change around sustainability at your school. Um, it's, it's really a program for you to follow to. Uh, and then also part of that, the whole, it's a cyclical program that you follow, um, to make change within the school around sustainability issues, particularly there. So 11 different themes to make change around. So it's a way of assessing yourselves, um, figuring out where you need to make changes, developing a plan to, to carry out those changes and then evaluating font, getting feedback and evaluating yourselves again. Um, the other part about it is that you have someone from the outside, everything every couple of years who comes into evaluate your progress. So you get another set of eyes of people who are not in your school to offer you feedback and ideas as well. So you create sort of a community, um, and can share ideas with others schools, which is what makes it really good.

Researcher 1: 06:28 Okay. So you already, you already mentioning some of the advantages, but is there, besides what you're mentioning, is there any other advantages of this kind of problem?

Teacher 2: 06:41 I think the main advantage is specially for people especially who are starting out. They want to make some of these changes. It gives you a, a method for doing that. Um, and, and it's a good Methodist and method that is used in design thinking kind of method where, um, you know, you, you evaluate, you come up with your assess, you come up with an idea, uh, you can assess yourselves who come up with ideas of where the problems are. You create an action plan, you carry it out, you would reassess it in the whole process as a cyclical process that keeps going on and on. And I think it gives a really good starting place at, and not just a starting place with just a model.

Researcher 1: 07:26 No, maybe a little bit also about some limitations of the program that this person that could join, we'll live, we'll have to face.

Teacher 2: 07:37 Um, I mean you're one of them. The limitations is just having, you need to have a, ideally really a strong student interest in doing that because it really based on the students, um, drive to make things happen. I mean, the adults have, have input in it as you know, in terms of being mentors and trying to help the students along. But just having the interest and a commitment to making it work, he is, is one of the things that can be challenging. Um, sometimes in some cases you also need the support of your administration at the school. Um, and you know, uh, in, you know, in many ways, but often even financially, um, offering support, uh, if kids want to do something or come up with a particular program. So for example, we just started composting at our school. Um, our school has not been as supportive financially, but we haven't really lucky to have a corporate dorm donor who's very, very much behind us and has been, you know, we've been able to do some great things because know we have some money to help institutions changes. Um, what else is a challenge? Sometimes the, the program itself. So for example, there's 10, no, sorry, 11, 11 different teams now. Um, some of the themes, for instance, the school I'm at right now, they don't really apply to, even though you have to evaluate yourself on those, they don't necessarily apply to the region we're in. So, for example, we're a being in the Middle East. Um, when we talk about biodiversity on the campus, well nothing really grows here, that's true.



Researcher 1:	09:36	I wasn't making that as well. We knew you. Now that you mentioned.
Teacher 2:	09:39	Yeah. So there's certain aspects of it that you know we have to do and this is part of what we're expected to do, but, and you know, litter is another one. We don't have a huge issue on our campus, particularly with litter, but we do with waste management. So you know, sometimes that is can be a bit of a constraint or it just doesn't match well with the environment that you're in.
Researcher 1:	10:02	Okay. Okay. And then what about this, this teacher, if she would engage the program, it's still a little bit about last question as well. So maybe it's the same answer or maybe you want to add something else. So if this teacher engages, knowing the program.
Teacher 2:	10:18	Sorry, I messed up.
Researcher 1:	10:20	Let's say there's a new teacher engaging in the program. You were already, you already in the situation in 2002 which, right? It was the first time you engaged. What are things that can make you give up in the beginning?
Teacher 2:	10:37	Um, so when I look back that I was teaching in Canada at the time and I think that biggest challenge there was to yeah, to instigate, it's to create the issue, the problem. Let me try that again. To um, start the program. One of the things you really need to get on board with you is your, your facility's management. Um, they are so important in terms of so many aspects of the program. And when I was back in Toronto, that was probably the biggest challenge at the particular school. I was apt because they deal with electricity. They do with water, they deal with a waste they deal with. And unless you have, um, some people within that group, um, to help and to work with the kids in addressing some of those issues and that can be really challenging.
Researcher 1:	11:35	Okay. Is there anything else?
Teacher 2:	11:39	Um, no, I can't think of anything. No.
Researcher 1:	11:48	And then backing that time once again or what it can also be now, what if a new teacher, a is now new in the program, what could make that person engaged more, so something that it's not there yet. But if he was implemented that would make a, this new teacher, this new acres called teacher engage more in the program.

