


How eco-clubs foster pro-environmental behavior in a school context: a case from Finland

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 Promoting pro-environmental behavior with environmental education (EE) has been proven to be challenging due to various school and student-related barriers. Eco-clubs are a widely used pathway in EE, which may help to overcome these barriers. Despite the popularity of eco-clubs, few studies have been conducted on the topic. This study approaches this problem with a case study to examine students' perceptions of an eco-club in a Finnish general upper secondary school. In the study, 14 of the schools' eco-club students participated in group interviews, which focused on their perceptions of the eco-club and its activities. Additionally, 100 non-eco-club students participated in a qualitative survey about their perceptions of the eco-club. This study found that eco-club students consider the club important in supporting their environmental actions in the school. They also find the club's atmosphere and community to be a crucial part of supporting these actions. The members also find that the participation of peers and practical things enable the eco-club activities, while external influences, lack of time, and the reluctance of peers act as a barrier. The results indicate that there is a contradiction between the members' and non-members' perceptions of the eco-clubs' effect on students and the school. While members find the eco-club important in supporting the environmental actions of the students and the school and spreading their influence outside of the school, the lack of knowledge dominates non-members' perceptions, and some of them find the eco-club unimportant. Based on this research, eco-clubs seem to be a promising pathway in promoting members' pro-environmental behavior while the club's influence outside of the club remains small.

Keywords: environmental education, eco-club, upper secondary school, group interviews, qualitative survey

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Introduction

Environmental education (EE) is conceptualized as having multiple focuses, including promoting pro-environmental behavior (Clark *et al.* 2020; Baiertl *et al.* 2022), which is defined as behavior that tries to minimize one's negative impacts on the environment (Kollmuss & Agyeman 2002). Promoting this behavior is important in adolescents especially, as they can play an essential role as future sustainability agents and decision-makers in driving change in society (United Nations 2015). Environmental concern can, to some degree, predict adolescents' environmental behavior (Stevenson & Peterson 2016). Often, this concern fails to translate into environmentally responsible actions due to various barriers (e.g., Kollmuss & Agyeman 2002; Huoponen 2024). The factors influencing these actions can be school or student-related, thus hindering such behavior in adolescents, along with the teachers' capability to carry out EE (e.g., Lin & Shi 2014; Huoponen 2023). If EE is targeted to promote pro-environmental behavior, finding pathways to overcome these barriers is essential.

The factors influencing adolescents' environmental behavior are complex, intertwined, and differ among individuals (Palupi & Sawitri 2018). Moreover, in the adolescent years, the social boundaries are broad, and it is expected to search for your own identity (Arnett 2006). Unsurprisingly, differences in the individual adolescent's environmental behavior are apparent (e.g., Kuthe *et al.* 2019). Thus, common factors influencing adolescents' environmental behavior are hard to define. These individual differences translate into a variety of commitment and interest in environmental issues, which educators should consider when planning EE in upper secondary schools (Palupi & Sawitri 2018).

Some common characteristics influencing adolescents' environmental behavior can still be identified. Girls seem to be more environmentally concerned than boys (Zelezny 1999; Mifsud 2012; Stevenson & Peterson 2016; Duarte *et al.* 2017). Moreover, age seems to have an influence. During school years, when students get older, their environmental knowledge increases (Larson *et al.* 2010). Despite the steady increase in environmental knowledge, its materialization as environmental concern and behavior tends to decrease from the age of fourteen until the age of eighteen (Otto *et al.* 2019). This drop could be partly caused by the increase in the importance of peer influence in adolescence compared to childhood, where parents have an essential influence on children (e.g., Miller 1995; Lee 2010). Some barriers have also been found to limit adolescents' pro-environmental behavior in a school context, such as lack of support, negative emotions, lack of authoritative space, lack of concrete actions, social norms, and media influence as the primary source of knowledge (Huoponen 2024).

Barriers limiting teachers' capability to carry out EE are well recognized in the literature. EE can be challenging for teachers due to a lack of knowledge and pedagogical strategies to teach EE (Sosu *et al.* 2008; Pedretti & Nazir 2014). These kinds of barriers could be overcome by increasing pre-service and in-service teacher education on EE. However, teachers face different kinds of barriers in schools, which even the most EE-oriented teachers suffer from. These barriers include strict curriculum, lack of time, the pressure of grading, lack of support, and lack of resources (Huoponen 2023). EE-oriented teachers may also be marginalized in the school and experience overall resistance from other staff members (Evans *et al.* 2012; Pedretti & Nazir 2014). Moreover, the activities connected to EE may burden teachers and force them to use their spare time (Dring *et al.* 2020).

The presence of these barriers in the school context calls for EE that empowers students and enables teachers and students to overcome at least some of the barriers and promote students' pro-environmental behavior. This study approaches this problem with a case study of an eco-club in a general upper secondary school in Finland. Previous studies have given promising results on eco-clubs, which this study will examine further. I approach this research as a geography teacher and a researcher. I am interested in investigating the building blocks of an effective EE and enhancing geography teacher education via these findings. The current study is a continuum of two of my previously published articles (Huoponen 2023, 2024) that guided me to study eco-clubs in search of effective EE instead of only geography education, as eco-clubs might be free of some of the barriers hindering EE found in these two previous studies. The aim is that the findings of this study can be utilized in the future when educating pre-service geography teachers on the meaning of eco-clubs as EE pathway.

In Finland as a concept, EE is only mentioned in the national curriculum for early childhood education (Finnish National Agency for Education 2022). However, the EE targets play an important role in the Finnish educational system from kindergarten to secondary education, among other topics. The goal stated in the national curriculum is to help people and students become active citizens who promote a more sustainable future (Finnish National Agency for Education 2020). This aim can be achieved via organizational culture and school subjects, such as general upper secondary school geography. In practice, carrying out EE is often left to geography and biology teachers (Uitto & Saloranta 2012). Geography can be said to be a leading discipline focusing on climate change (He *et al.* 2024). Despite the importance of geography in the EE, the role of geography in Finland's schools seems to be reduced year by year (Tani 2017). Geographers are also worried about the fact that geography has only one mandatory course in general upper secondary school, as geography is a unique subject that offers tools to investigate climate change, among other contemporary topics (Tani 2022). Moreover, in 2023, only 28.9% of general upper secondary school students continued to study geography after the one mandatory course. This percentage has been descending almost constantly, at least since 2019, and it can be considered low compared to other subjects in the humanities and natural sciences (Vipunen n.d.). In this situation, EE that is carried outside of lessons may offer pathways to overcome some barriers and promote adolescents' pro-environmental behavior.

