



Promoting Education for Sustainable Development (ESD) in Vietnam  
via non-formal education  
Case study: CHANGE's Vietnam Climate Leadership Initiative

Master's Thesis  
Huyen Anh Bui  
Aalto University School of Business  
Department of Management Studies  
Creative Sustainability  
Spring 2020

---

**Author** Huyen Anh Bui

---

**Title of thesis** Promoting Education for Sustainable Development (ESD) in Vietnam via non-formal education. Case study: CHANGE's Vietnam Climate Leadership Initiative

---

**Degree** Master of Science in Economics and Business Administration

---

**Degree programme** Creative Sustainability

---

**Thesis advisor(s)** Leena Lankoski

---

**Year of approval** 2020**Number of pages** 53**Language** English

---

## Abstract

Worldwide leaders and organizations have long recognized Education for Sustainable Development (ESD) as an effective instrument to support sustainable development. Despite the constant promotion and development of ESD, implementation remains challenging as ever. The situation isn't any different in the context of Vietnamese education. As a result, the main research objective of this study is to discover opportunities to promote ESD via non-formal education in Vietnam. Researching a case study of a prominent ESD initiative organized by a leading NGO in Vietnam, the author developed four research questions about program contents, implementation resources, participants' experiences and suggestions for further improvement.

The literature review first provides basic knowledge about ESD: definition, different views of ESD, pedagogical approaches and educational contents. In addition, ESD encompasses different forms of education such as climate change education (CCE) to address specific sustainability-related issues. Finally, resources invested in education and measurement for effectiveness are introduced to the discussion to provide insights about the implementation side of ESD.

The research context is, naturally, Vietnamese education. ESD remains a low priority in formal education and previous top-down efforts to promote ESD in formal education have no planned continuity. Therefore, the research context is confined to non-formal education defined as organized learning activities happening outside of the formal education system. Insights about Vietnamese educational system with the focus on non-formal education are presented to clarify the research context.

The research methodology and method employed in this study are qualitative research, case study and semi-structured interviews. An interview guideline with a list of suggested interview questions and potential ethical issues was drafted before the interview process and addressed during the process. Regarding the sample selection, both selective and random strategy were employed to guarantee the relevancy and diversity of the data. The data analysis followed a three-step plan (coding, condensation and interpretation). Eight key themes were pre-designed before the data collection process but 21 sub-themes emerged from the data. In addition, over 100 key words and 59 meaning expressions were coded and condensed for further interpretation.

The findings of this study provide answers to the four research questions drafted at the beginning. The content discrepancy between textbook ESD/CCE and the case program is easily spotted in the data. Though the case program is heavily resource-dependent, its dependence on different resources varies. In addition, the program has resulted in certain encouraging impacts despite the lack of objective evaluation. Finally, suggestions based on the literature and data were proposed for further improvement.

---

**Keywords** Education for sustainable development, education for sustainability, climate change education, Vietnamese education, non-formal education

---

## **Table of Contents**

1.	Introduction .....	1
2.	Literature review .....	3
2.1	What is ESD? .....	3
2.2	ESD pedagogy .....	5
2.2.1	Pedagogical approaches .....	5
2.2.2	Pedagogical contents .....	6
2.2.3	Key content attributes of an ESD programs .....	8
2.3	ESD implementation .....	9
2.3.1	Forms of ESD .....	9
2.3.2	Resources for education .....	11
2.3.3	Measurement of effectiveness .....	13
2.4	Promoting ESD via non-formal education .....	14
3.	Vietnamese education (with focus on non-formal education) .....	14
3.1	General system .....	15
3.2	Latest developments in the recent years .....	16
3.3	Non-formal education in Vietnam .....	16
4.	The development of ESD in Vietnam .....	18
4.1.1	Overview .....	19
4.1.2	Implementation partners and bureaucratic procedures .....	20

4.1.3	Resources .....	21
5.	Research methodology and methods .....	22
6.	Case study: CHANGE's Vietnam Climate Leadership Initiative .....	27
7.	Data collection and empirical findings.....	29
7.1	Data collection and analysis .....	29
7.2	Empirical findings .....	34
8.	Conclusion.....	44
8.1	Answers for research questions .....	44
8.1.1	RQ1: How do the contents of the case program differ from the contents benchmarked in ESD literature? .....	45
8.1.2	RQ2: How resource-dependent is the case program? .....	46
8.1.3	RQ3: How effective is the case program?.....	48
8.1.4	RQ4: How could the effectiveness of the case program be improved? ..	49
8.2	Research validity and reliability .....	50
8.3	Research limitations .....	52
8.4	Recommendations for further research .....	52
8.5	Concluding remarks for this thesis .....	53
	References .....	54
	Appendices .....	65