Teacher 2:	12:13	Um, from my experience back in Canada as well as here, I think the biggest thing is communicating with people outside of your school and like in real and not just, you know, having an email back and forth, that's fine. But actually meeting them, visiting there, there, uh, spite seeing what they're doing. So, for example, I took a short course to come an auditor for EcoSchool. So I audited another school in Doha. And that was, I mean that was as valuable for me as it was for them cause I got to see what they were doing and that we have created a, you know, contact and now the, uh, international operator eco schools within Qatar is, um, the cuts or green building council and they are, have planned the first, uh, Eco Convention for students, which is going to happen in the fall so that they can get kids, uh, and, and, and teachers from across Doha to meet and have a little conference where there's sharing out of, you know, how things we've implemented from our school as well as to hot college. Um, how we went about doing that, what some of the challenges we had were, what some of the successes were. So I think having that community, and I know back in Toronto, the same thing when we had, we had a day conference where we brought a group of kids from our little council. And so there are schools from all over the city there and you did, you know, you talk to them as well as doing some of your own work in planning. And it was just very energizing. And I think that's one of the things that can be hard as you tend, you know, in schools and even as teachers, you often are in a classroom or a school and you become isolated from what's going on around you. And it's that networking that, that keeps the energy going.
Researcher 1:	14:13	Okay. Okay. Very good. Um, and uh, what about when you, when you decide to create a new projects, how do you get new ideas?
Teacher 2:	14:24	So part of the program, uh, is as I said, cyclical and we do like a yearly around things. Uh, so we have, we started actually not using Eco-Schools right off the bat. They created a sustainability committee at our school, um, which I was, um, uh, the Leda. Um, and so we created this committee and tried to have a variety of stakeholders, holders within the community. Um, and then we started using Eco-Schools. So the first thing we did is we audited ourselves by creating a survey for the entire school population. Um, not everybody did the survey, but we had a, a large group to get enough information. And what we do, what we've done is we've used sort of our own observations and the data that we have as well as feedback from the community through that we call it

the Eco Review to point to pinpoint air is that people are passionate about and they see a need for change in, um, and often even use some of the ideas that they come up with on those, those reviews to kind of push forward. And then each year we, um, we come up with maybe three or four schoolwide goals around sustainability for us to do as a whole school. And then our individual, because we are, we're a large school, we're a uh, kindergarten to grade 12 school. Um, and we're on a fairly big campus. So our school's kind of function like three individual schools, so our elementary or middle and are high. So they do individual events within their divisions. But then we have our school wide goals and we've also, uh, we also the, those are written in, within, within the, um, leadership teams. So the director and the principals, etcetera, they're school wide goals. Uh, our sustainability goals are written within there so that it's, you have this bottom up happening but also a top down so they can meet in the middle.

- Researcher 1: 16:33 So in the process of this creation of new projects, you communicate with people and in your school you can communicate with the community, with the students. Uh, do you communicate how, so we did a stakeholders outside your, uh, the campus or the region as well.
- Teacher 2: 16:54 We technically, what we, we have this, the information in terms of, so where our goals are made and then we have action plans that we write up for the year and those are all available on our site. Uh, however, the site is not accessible for security reasons, two people from the outside. But having said that, we, um, we, you know, if people, for example, comes the green building council is one of our partners. And so it's ConocoPhillips, uh, we've made that information available to them.
- Researcher 1: 17:31 Okay. And I was, I was thinking not in terms of implementation, but in terms of, in terms of the construction of the ideas and of the project itself, if, um, there's any exchange of information within schools of other regions or countries even?
- Teacher 2: 17:51 Ah, AH, um, only, uh, I would say more casually, not in a, um, organized way. Okay. Yeah.
- Researcher 1: 18:06 Um, and then so in what do you do when you have a challenge or a problem, Eh, that's you face. Who Do you, who do you contact with or help to? Basically.