The article is organized in the following manner: next is the theoretical background, followed by the research design, including a description of the participants, data collection, and methods. After that, the results are presented, followed by a discussion and conclusions.

Eco-clubs as an environmental education pathway

Eco-clubs are a well-known EE method, and the largest sustainable education program is Eco-School, which runs in 68 countries; in Finland, it is run under the name Green Flag program (Vihreä lippu n.d. -a). The eco-club in the Green Flag program is called the Environmental Committee (EC). The program is based on seven structured phases (Vihreä lippu n.d. -b). These phases are described in Table 1. Although the leading teachers of the EC have an important supporting and enabling role, whenever possible, the responsibility of running the EC is given to the member students.

Table 1. The Green Flag program steps and descriptions based on Vihreä lippu, n.d. -b

Phases of the Green Flag program	Description of the phases
1. Founding of the EC.	Committee members must be primarily students, and the committee is in charge of planning and executing environmental actions in schools.
2. Selecting an EC-related theme.	EC selects an environment-related theme.
3. Assessment of the themes starting level.	This assessment can include, for example, investigations on students' theme-related environmental knowledge and schools' environmental impact.
4. Forming an action plan.	Based on the assessment, the committee forms an action plan, including the aims and means to reach these aims.
5. Carrying out environmental actions.	These actions are based on national curriculums, and the whole should participate in the actions.
6. Establishing the school's green flag practices.	These practices work as the school's sustainable development rules.
7. Final reporting.	Reporting is done to evaluate the school's environmental actions. If the EE has met good quality standards, the school receives a green flag.

Although eco-clubs are a widely used method, there has been surprisingly little research on them (Lee 2017). This is also the case with research related to the Green Flag program. Studies have found that the Green Flag program may enhance the gaining of climate knowledge, climate-positive attitudes, and climate-positive behaviors. However, the interest in schools' Green Flag programs seems to decrease as students get older (Malvikko 2023). Eco-club research has also been conducted outside of the Green Flag program. Birney and Reed (2009) conducted a study of sustainable schools in the UK and defined the characteristics of sustainable schools. According to the study, sustainable schools (1) promote the school's environmental impact on society, (2) take broader context into account, (3) create positive benefits for students via shared leadership and participation, (4) allow connection with other educational policies, (5) focus on sustainable matters that provide directions and focus for the whole school's actions, (6) focus on students' learning, and (7) take part in curriculum change. Moreover, Smith (2020) concludes that to make school-wide sustainability programs effective, (1) the school administration should support eco-club coordinators, (2) a cross-curricular approach should be used with broad staff involvement, and (3) parents and the local community should be involved.

When environmental clubs are working properly, they can be effective. For example, Tanu and Parker (2018) found in a study conducted in Indonesia that the club attracted students to participate and carry out environmental actions by promoting a sense of belonging and allowing the students to have fun while doing environmental actions. These actions were often learned through activities where students did things themselves. Similarly, Hite and White (2022) conducted an eco-club study in Texas concerning Hispanic upper-elementary students and found that eco-clubs can promote environmental values and ecocentric views. Moreover, eco-clubs can serve an important role in promoting environmental identity development, especially among friends, and the coordinator plays an important role in this (Smith 2019). Furthermore, a study carried out in Nigeria found that eco-clubs can increase students' environmental awareness (Ana *et al.* 2009).

Compared to normal lessons, eco-clubs offer an informal setting for students and eco-club teachers to communicate. This setting also fosters peer-to-peer interaction (Lee 2017). De Vreede, Warner and Pitter (2014) studied the possibilities of peer education with youth leaders' programs. The study found that peer support, meaningful contribution, leadership role, youth ownership, and integrated experiences were important factors in promoting learning among youth leaders. The role of the club coordinator is crucial in recruiting students into the club and supporting the environmental actions of others (Smith 2020). Eco-clubs can enable one to be free from the constraints of the curriculum, which are known to hinder the implementation of EE. This enabling factor is mostly based on the fact that eco-clubs can usually work outside the official programs, which could free up some more time for them (El-Batri *et al.* 2019).

Although eco-clubs and green schools hold the potential to promote environmental awareness and behavior, the results have been mixed as some studies have found that these activities have little effect on students' environmental behavior (e.g., Olsson *et al.* 2019). Moreover, previous studies have found that eco-clubs may suffer barriers hindering the program's effectiveness. Kieu and Singer (2020) studied different kinds of student teachers' extracurricular clubs in Vietnam that carry environmental actions. They found barriers that hinder sustainability activities. An internal barrier was apathy among students, and external barriers included the lack of interesting activities, participation opportunities, information on resources, facilities, recognition by the school, and leadership. A study conducted on Moroccan eco-clubs found that when the establishment of an eco-club in a school is a mandatory task, it is easily abandoned without active and enthusiastic leading teachers. Moreover, without an evaluation of the eco-club's achievements, its actions tend to be less effective. Additionally, without funding, running the eco-clubs becomes extremely demanding (El-Batri *et al.* 2019). However, in some countries, the government has funded eco-clubs, but they have still encountered various barriers, and curriculums may also limit the freedom of choice of eco-club activities (e.g., Gupta *et al.* 2014).

Eco-clubs are little studied from students' perspective. However, based on quantitative studies, these clubs might be able to foster students' pro-environmental attitudes and behavior (Erdogan 2015; Spinola 2015; Cincera *et al.* 2023). Qualitative studies on students' perceptions of eco-clubs and what kind of meaning eco-clubs have for eco-club members and non-members are lacking.

Case study on students' perceptions of the Environmental Committee

This paper introduces an instrumental case study approach to examine the general upper secondary school students' perceptions of the EC's meaning, the context influencing the EC, and the EC's influence on the school's and students' environmental actions.

The study is set to ask: 1) How does the EC support members' pro-environmental behavior in the school context? 2) How do EC members perceive the enablers and barriers to the EC activities? 3) How do students perceive the EC's effect on students' and the schools' environmental actions? Based on these, the study aims at forming a dataset that helps to foster adolescents' pro-environmental behavior (Stake 1994; Yin 2014).

Because of a strong focus on students' perceptions, the study also has some phenomenography characteristics (Yates *et al.* 2012). The material of this study is a combination of student group interviews and qualitative surveys collected in the same general upper secondary school in Finland. All participants were over fifteen years old, and their guardians were informed of the research. Interviews and surveys are a well-known method of case studies (Yin 2014). The school under study participates in the Green Flag program, and it was selected for this case because it represents the best possibility for an eco-club, in this case, EC, to work effectively in a general upper secondary school context (Baškarada 2014). The letter P and randomly chosen numbers are used in this article to identify students. This procedure guarantees the anonymity of the students and staff members. The first fourteen numbers were used for the EC members participating in the group interviews, and numbers from fifteen onwards were used for the non-member students who responded to the survey.

The interviewees were recruited during the EC meetings. Due to COVID-19 restrictions preventing school visits, the research topic, methods, and data collection tools were presented to the EC in video format. For the same reason, all data was collected online. This study uses group interviews to explore EC member students' perceptions of the EC's meaning and how they perceive the enablers and barriers to the EC activities. Also, members' and non-members' perceptions of the committee's effectiveness are collected via group interviews (members) and a qualitative survey (non-members). The group interviews were carried out via Microsoft Teams and the qualitative survey via Microsoft Forms.

Fourteen committee members participated in the group interviews, and 100 non-member students answered the survey. The number of interviewees represented more than half of the committee members, and the students who answered the survey represented a little less than a third of the students present at the school at the time. Participation in the group interviews and survey was voluntary. Group interviews were formed so that two to four students participated in each interview. Five group interviews and one individual interview were organized. The individual interview was carried out because one participant was otherwise unable to find a suitable time for the interview. The EC leading teacher formed the interview groups from the voluntary participants. Students knew each other beforehand. This setup may have allowed for a more relaxing atmosphere (Longhurst 2016). One of the groups was made up of students who were not familiar with each other. In this case, initiating conversations between students proved to be much more challenging. During the group interviews, the researcher led the communication, and the interviewees occasionally commented on others' responses and supplemented their responses based on them. The interaction between participants varied but was moderate at best. Thus, the method can be called a group interview instead of a focus group interview (Brown & Edmunds 2011).

The group interviews were carried out in a semi-structured manner as there was a list of questions asked from the students, but the order and formation of the questions were adjusted based on the participant's responses. Complementary questions were added to each interview based on the participants' responses. The students were present in the same room during the group interviews and communicated with the researcher via Teams. The committee's leading teacher also recruited participants for the survey. On that day, the leading teacher distributed the survey instructions to all the other teachers, who further distributed the survey link and instructions to their students. The participants were voluntary students willing to participate after their teachers described the survey.

The survey was completed anonymously. The qualitative survey was aimed to reveal the diversity of non-committee members' perceptions of the EC and its effectiveness (Jansen 2010). The survey was carried out during one school day. EC members were extracted from the survey. The survey questions are presented in the results section.

This study uses two qualitative methods for the analysis based on the two data sets. Both methods are strongly data-driven. Thematic discourse analysis is used for analyzing the EC members' perceptions of the meaning of EC and the context influencing the EC (first and second research questions). The use of the method inspired the structure of Braun and Clarke's (2006) thematic analysis with the following steps: familiarization with the data, creating initial codes, searching for themes, grouping themes based on emerging codes, defining the discourses, and producing the report. These themes are then compared to the larger discourse of EE (Botelle & Willot 2020). To answer the first research question, responses to multiple interview questions were combined to define discourses. For the second research question, responses to interview questions concerning barriers and enablers were used to define discourses.

Data-driven concept analysis is used for analyzing both members' and non-members' perceptions of the EC's effect on students' and schools' environmental actions (third research question). This method is used because the average survey response was relatively short, and thus, detecting discourse would be unfeasible. The same analyzing method is used for relevant responses from member interviews to enable comparison with non-member survey responses. First, all relevant data concerning the third research question were paraphrased. Second, all irrelevant information was removed from the phrase. Third, paraphrases were compared. Fourth, the final categories and descriptions were formed (Schreier 2012). The students' responses are utilized for multiple categories if they offer information linked to those categories.

The group interviews included a variety of different interview questions. The discourses related to the meaning of the EC have been extracted from different kinds of questions. Often, different kinds of discourses were present in the responses of the same students. The analysis of the effectiveness of the EC was more straightforward and was based on the group interview and survey questions. Responses to each question were analyzed individually. Many of the group interview and survey responses belong to more than one category. For the sake of clarity, students in the club are referred to as members, and students not in the club are referred to as non-members.

The meaning of the Environmental Committee to the member students

The EC's meaning for the members is demonstrated by three discourses: environmental discourse, collaborative activity discourse, and personal motivation discourse.

The EC is, first and foremost, created to develop students' environmental knowledge and skills. The EC is based on voluntary participation. The *environmental discourse* is connected to members' personal environmental interest which led many of them to join the EC when they became aware of its existence. Moreover, according to some members, the EC seemed a relaxed way to participate in pro-environmental activities, which inspired some of them to join: "I joined because this is the most relaxed way to influence on schools' things and how environmental things are done here" (P2).

The EC members seemed to find the EC's meaning for them in the sense that it offers a channel to influence the environment but also other things in the school: "Well, for me, it is really important that you get a chance to influence these environmental matters outside of your own life" (P3). Only two members described the EC as a means of obtaining environmental information.