Teacher 2: 18:25 So, I mean, it depends on the kind of challenge that we're facing. I mean, we're always having, I mean, there's like any project, you know, it's never without its challenges. Uh, he often, we deal with those at our sustainability committee committee level, which is, uh, a variety of people from, there's teachers, there's students, so high school students, some middle school students. Um, there are people from, um, the, uh, um, facilities management from administration, from a variety of people. So often we bring those kinds of concerns. To that meeting and try and come up with some solutions quite at that meeting,

Researcher 2: 19:15 Mainly with people inside the school?

Teacher 2: 19:18 Uh, yes, for sure. Um, I mean we've, this year we've only been doing this, we started in 2017 so really this year, that was actually one of our goals was to make, um, more connection to organizations within Qatar. Um, though the Qatar Green Building Association was one. We also, uh, with, uh, ConocoPhillips CP council, so a number of companies that have sustainability groups that have reached out to us. So for example, with, um, we did a sustainable film, uh, contest, which was put out by Conoco Phillips in our high school kids, uh, created there abouts, uh, how many entries? 36 different entries. Um, but, you know, we're just trying to build connections with the community, especially through groups, organizations, businesses that are passionate about, you know, making sustainable change. Okay.

Researcher 1: 20:25 Okay. And then what is the support role of the Eccles schools programs? So really the, uh, in, in your case, do you have an, an, um, a country manager of the, of the Eco-Schools?

Teacher 2: 20:37 Yeah. And that has just happened in the past year. Um, before that, uh, our, our manager was in Copenhagen

Researcher 1: 20:50 Nicole, maybe?

Teacher 2: 20:52 Pardon me?

Researcher 1: 20:53 Nicole?

Teacher 2: 20:55 Yes. Yeah, exactly. Um, and now since then, the cutter Green Building Council has taken over that role as the national operator.

Researcher 1: 21:04 Exactly. And what, what is, um, so even now or back then when you were talking with Nicole, what was the support

role of the Eco-Schools program and what could they help more if there's something?

- Teacher 2: 21:18 Um, Ay, uh, I mean, they've been, they've been good. So for example, [inaudible] green building, new term stuff, finding their contacts within what's in Qatar, for example, been looking at recycling options for various, there's various items and they have contacts that they're able to provide us so that we don't have to do all that footwork of figuring out, because here in, in Qatar, it's not always easy trying to figure out who's, who's doing this, how you contact them, etc. So they've been good in terms of that and helping us get in contact with other groups. Um, again, like I said, this is just fairly new with controversy and building. So, um, for instance, we went to one of their, some of our teachers went to their green school a course, you know, how to make your school. Um, and environmentally friendly course. Uh, they're putting on this eco conference for schools around Doha. So I mean that's all just sort of starting up. Uh, before that, uh, our experience dealing with the group in Copenhagen, they had a variety of resources hits from a platform that they used that you could access as hot resources, some on it. Um, probably that was more, there wasn't as much support there because I think your region or area or the country has its own needs. So if you have a local support group, they are going to be a lot more on top of you know, who you can contact.
- Researcher 1: 23:05 Okay. Um, and uh, no going to the second section, which is about teachers and the communication that is there is among them. You mentioned that you communicate with teachers of other Eco-Schools, right?
- Teacher 2: 23:21 Yeah, I mean that's just starting to happen. Okay. Because we only have a couple of ECO schools in Doha. Um, I think we are the second thing. So I think there's only two of us who are right now and there's a few others who are working towards their certification.
- Researcher 1: 23:39 Okay.
- Teacher 2: 23:40 Um, so this is something new really. We are in there and Doha, it is kind of a sustainability, um, vacuum. It's not something that people, it's, they're very much sort of behind the times. For example, there's no, there's no recycling. Okay. Uh, if you want to recycle, you have to call a company and you have to pay them to collect your recycling. Um, there's, so the, the whole, um, the whole in the country as a

whole has not come to that point. It's almost like living in like the 1960s or seventies.

- Researcher 1: 24:20 Yeah. Well I think you'll know, but is there any other Eco-Schools or other teachers that you can make it outside the country as well?
- Teacher 2: 24:32 Um, not necessarily people who are using the ECO schools global program at other schools that have big sustainability programs. We've been in contact with them in terms of finding out how they, how they, um, got to where they are. So, for example, I've been in contact with the sustainability coordinator at a United World College in Singapore because they're very big on that. There's also the UN school in, um, uh, Hanoi of you who during some of them,
- Researcher 1: 25:07 And I was like, you communicates with the Audi, you communicate with this, with these people. What is the platform?
- Teacher 2: 25:15 Um, Skype. Um, and again, it's, the communication has been more through the adults talking to the other adults in terms of how did you get this going? Um, also, you know, in the international school community, often we will go to conferences, etcetera, or on, um, supporting events or field trips in other countries to, at other schools. So while you're there, you get to see, oh wow, they're doing this. How do they, how do they manage that? And then you, you know, that's where those conversations start up and you learn about, um, you know, how that, and you always hear the story about, you know, it wasn't a smooth road. I mean, it's taken years to get to that point, so.
- Researcher 1: 25:57 Okay. And do you think there's, do you think that communication is perfect or could it be improved? What limits that communication as well?
- Teacher 2: 26:09 For sure there's limits. I mean, especially in an international community and just even the two of us or the three of us, you know, just time differences and uh, for communication, especially if you wanted to direct communication and if you're not doing indirect communication, it becomes maybe less, less powerful. Um, so, you know, there's just the natural issues around space and time. Um, I mean ideally if you could be, you could do, you know, could be transported, you know, like star Trek, you know what I mena, see what's going on

Researcher 1: 26:53 For many things, I need it.

Teacher 2: 26:54 A great thing would be even if people could make videos of sort of here's what we've been doing and post some of those, that would be really powerful. One of the things I find in my role as I told you in this region or in even in our community, people have not really, this is not something they're keen to embrace. The main industry here is oil and gas. People feel very threatened by sustainability. Um, in fact, it took a couple of years for us to even put the word sustainability within our mission statement, every school. Um, because our board was so against it.

Researcher 1: 27:32 Yeah. God, now there is, you could, there is a main source of income is oil, right?

Teacher 2: 27:40 Uh, liquified natural gas.

Researcher 1: 27:42 Okay. But because of the probably

Teacher 2: 27:47 yeah. Oh absolutely. Absolutely. And I mean these people who are, you know, people, the board members, I mean that's how they're making their bed bread and brother butter. So there is somewhat of a threat there. However, I think as much as people don't want to admit it, change is going to come. I mean it has to theirs. We can't continue along the and as well where we have a job to educate kids.

Researcher 1: 28:11 Okay. And um, about this international communication, um, what is your opinion about it? What are the benefits but also what's are the limitations. So you mentioned some limitations already, uh, but maybe want to talk a little bit more in detail.

Teacher 2: 28:28 The others. The other thing is, like I said before, you are a lot of what you do sustainability wise is really based on the environment where you are. So for example, for me to contact other schools, it's great for me to talk to the school in Vietnam and find out what they're doing. But you know, Vietnam has nothing like the Arabia, you know, in the reading golf though for me to talk to other other schools within the region is probably a lot more valuable. And then they'll maybe having micro micro communication, uh, groups where you have similar, similar realities.

Researcher 1: 29:11 Yes, yes. Well we're listening, it was just making a comment on your micro communication groups.

Teacher 2: 29:21 I just made that up.

Researcher 1: 29:24 Yeah. But it's, uh, it's interesting for us. Um, and then going a little bit to other direction and in terms of the Internet and online platforms, do you use Internet to share knowledge to share knowledge you or that you perceive to have?

Teacher 2: 29:47 I'm sorry, I'm

Researcher 1: 29:50 around this area of, um, even as a teacher, do you as a teacher uses the Internet to share your knowledge?

Teacher 2: 29:59 To share my knowledge. I use it. I think I use it more to get other people's knowledge. I'm not sure I use it so much to share my own knowledge. I'm not sure how knowledgeable I am. Yes.

Researcher 1: 30:11 Okay. Okay. And, um, and also so you look for knowledge in the Eco-S chools. Do you search for things with platforms? Do you look in?