The members were also asked what they thought about the EC. Supporting the statements of the EC as a channel for influencing school affairs, the majority of the members find the EC as an enabler to influence environmental issues in the school: "these teachers and our school give us a chance to make a change here in school. ... For me, this is a chance to influence and discuss these things" (P6). A few members also described more broadly that the EC is important.

EC members seem to understand the meaning of the EC mostly from an enabling perspective. Half of them still described that they were learning more about environmental issues in the EC: "I have

learned quite much these environmental things and that I should maybe pay more attention to these things in my own life as well" (P5).

Many members joined the EC because it enabled them to promote environmental issues. Many of them also described that one of the reasons they joined was the relaxed atmosphere of the EC, which supported the *collaborative activity discourse*. When describing the relaxed atmosphere, the leading teacher was described as being important by two members: "Others may have good ideas in the meeting if I'm out of ideas. Or then the teacher [EC leading teacher] may have really good ideas" (P1). Several members at different stages of the interview further emphasized the importance of the EC leading teacher.

However, some members considered the EC important also because of other social factors. The members described the EC as a place where different kinds of students who would not normally discuss with each other come together to discuss the environment:

This brings us together. As I said before, there are students from different classes. It is nice to get to know these people as we normally spend time only with our class. It is nice to get to know these older students (P1).

This same discourse was present in several other discussions. One member also described the meaning of the EC as learning to work in a group. Even though the group work discourse was not further supported at this point, in a later discussion the students described this discourse as an important learning achievement. When discussing what the members have learned in the EC, half of the members brought up learning how to act as a member of a formal group: "For me, it is important to learn the meeting practice, how to act as secretary and chair" (P9). Similarly, the members described that besides formal meeting protocol, they were learning how to speak up and express their opinions. Learning how to do and organize things together seemed important for some students. These events usually seemed to have at least partly an environmental agenda that students found important. A student said they have also learned in the committee: "what [it] is like to organize these events. Although we know these environmental things, what is it like to organize these events so we can distribute the knowledge to others" (P12). When describing their opinion of the EC besides the environment, some members described that EC is fun and relaxed. This opinion is highly present in how members talk about the EC:

The name environmental committee sounds really serious ... We try to fix that by using only committee as the name. The environmental committee might get some to think that 'Oh, this is really serious.' I think this is really important, but the atmosphere is also relaxed (P1).

All of the EC members used only the committee as the name. One member stated that the EC creates a sense of community: "It is important that you get the feeling that you belong to something" (P9). Some members also perceived that doing things together was the reason why the EC is so meaningful. When asked what doing things together meant for the members, many of them elaborated that in the EC, you get peer support that helps you do things you would not dare to do alone: "If I had to give a speech alone, it would be frightening. But when you get a friend to help you it makes things easier" (P2). The EC members seemed to find peer support crucial to generating great, diverse ideas. Many of the members responded that doing things together enabled them to get more things done than alone, and it also distributes work so no one has too much to do:

Well, the work is distributed so that that the work is done by multiple people which means that you don't have too much to do, and you have someone to share these things. It's light and fun (P2).

The members also described the EC as being democratic. Some described this to be strengthened by democratic decision-making: "In my opinion [the meaning of doing things together is] that no one is left outside. Everyone has a chance to give their opinion on the topic" (P11). This kind of approach seemed to be important for the members. Throughout the interviews, they described the EC as democratic and student-centered, where the teachers supported them when needed. Moreover, a couple of members described that it is good that the group is a combination of students of different ages who would not normally communicate without the EC: "In the EC, everyone belongs to the same 'gang' although we are different age and come from different classes ... You get to do things in school with different age of students" (P9).

Most of the members seemed to give the EC either an environmental or a collaborative meaning or, in some cases, a combination of these. However, some members seemed to have a different kind of meaning for the EC which formed the *personal motivation discourse*. Three members differ from the others in their motivation to join the EC, suggesting a kind of drifting. They all participated in other clubs that cooperated with the EC and ended up joining the EC after the cooperation. Two of these students stated that the EC was a nice and different kind of thing in the school: "Well, this is not too exhausting ... this is often after the school day. You just come here and discuss with others. This is quite nice" (P7). It seems clear that these three students were not motivated by high personal environmental motivation but were attracted by the EC's relaxed and welcoming atmosphere.

When asked about the meaning of the EC, having a good time seems to play an essential role for a couple of members to stay on the EC, although the initial motivation to join may have been based on environmental efforts. Even students who may not have a strong environmental motivation but who drifted into being an EC member find the EC's atmosphere important: "The committee don't have important meaning for me. But this is quite nice, and it is nice to be here" (P7). Even a member who seemed to have a strong environmental motivation responded to be partly motivated by the fact that the EC's activities differ from regular schoolwork: "And then also it is nice to have kind a like lighter things to do. Although you are involved in school things, you do not have to think about school things. That keeps your mind fresh" (P1). Also, one member was somewhat motivated by the credit point awarded from actively participating in the EC. However, this student still seemed to be at least somewhat motivated by the opportunity to influence the affairs of the school, at least when it requires little effort:

Well, at least for me it is that you can influence things at the school without doing much. But you can give your own opinion and influence on certain things. Also, you get a credit point from this (P6).

It is evident that the environmental and collaborative activity discourses are interconnected and support each other. The members feel that the EC enables them to carry out environmental actions but feel that doing things together with congenial peers supports and facilitates their environmental actions. Based on these findings, the EC seemed to support its members' pro-environmental behavior in the school context. Likewise, the students felt that environmental interest and awareness via the EC was the factor that brought together a heterogeneous group of students that otherwise would not spend time together. Environmental and collaborative activity discourses seemed to have a much weaker connection with the personal motivation discourse. The pleasant and relaxed atmosphere created by peers and the opportunity to change things in the school seemed to impact these members, but it cannot be considered a strong connection.

The enablers and barriers of the Environmental Committee

Members described the EC activities as being enabled by participation and practical things discourses and hindered by external influence, time, and peers discourses.