Teacher 2: 30:26 It's funny you mention that because we're always, I think I'm really lucky in that many of my colleagues are very passionate about sustainability and, uh, I, it's funny, I think the teachers within our school are very keen to see this kind of change happen. Um, they're constantly, I'm always getting things emailed to me. Okay. I just found that I would ever go to this link. This is Dah, Dah. And, and I was just looking at something today, um, that a colleague sent me. And I think it's that kind of sharing that's really powerful that we do with one another. And then we get them from there. We share it with kids. So for example, a colleague just sent me a link to a, an extension that you can use on Google chrome. Uh, I can't remember what it was called.

Researcher 1: 31:22 I know it. Google Classroom,

Teacher 2: 31:25 No, this, this, I mean it has to not really to do with giving me information so much as a way to, um, so it's basically a search engine sorts extension and go what's that?

Researcher 2: 31:41 Ecosia?

Researcher 1: 31:43 Yes. And I hadn't heard of that before, but so for example, I will, uh, I teach a service class, I'm going to show up, I'm going to show my kids that because I'm going to say, look, here's something that people are doing anyways and at least this way there's wealth that shared in a positive way because your, your just natural, you know, I've gotta look this up. Money is put into planting trees as well as providing women



with um, economic benefits because who can take micro loans? So just those kinds of things, that kind of sharing of technology and apps and sites and is really powerful.

Researcher 1: 32:27 Okay. Very good. Um, the next block of questions, it's the last one and it's about the and hypothesis. Okay. So this is actually what we want with the more of these conversation with not only the conversation but what we're kind of stuck trying to study. That is, um, a concept of, uh, knowledge, platforms, knowledge sharing platforms, um, in this case mutual and also relating to communities of practice. So, but this, this communities of practice is more theoretical. So this hypothesis that we have is for you to imagine there was a platform where you could see like these time formal, so a platform where you could communicate with teachers of Eco-Schools from your region in all around the world. And what would be, what do you think it's the, it's the value of this platform. And what are your thoughts about the, the idea?

Teacher 2: 33:28 I think it would be, it's great idea. And like I said before, if you could, if you had sort of a, you could even use it so you could contact regionally, people in your region would be very powerful, um, to share information because a lot of your needs are very, are very environmental, like regionally based. Um, I think it could be very powerful because it's that kind of sharing that keeps the energy level up. Yeah. For sure. When you see what else someone's done and then instead of starting from scratch, which is one of the reasons why we, we use the ECO schools program. So when I, when I started as the sustainability coordinator and got our group together, um, I said, you know, we don't need to reinvent the wheel. This has already been done before. There's lots of programs out there that we can follow to get started. And My, my, uh, choice might be looked at a few of them. My personal choice was Eco-Schools and they, the group of them felt, you know, that was also the best, the best choice. Um, but it was that it's not sort of the community so that people can share and, and keep motivated, you know, they have, they have a plan.

Researcher 1: 34:54 Then, um, also what these advantages, or limitations could this platform bring or have?

Teacher 2: 35:03 Well, um, sometimes you have people who just put in sort of junk. Um, I think so. It's also a situation, for example, I mean I don't, I just do this role as sort of an extra role. So I have my job as a teacher and then I do this role as on top of that. So it's also time consuming to find the time to actually do

posts and to answer posts and that kind of thing. Um, so that, that's one of the limitations, especially for teachers. I know everybody thinks that teachers, you know, started at nine and end at three and that's all we do and we just, you know, but it's, that's like a small component of what you need to do. So your job is endless and I think that might be a limitation is finding the time. Okay. Is it to its full extent.

- Researcher 1: 35:55 Okay. Um, so in this case it seem, it seems like to your, um, he, it's an idea interesting for you, but do you think other teachers from your school would be interested in it or other Eco-Schools, teachers that you know would be interested in it?
- Speaker 3: 36:14 Oh, I think so. Um, and like I said, especially if it was done regionally, I think it would be a lot, a lot more powerful.
- Researcher 1: 36:25 Okay. Um, so in this platform, what things would you like to see there so that you would participate regularly?
- Teacher 2: 36:39 Um, I think the biggest thing would be. Mmm. A way for people to communicate. I'm just thinking, I can just compare it to something like a Facebook where you could post things, but I think you'd also need to categorize them. So for example, and maybe even, even though there are multiple themes and eco schools, you could categorize them according to the themes or you could simplify that further. Um, I think choosing, if you could maybe limit the posts. So if you said, I want to see everyone's post, you know, from on everything or you could select, I only want to see posts about litter from schools in
- Researcher 1: 37:38 mmm.
- Teacher 2: 37:40 The Arabian Gulf or I only want to see posts about, um, food, food issues from, you know, schools in Europe.
- Researcher 1: 37:50 So related to themes, regions, basically these two themes in regions
- Teacher 2: 37:57 Themes and regions I think would be good.
- Researcher 1: 38:02 And now anything else that you think you should provide to use it regularly?
- Teacher 2: 38:10 MMM, I don't know whether this would be at all possible, but even on some sort of ability to chat with people like to set up, um, to say, okay, well can we, I want, I talked to the

little, can we set up a time to try, if there's like a chat function where you could that evening in a lives kind of, you know, sense. Um, it's like house party kind of thing where you could actually sit down and say, okay, let's chat at three 30 and have like a virtual meeting about something where even though you may not be in the same city or country, you could be there and they could show, you could actually walk around and see what they're doing. Cause I said one of the things would be great is if you

- Researcher 1: 39:10 Hey. We can't hear you. Maybe you click a button.
- Teacher 2: 39:18 did I? Yeah, yeah. No, it's good. Okay.
- Researcher 1: 39:23 That's good. Um, you were saying a chat. Sorry, you were talking about the chat option.
- Teacher 2: 39:35 Chat option?
- Researcher 1: 39:36 Chat Chat
- Teacher 2: 39:38 Oh, chat. Yeah. There was some sort of way that you could, you know, range and online chat with other people where it was almost like a Skype call. So you could not just here or type but actually see what people are talking about. So for example, you know, another, let's say another school has set up a, uh, a system for doing something and you want to see how it works and they can kind of walk you through what they did.
- Researcher 1: 40:06 Okay. And, um, what kind of things will prevent you from you, from using, from using, uh, from using it often. So what kind of things would prevent you or make you go there less time or...
- Teacher 2: 40:24 I think for me, I'm a little bit of a technological luddite. I, I'm not, it's not into it. It needs to be very intuitive so that it's accessible for people like me who can even operate their television set. So, um, yes. Uh, mmm. And I don't know whether, I think you also need to consider who the audiences is. The audience for Eco for Eco-School leaders is it is going to be a platform as well for student leaders within, yeah. Do you know what I mean?
- Researcher 1: 40:59 In this case? Yeah. In this case you couldn't include the students basically because of protection of minors and Ravens and much more difficult. Yeah.

Teacher 2:	41:13	Yeah.
Researcher 1:	41:15	Okay. But maybe the question I can ask again, but um, eh, it's okay if you want to pass, but if there's anything else that would prevent you from losing it, that from using it that often?
Teacher 2:	41:28	Yeah, I think it's just ease of access and navigation. And I mean the other thing is just time. Okay. You don't have any control over.
Researcher 1:	41:39	And in terms of the role of Vaco schools, what do you think the main note, the rule of the main organization should be in this platform? So of course they would create it, but then should that be any moderation in terms of them? How should they manage, they manage even what should be their role?
Teacher 2:	42:01	Um, yeah. I, I mean, I do think they have to monitor it. Um, there has to be some sort of moderation. Maybe even highlighting some of the, uh, uh, ideas that are there, especially to get people in into it, I think when you aren't, for me anyways, whenever I go onto a site, usually there's something that catches my interest and then from there you start going in different directions. And I think one of the roles of Eco-Schools would be finding those really interesting pieces that people are doing and highlighting those as a way to draw people in to look at some other, other things that are in our, within the, um, the, the platform.
Researcher 1:	42:47	Okay. And in what things maybe they shouldn't do, it's like over there crossing some kind of limits or they shouldn't be engaged in within the platform.
Teacher 2:	43:01	Um Huh. I can't really think of anything. Okay. So they should.
Researcher 1:	43:09	For example, there's a risk of should they, uh, filter posts somehow? Should they ban some posts. Um,
Teacher 2:	43:23	oh, see when you talked about moderation, that's what I was thinking that they do as the platform provider. I do think that they need to look at posts because, um, I think there needs like any, any kind of, you know, thinking, proven cheat advisor, there's someone there looking at the as opposed and taking them things that might not be appropriate or more useful. Not to say that you need to everything. Um, I mean there has to be a place as well for people to disagree or have other opinions about things, but I think he'd be someone

there to, to keep things on in, uh, in, you know, they're going in a positive direction.