Most members described other people, especially peers and teachers, as an enabler and the reason the EC works so well, which formed the *participation discourse*. The members described that the EC is inclusive, and each participant has the right to express their ideas without judgmental comments from others. Instead, the students describe the groups' heterogeneity as the strength of the group: "Everyone's ideas are accepted, and nobody ever says that one is terrible!" (P3). They also felt that teachers maintain this inclusive atmosphere:

the teachers [leading committee teachers] have been really nice ... there has been such an open feeling that they want people to come here, and they are glad that new people are coming here (P6).

Although the members stressed the importance of student-centered activities and the 'freedom' the EC gives, they also described the importance of well-run practical things and resources provided by the school as an enabler for the EC, which formed the *practical things discourse*: "There is time scheduled for the committee, and also in the [end of spring semester event organized by the

committee], we had drinks, donuts, and ice cream [to give other students]" (P11). During the interviews in the spring of 2022, schools were still affected by COVID-19. The members had held most of their EC meetings remotely during the fall semester. The remote meetings were clearly still on their mind when discussing the enabling factors, as some students described face-to-face teaching as being an essential enabling factor: "Well, for example, face-to-face teaching." (P10). This same discourse was even more strongly present when the members were asked about their perceptions of the barriers to the EC's activities.

Moreover, although members described the EC as being student-centered, the EC leading teacher had a central role as a leader. For example, they ensured that meetings were held regularly and gave students ideas for EC activities:

The teacher [EC leading teacher] suggests suitable meeting times in Teams, and the students can say if that time suits them. Then the teacher [EC leading teacher] informs all the decided meeting time (P7).

A barrier that many members recalled was the time of strict COVID-19 restrictions, which formed the *external influence discourse*. These restrictions prevent them from organizing any events for other students, which were considered a vital element of the EC:

The remote teaching made things really difficult. We could not, for example, meet in this classroom" (P11). "Relying only on remote connections made things difficult. It wasn't easy to organize events like the Christmas party and stuff like that (P12).

Lack of time was often mentioned in discussions about the barriers to the EC's activities forming the *time discourse*. Meetings were often far apart, which made it difficult to remember what had been previously discussed: "You cannot really remember what was discussed last time" (P4). Moreover, the members seemed to dislike the fact that the meetings often took place during lunch hours:

And we have some of these meetings during the long lunch break. Everything has to go through really quickly ... For example, last time, we did not manage to go through everything that was meant to (P1).

The members seem to find peers' lack of interest as a barrier to the EC's activities as they seem to find that, in some cases, other members were not interested in participating in organizing events, which formed the *peers discourse*: "We had this Valentine's Day event, not many people showed up to do decorations" (P5). The members also described that non-member students are not participating as much as they could:

For the last question [about the barriers], it is needed for the events that students participate ... But some have a negative attitude toward the committee and its actions. It makes things hard (P10).

These five discourses can be considered contextual participant-experience discourses that either enable or work as a barrier to the EC's activities.

The influence of the Environmental Committee on students and the school

The EC members were asked to elaborate on their perceptions of what the EC means to other students. The members' responses were somewhat divided. As shown in Table 2, roughly half of the members emphasized the social aspect of the EC and how the EC offers students a break from normal schoolwork. A few members also described that the EC helps to change school practices, which may be difficult to accomplish with traditional teaching. In contrast to the EC's aims, only three members responded that they think the meaning of the EC is to increase other students' environmental knowledge. In addition, one member stated that other students could benefit from the EC's announcements. These findings are further elaborated in Table 2.

Table 2. Member students' perceptions of ECs' effectivity.

Category	Example answer
<i>What does EC mean for other students?</i>	
Something new and interesting to do (8)	<i>"Because of the environmental committee, all of the students have a chance to take a break from studying by participating in the events" (P11)</i>
Changing school practices (3)	<i>"I remember this school survey. It said that students are exhausted. Now we have talked in the meetings, could we somehow decrease the amount of homework and schoolwork?" (P3)</i>
Increasing students' environmental awareness (3)	<i>"I cannot talk on behalf of all other students, but I think the environmental committee actions in our school have increased environmental knowledge" (P10)</i>
Useful announcements (1)	<i>"Well, the announcements" (P4)</i>
<i>What does EC mean for the whole school?</i>	
Enhancing the school's sustainability (8)	<i>"There are many lights that are color-coded based on which lights are wise to keep on and which ones are not kept on saving electricity" (P7)</i>
Initiating environmental events (2)	<i>"We are organizing quite a lot of events. Without the environmental committee, there would not be so many of those" (P3)</i>
Improving the school's coziness (2)	<i>"I heard in one of the meetings that we have got benches and sofas to the school because the environmental committee has done some things" (P6)</i>
Enhancing the school's reputation via environmental actions (1)	<i>"And school's reputation may also increase as we have here environmental studies, environmental committee, and the Green Flag" (P12)</i>
Making the school more inclusive (1)	<i>"We have the rainbow flag in the corridor because of us (EC) and also decorations to make more solidarity and inclusivity" (P2)</i>
<i>What does EC mean outside of the school?</i>	
Impact and collaboration with the city (6)	<i>"We had in one of our theme days an environmental specialist working with us who came there with us" (P9)</i>
Environmental impact (5)	<i>"During one of the theme days, we collected money, and we donated that" (P7)</i>
The school is setting an example for other schools (4)	<i>"Other schools could also follow what we are doing when they see how we are doing things" (P13)</i>
Influencing family and friends (2)	<i>"My mother and father are happy that I joined this. When I tell something about this to my mother, she is happy and proud that I joined out of my own motivation" (P6)</i>

The members also clarified their perceptions of the EC's meaning for the whole school. As shown in Table 2, the members' responses emphasized promoting environmental actions in the school. These categories were linked to enhancing the school's sustainability, environmental-related events, and the school's reputation. Other categories were also generated based on the responses, but these categories included only a few responses (Table 2). These were related to the aim of making the school a more pleasant place.

The EC members also clarified their perceptions of the EC's influence beyond the school. Half of the members described that the EC has an impact on the city or the city is collaborating with the EC. A similar number of members described that the EC has an environmental influence outside of the school. These responses were related to teaching environmental responsibility to students and the assumption that they would then engage in pro-environmental behavior and donate money to environmental NGOs. A similar number of members described that the EC sets an example, especially for other schools. A couple of members also described that the EC could be able to influence family and friends. These are further elaborated in Table 2.