- Researcher 1: 44:14 Okay. So more like, um, of course, uh, allowing space for different opinions, but maybe it's more about spam and things that don't have to do with the platform. Could you say it like that or do you think they should filter as well? If it's, if you, it's a difficult topic because even in terms of fake news, it's, it's difficult. So in, because in terms of moderation, there's people that think
- Teacher 2: 44:45 well, and you know what? They will, I think that moderation. I do think they need to pull or posting things or sharing things that are not. Um, true or are fake news, I think they need to have a role in terms of moderation of that.
- Researcher 1: 45:04 Okay. Maybe also a function of, uh, making, uh, uh, like [inaudible] reports, reports certain topics that you think like, like Facebook reporting things. We don't think it's appropriate maybe.
- Teacher 2: 45:27 Yeah. Okay.
- Researcher 1: 45:29 And, and the now getting it to the ends and in the of, I don't know how I could answer because I think we've been talking about this a little bit. So are do you feel about sharing your own ideas in this platform? Um, because their cure own ideas. So there's kind of, you feel ownership for the knowledge you have or you think it's kind of a public to be something public or
- Teacher 2: 46:04 I think if you are putting something out on something like that, I think that you're doing it with the understanding that your releasing your, mmm. Your right to claim it as your, I mean, if you really don't want to share it then don't share it. But I think if you're sharing it, you're doing it because you want other people to, to run with the idea. Um, so I think, I don't think there should be, like you were talking about each intellectual property. MMM. I think people need to know if they're sharing something on that, that it will be reshared. That's the whole purpose of the platform is to share great ideas. And if you have a great idea that you don't want to share, then don't put it on the clipboard.
- Researcher 1: 46:51 Okay. And the last question, it's about language. The years in this case you are English speakers, so of course that shouldn't be a problem but I'll do you think this could play a role in the limitations of the platform?

Teacher 2:	47:08	So for speakers of non non English speakers or people post these things set up your languages. Sorry. You're saying?
Researcher 1:	47:16	Yeah, exactly.
Teacher 2:	47:18	Well, um, I mean you're always going to have that issue. The reality as we're really living in a global community where you know, people are connecting in many, many different languages. I mean there is, if it's written texts, you do have the option to translate it. Although it may not be super accurate, but I don't know whether you should limit things because they're in different languages. That's, that's part of, you know, living in a global community, in sharing in a global community yet that you may have different languages. I would think that most people are probably going to communicate in English and if they want to really share things out. However, for example, in a regional, like if you chose a particular region, um, and that region, you know, the primary language was not English and people were communicating in another language. I think that would be okay too. That's just the reality of the situation.
Researcher 1:	48:26	Okay. Okay. Very good. Well actually that's a, that was the end of the, um, of the, into you and, okay. Well thank you very much for your contribution. If you remember anything else about something that we're talking about or, um, more advantages or limitations or whatever, you can always text us and we do probably.
Speaker 3:	48:53	Can I ask you a question.
Researcher 1:	48:54	Yes.
Teacher 2:	48:54	I'm curious about your program that you're in. So in Sweden, actually not speed ish?
Researcher 1:	49:00	No, not Swedish.
Teacher 2:	49:04	So tell me about how you got involved in this program.
Researcher 1:	49:07	Okay, so now you're the interview very well, so well yeah, no problem. It's actually interesting and we'd like to share these things as well, but it's a one year program and basically it's 50 people from all around the world. There's actually what, three, four suites and Eh, so obviously it is in English. And then I think the most interesting bar towards the thing that I liked, I highlight the most is that we came from, we come already from very different backgrounds. So this is not

a master for people that come from management. And so he was more focused on enterprises or it's, or it's more technical. So maybe it's engineering now we have people from management, we have people from engineering, from the chemistry seminar was,