To give an overview of the non-member students' conception of the EC, these students were asked what they think the committee does. These responses are presented in Table 3. The non-member students' perceptions seem to be divided mainly in half. Almost half of the students are unsure what the EC does, and a similar number of the non-members know that the EC promotes environmental efforts. Besides these responses, one-fifth of the non-members thought that the EC organizes events. Other categories gathered a much smaller number of responses. It seems clear that many of the non-members do not know much about the EC.

Table 3. Non-member students' perceptions of EC actions.

Category	Example answer
<i>What does the EC do?</i>	
Unsure (40)	"I don't know" (P57)
Environmental activities (37)	"Protects nature and develops school's environment" (P20)
Events (20)	"Committee at least does some theme days" (P118)
Meetings (6)	"They have meetings to discuss the school's environmental impacts and enhancing sustainability" (P40)
Fun activities (3)	"They are eating buns and pizza" (P92)
Negative (3)	"Environmental committee is not doing anything useful" (P101)
<i>What EC activities have you taken part in?</i>	
I do not remember participating in any activities (48)	"I have not participated in anything (as far as I know)" (P51)
Environmental events (41)	"Other day we were picking trash" (P53)
Non-environmental events (10)	"I have been looking for chocolate eggs" (P18)
Meetings (2)	"I have been in one of the meetings, and then I participated on one of the theme days." (P46)
All activities (1)	"Everything" (P38)

The non-members' lack of knowledge of the EC was even more present in their responses to the question, 'What EC activities have you taken part in?'. Roughly half of the non-members do not remember having participated in any EC activities. Moreover, a few less students remember having participated in environmental events. As shown in Table 3, other categories generated far fewer responses. The same trend seems to continue in the non-members' responses to 'What does EC mean to you?'. Responses categorized as 'Not important' and 'Do not know' represent over half of the non-members. In contrast, only one-fifth of the non-members find the EC important because of the environment. Thus, it seems that for the majority of the non-members, the EC does not mean much, or they have not even thought about it. These categories are further elaborated in Table 4. Moreover, the same table illustrates that other categories did not generate many responses.

Table 4. Non-member students' perceptions of the ECs' effectiveness.

Category	Example answer
What does the EC mean to you?	
Not important (45)	"No impact whatsoever" (P60)
Important because of the environment (20)	"I get information via it (EC), for example, about recycling" (P46)
Do not know (17)	"I don't even know what it is" (P32)
Important (10)	"Positive meaning" (P50)
Neutral (7)	"Quite okay" (P34)
Enables (3)	"I get a feeling that I can make a difference and act according to sustainable development" (P85)
Events are interesting (2)	"Nothing special, but theme days are nice" (P93)
What does the EC mean to other students?	
Do not know (43)	"I'm not sure. It depends if you are interested in environmental things" (P107)
Important because of the environment (17)	"It's fun for the whole school, and it inspires students to do environmental things" (P99)
Important (11)	"Significant" (P37)
Not important (9)	"Not really big" (P100)
Uplifting (7)	"Every student has their own opinion and meaning, but in general, I think it brings a positive atmosphere" (P79)
Neutral (6)	"Quite ok, I guess" (P24)
Small (5)	"I would guess that not many students even know anything about it" (P119)
Common good (3)	"Personally, nothing but it enhances the common good" (P99)
Negative (1)	"Disturbing" (P69)
What does the EC mean for the school?	
Important because of the environment (25)	"Our school stays clean because the committee enhances recycling and school's cleanliness. We also get reputation via the committee" (P44)
Do not know (24)	"I'm not sure" (P75)
Positive atmosphere, especially via events (17)	"Students like the small events" (P104)
School as an example (11)	"It brings a good reputation for the school" (P71)
Quite positive (11)	"Quite good, I guess" (P91)
Not important (10)	"Very little meaning" (P64)
Promoting environmental actions (3)	"Committee takes care of environmental things on behalf of the school, and it is really important. It encourages everyone to act for the environment and raises awareness" (P85)
School values (1)	"It is shown in our school values and influences to our school" (P105)

The non-member students were also asked about the EC's meaning for other students. The same trend continues as almost half of the non-members do not know what the EC means for other students. When combining this category with the responses of the 'Not important' category, the number of the responses rises to over half of the non-members. Like before, roughly one-fifth of the non-members find the EC important to other students because of the environment. When combining this category with the category 'Important', which lacked the environmental focus, the number of responses increases but is still smaller than in the 'Do not know' category. As seen in Table 4, other categories also generated responses, but the number was much smaller.

The non-member students were also asked to clarify what the EC means for the whole school. The results differ slightly from the previous question. Roughly one-fourth of the non-members' responses belonged to the 'Important because of the environment' or 'Do not know' category. Moreover, unlike the other questions, the social aspect, 'Positive atmosphere, especially via events', generated a notable number of responses. As shown in Table 4, other categories generated far fewer responses.

There seems to be some contradiction between the EC members' and non-members' perceptions of the importance of the EC. This contradiction is mainly dominated by the lack of knowledge from the non-members' side, as 'Do not know' was either the most or second most popular response to all of the questions of EC's importance. This finding is no surprise as almost half of the students do not know what the EC does, and half of the students fail to recall participating in any events organized by the EC, while most of the members find the relaxing time offered by the EC events important for other students. The most frequently mentioned benefit by the non-members for themselves and for the environment was the environmental benefits. It is still worrying that only a relatively small number of non-members find the eco-club offering environmental impact and actions for students and the school. Moreover, these responses focused on describing the importance of someone taking care of environmental actions in the school and spreading environmental knowledge, not promoting non-members' environmental actions. It seems clear that most of the contradictions between the members' and non-members' perspectives are caused by a lack of knowledge. Many, if not even most, of the non-members seem to lack a clear vision of what the EC does. Therefore, it is no surprise that they find it hard to recognize the benefits of the EC. It would be fair to assume that the EC members are unaware of this lack of knowledge by non-members of the EC. However, this was not the focus of this study.

The results are summarized in Figure 1. The figure's top part represents the EC's meaning for the members. Moreover, it represents the context with enabler and barrier discourses. Below are the members' and non-members' perceptions of the importance of the EC. The dotted lines between these groups demonstrate a lack of communication between the groups.

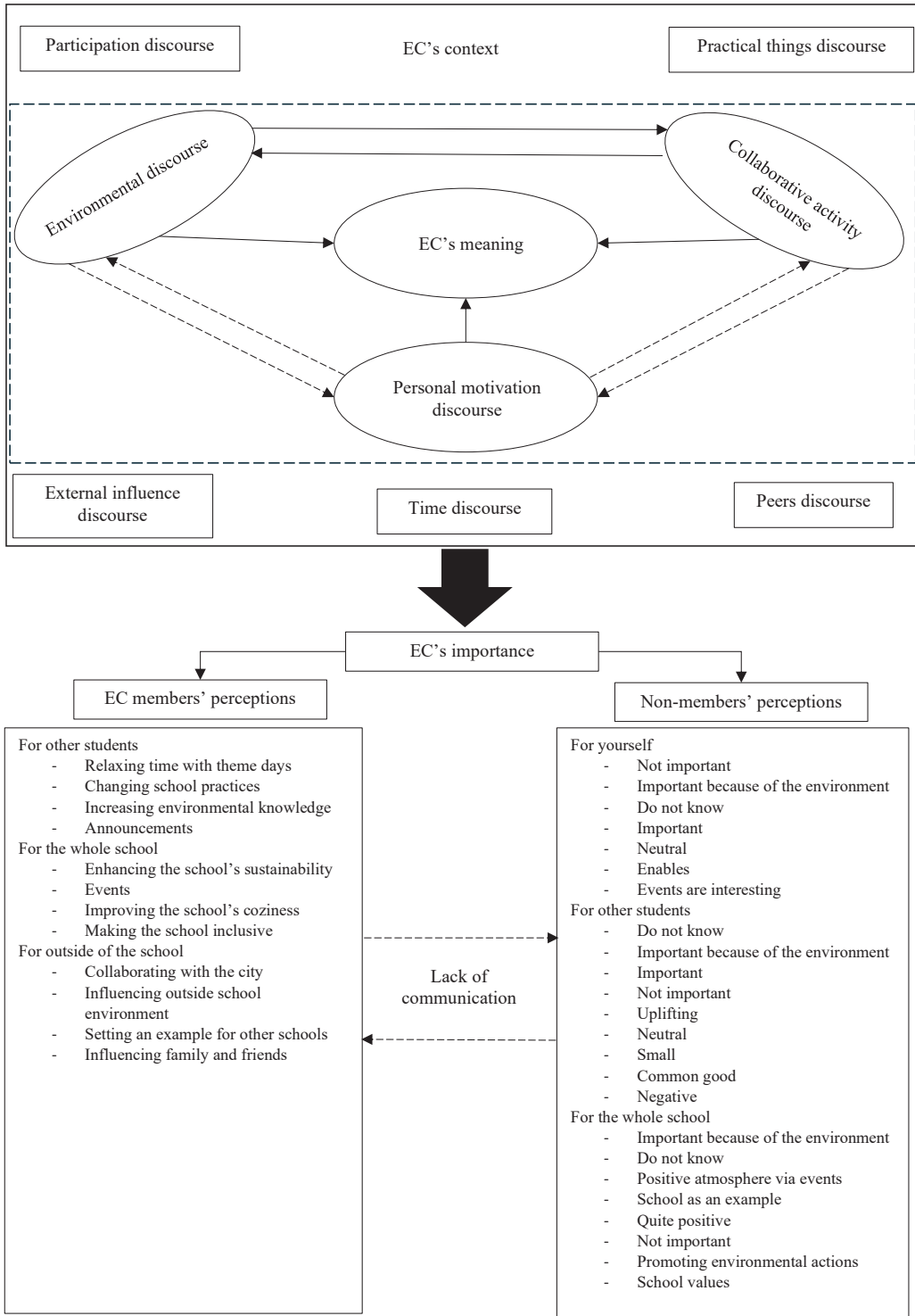


Figure 1. EC's meaning for members, enablers, barriers, and members' and non-members' perceptions of the EC's importance.

The eco-clubs' potential in environmental education

The results of this study point to a direction in which the EC members build the EC's meaning, primarily via environmental and collaborative activity discourses. Moreover, these two discourses support each other as the members feel that collaborative activity supports their environmental actions enabled by the EC (Figure 1). In contrast, some of the previous studies have found that eco-clubs did not increase students' environmental actions (e.g., Olsson *et al.* 2019). Likewise, the environmental discourse supported the collaborative discourse by connecting students who would not otherwise interact with each other. The relaxed atmosphere of the EC also had an important meaning for the members. Some previous studies have found having fun and a sense of belonging important while doing environmental activities in eco-clubs, as it may translate into more participation (e.g., Tanu & Parker 2018). This finding is also supported by a study by Smith (2019), which showed that students' friendships in the club encouraged them to maintain a sustainable lifestyle. Moreover, some members had other personal motivations that built their meaning for the EC. These included having a good time in the EC and receiving a credit point for participating in the EC's activities. This meaning for eco-clubs seems to be absent from the previous studies.

Moreover, the results point out that these students with personal motivation also experienced some environmental and collaborative participation discourse. However, personal motivation did not seem to strongly support either environmental or collaborative activity, meaning, or vice versa. These findings of the meaning of EC support the assumption that an eco-club could have the potential to promote its members' pro-environmental actions. Important variables in this potential are the members' interest in environmental topics and the support from congenial peers in the EC. This potential is hard to achieve with other methods due to various barriers. Previous studies have recognized that carrying out pro-environmental behaviors can spill over to similar behaviors in the future (Margetts & Kashima 2017). Environmental actions in the eco-club could similarly influence its members in fostering their future pro-environmental actions outside the eco-club. However, more research is needed on this topic.