- Researcher 2: 49:59 well we have a teacher from Toronto as well.
- Speaker 3: 50:03 Yeah, I would love to take it. I would love to do that program though. It sounds nice. There's
- Researcher 2: 50:10 people from the program is not focused on education itself. It's basically how you can implement sustainability in any kind of organization. And organizations like NGOs
- Researcher 1: 50:21 Can also be in education, of course.
- Researcher 2: 50:23 Schools, as well. So it's a super broad perspective. It's basically how you can, how we can move any kind of organizations towards sustainability.
- Researcher 1: 50:33 And then some of us are young and have less experience, but there's also a lot of people with 10 12 years of experience in the other areas in basically they take this year off to everyone to understand how, so for example, I come from management, I have from portrayals. So there's no thing really much about now it starts to happen until, appears things about sustainability, but it's like a filter. So we come here to in, in that it doesn't matter what he's our industry that we work in, but to have this kind of filter where when we think about what we're doing in our jobs, we have this, we have this in mind because actually it's.
- Teacher 2: 51:16 No, exactly.
- Researcher 1: 51:17 Yeah. So that's uh, that's the good thing.
- Teacher 2: 51:22 And which university is it again?
- Researcher 1: 51:23 It's Malmö University. Okay. So it's in the south of Sweden so it is like 30 minutes away from Copenhagen. So it's somehow in terms of CDC, the biggest city that we're connected to is in Denmark and in Sweden.
- Teacher 2: 51:39 Yes. All right. Well it's super interesting. I'm gonna look into that because that would be something, I mean I'm kind of teaching here in Doha. I, I did teach in Toronto before I retired.

Researcher 1: 51:51 We actually have a teacher as well. Like I'm a guy. Oh yeah.

Teacher 2: 51:51

New Speaker: 51:55 When I heard the cleaners to been doing, I thought this is something I would love to do. Like I'm not, I'm retired but I'm not really ready to retire, so I want to keep learning and doing stuff and I thought, wow. The shelter

Researcher 2: 52:07 also, there's a very interesting course in the university. It's a very new university is uh, yeah, the university is quite new. It has 20 years old and uh, it's officially a university like since two years already. But yeah, they also have a, uh, faculty of Education and they have a course called teaching for sustainability. Well, so it's more like the peda pedagogical and didactical tool for sustainability is, so this is very interesting as well.

Teacher 2: 52:38 Very cool. Well I think you guys are going to be quite employable cause I think this is a road that, uh, we're all gonna have to go down whether we want you to.

Researcher 1: 52:47 Yeah. Well we hope so. Yeah. Okay.

Teacher 2: 52:50 Well thank you. It's lovely to talk.

Researcher 1: 52:52 Thank you. Thank you very much. And I was like to leave in a Qatar because it's quite different from Canada. I expect some from you, right?

Teacher 2: 53:02 Quite different from Canada. Yeah. It's uh, it's about 36 degrees out right now. Yeah. Well, you know, seven o'clock at night. So yeah, it's, but during the winter it's lovely. It's lovely. Um, we kind of came here. We, we just decided where we wanted to each internationally we had an ocean and uh, our kids were at an age where if we don't do it, we won't do it. So we just did it. Our kids love the school here. Um, and uh, yeah, it's been a really, it's been a really good experience. We've been able to do tons of more traveling, which we enjoy doing. Um, yeah, no, it's been, it's been quite interesting. I mean, there's parts about living here, they're frustrating, but at the same time it gives you a new perspective on the world.

Researcher 1: 53:54 Okay. I think I will send you maybe by email we've had the kind of was kind of a workshop almost of the guy that came to talk to us about pedagogy in teaching in related to sustainability. It actually had some good insights, I don't



know actually fit, uh, how connected he is is to the internet or if he has books or something. But it's maybe someone you would like to look into at this. I like to workshop and it's, it was a kind of alternative, but mm. There were some very good exercises that I think should be more known as well and that could make, could work. Okay. Thank you. Very fantastic. Thank you. You too.

Teacher 2:	54:43	Bye Bye.
Researcher 1:	54:44	Bye. Ciao. Bye Bye