The EC's context is represented in Figure 1 around the EC's meaning. These discourses represent the discourses that influence the functioning of the EC by enabling or working as barriers to the operations. The enabling discourses included participation and practical things. The leading teacher's important role found in this study is supported by the findings of Smith (2019). Moreover, previous studies have found group spirit and friendship to be important in eco-clubs (e.g., Tanu & Parker 2018). Based on the findings, congenial peers could be essential in promoting adolescents' environmental actions in school contexts. More research is needed to examine this influence further, but these results give promising signals about eco-clubs' potential for peer influence. Well-organized practical things are absent from the findings of previous studies. It could be that remote teaching caused by COVID-19 made this element more visible to the members.

Barrier discourses included the external influence, peers, and time discourse. These findings are partly in line with previous studies. Even though lack of time has not come up as a barrier in studies concerning eco-clubs, it is a well-known barrier to EE in general (e.g., Roberts 2009; Shumacher *et al.* 2012; Šimonová & Činčera 2016). Based on previous studies, eco-clubs clearly suffer from external influences such as lack of funding (El-Batri *et al.* 2019) and lack of recognition and facilities (Kieu & Singer 2020). However, this study differs from previous studies in this aspect. First, previous studies have not focused on members' perceptions. Second, because the data was collected during the pandemic, the external influence discourse was dominated by COVID-19, unlike in previous studies. Peers have often been established as an enabler of eco-clubs (e.g., Tanu & Parker 2018). Even though this study shares this similarity with peers as an enabler, the interviewed members also brought up that peers may act as a barrier. This finding can be considered novel among eco-club studies.

This study also examined the members' and non-members' perceptions of the EC's importance to students, to the whole school, and outside the school. There is a lack of previous studies on this topic. The conspicuous finding is the lack of communication between the EC and non-members. Most of the non-members seem to lack knowledge of what the EC is and what kind of things it does in the school. So, it is no surprise that most non-members find the EC unimportant for themselves and do not know

what it means for others. Moreover, non-members are somewhat able to recognize that the EC promotes environmental efforts in the school. However, only a few of them recognize the uplifting side of the EC events, which is contrary to what is emphasized by the members when describing the EC's meaning to other students. Moreover, the members' and non-members' perceptions of the EC's meaning for the whole school seem closer than with other questions. However, 'Do not know' was still the second most common response for the non-members. The EC members seem to find influence spreading from the club to other students, school, and outside of the school and at least partly to promote the environmental actions of others and the school. Non-members' perceptions differ from members' perceptions as most find the club irrelevant, although some see the EC's potential environmental influence. It seems clear that non-members do not get enough information about the EC, and on the contrary, EC members seem to lack knowledge of the non-members' reactions to the EC. If an eco-club is targeted to enhance the whole school's environmental actions, this barrier between the club and non-members needs to be overcome.

The EC seems to work for the members as a channel to carry out environmental actions, which they could not carry out without the EC. The EC offered reserved time for EE, during which members can carry out environmental activities in school with the support of peers and the school. In this case, the EC empowered its members through democratic decision-making and by giving them authoritative space. The EC can be considered to foster their pro-environmental actions. Based on this study, the potential of eco-clubs in the EE is that they can help overcome many of the barriers. This kind of potential in EE can be hard to achieve with other approaches.

The biggest obstacle to eco-clubs, as the EE pathway, seems to be getting the influence of eco-clubs to spread outside the club and promote non-members' pro-environmental behavior. The first step to enhance the situation would be to inform and involve the non-members. This step can be hard to achieve with limited time and resources, but it is essential in enhancing the eco-club towards a whole school approach.

This study has some limitations. The group interviews had to be done remotely. If the interviews had been carried out in the school, it could have made the setting more relaxed. Moreover, an ethnographic study could have provided better insight into the EC dynamics. However, the current methods were easy to integrate into the school's schedule. Using interviews with the non-members could have provided more detailed information on their perceptions of the EC. However, using a qualitative survey allowed the data collection to be integrated into the school schedule, which would have been impossible with 100 participants using other methods.

Collecting the data in Finnish and translating the responses into English can be seen as a limitation as some meaning can be lost in the translation process. To prevent this, particular emphasis was placed on the translation process. Moreover, writing the article in English enables communication of the research to a broader audience and supplements the incoherent field of eco-club research.

Conclusions

This case study suggests that eco-clubs may hold important meaning for their members, as evidenced by the environmental, collaborative activity, and personal motivation discourses. An eco-club might be an important pathway for its members to carry out environmental actions. This eco-club works in a context that both enables and hinders clubs' activities. Moreover, members feel that the club offers students a relaxing setting and a fun alternative to regular schoolwork while also enhancing their environmental awareness. In contrast, non-members' perceptions are dominated by the lack of knowledge of the club. Based on this case study, the Green Flag programs' EC eco-club seems to work reasonably well from the members' perspectives. It enables them to carry out environmental actions in the school.

However, based on this study, the program must tackle the barriers to improve the effectiveness of the EC in the future. At the time of the study, the only external influence barrier mentioned was COVID-19. It might be that other external barriers were left unmentioned because of the immense impact of the pandemic. It is clear that the program cannot tackle a pandemic and how it influences schools. The members also found that the effectiveness of the EC was hindered by a lack of time. That

is why more time should be allocated for EC during school days. Moreover, when planning to carry out eco-club activities, it is important to try to keep the club inclusive and to organize practical things well. Those planning eco-club activities should pay attention to getting non-members involved and keeping them informed about eco-club activities to widen the eco-club's impact and promote the whole school's environmental actions.

These clubs need enthusiastic teachers who have adequate environmental knowledge to lead them. Geography teachers could have an essential role in leading these clubs based on their EE-related knowledge and skills. Moreover, it may enable them to carry out student-centered action-oriented EE that may take more work to achieve during lessons, especially during the one mandatory geography course. To better integrate eco-clubs in the upper secondary school, a focus on eco-clubs in training pre-service teachers, especially in geography, is needed to increase the knowledge of the eco-club practices and eco-clubs' potential as an EE pathway.

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