## **List of acronyms**

CCE	Climate Change Education
ESD	Education for Sustainable Development
BOET	Bureau of Education and Training
DOET	Department of Education and Training
GCED	Global Citizenship Education
ICT	Information and Communication Technology
MOET	Ministry of Education and Training
MOLISA	Ministry of Labor, Invalids and Social Affairs
NFE	Non-formal education
OECD	Organization for Economic Co-operation and Development
PPC	Provincial People's Committee
RQ	Research question
UNEP	United Nations Environment Program
UNESCO	United Nations Educational Scientific and Cultural Organization

## List of tables and figures

Table 1. Key content attributes of an ESD .....	8
Table 2. Interview questions .....	26
Table 3. Potential ethical issues and corresponding actions .....	30
Table 4. Key themes for data analysis.....	32
Table 5: Condensed meaning expressions .....	33
Table 6. Key theme #1: Program contents .....	34
Table 7. Key theme #2: Program resources .....	36
Table 8. Key theme #3: Bureaucracy .....	38
Table 9. Key theme #4: Implementation challenges .....	38
Table 10. Key theme #5: Program achievements.....	40
Table 11. Key theme #6: Program experiences of participants.....	41
Table 12. Key theme #7: Gains for participants.....	42
Table 13. Key theme #8: Suggestions for improvement.....	43
Table 14: Content comparison between textbook ESD and the case program .....	45
Figure 1. Research process (partially adapted from Sauders, et al. (2012)).....	23
Figure 2. Interviewee profile .....	30

## 1. Introduction

For the last 30 years, Education for Sustainable Development (ESD) has been recognized and promoted by world leaders as a significant instrument to support sustainable development. In the International Workshop on Environmental Education in Belgrade in 1975, UNEP first acknowledged, on a global scale, the importance of environmental education in creating the new economic and social development that would not result in extreme environmental and social consequences (UNEP, 1975). In the following UN Conference on Environment & Development in Rio 1992, ESD was introduced as an extension to environmental education and the agenda reaffirmed the strong link between ESD and all social, economic, and political development (Martins, et al., 2006; Kopnina, 2012). In fact, United Nations proposed for the Decade of ESD (2005 – 2014) that all educators integrated sustainable development contents in their curricula (Thomas, 2009).

In regard to the development of ESD in Vietnam, the first milestone is the 2010 – 2014 National Action Plan – a report-based program policy on the needs of ESD and its 17 strategic sustainable development themes. Since then, MOET has issued a number of strategic decisions and policies. Decision No. 622/QĐ-TTg enacted the National Action Plan in May 2015. Following was Decision No. 2161/QĐ-BGDĐT which is, to date, the most comprehensive document on Vietnam's implementation plan for ESD. Together with UNESCO Hanoi, the Ministry has recognized many challenges on national and local level as well as policy and implementation level. (MOET & Vietnam Institute of Educational Sciences, 2018.) Despite the different context, Vietnam shares quite many challenges with other parts of the world. For example, one main constraint is the non-definable objectives, roadmap, and measures for ESD. Overly general policy guidelines without concrete instructions on how to apply the policy also poses as a significant constraint. Coordination between concerned stakeholders such as local administration and local schools is missing. Simultaneously, local schools lack efficient teacher training, budgets, and specific implementation guidelines on how to imbed ESD

contents in school subjects. (MOET & Vietnam Institute of Educational Sciences, 2018.)

In spite the encouraging policy developments, ESD remains a low priority in the development of Vietnamese education. According to the latest development plans until 2023, the priority for Vietnamese education is increasing the quality of education in general. Moreover, all educational objectives and contents for all levels of education are decided and disseminated by MOET so additional contents i.e. ESD must be applied and approved separately. (Ministry of Education and Training, 2020.) In addition, ESD is a lifelong learning process (UNESCO, 2012) that goes beyond formal education (Haigh, 2006). When one considers all of the above factors, non-formal education has emerged as a promising channel to promote ESD in Vietnam.

Consequently, the main objective of this research project is to discover opportunities to promote ESD in Vietnam via non-formal education. In order to achieve the objective, I conducted a thorough investigation into one of the most prominent ESD initiatives organized by NGOs in Vietnam. Based in Ho Chi Minh City, CHANGE Vietnam is an established non-governmental organization which has initiated some of the largest environmental movements in Vietnam (CHANGE VN, 2017; CHANGE, 2020). Since 2013, CHANGE has organized Climate Leadership Initiative (Clean Air, Blue Sky, 2019). The purpose of the initiative is to build a network of adolescent leaders and equip them with necessary skills and knowledge (CHANGEvn, 2019). CHANGE aims to inspire the young leaders to initiate their own projects or join similar projects to fight climate change in their local areas (CHANGEvn, 2019).

As the main objective of this thesis is to discover opportunities to promote ESD in Vietnam via non-formal education with the use of a case study, the following research questions (RQs) are formulated:

- RQ1: How are the contents of the case program compared to the contents benchmarked in ESD literature?
- RQ2: How resource-dependent is the case program?
- RQ3: How effective is the case program?



- RQ4: How could the effectiveness of the case program be improved?

In order to answer the above research questions, I will first review the literature of ESD and the development of ESD in Vietnam. The literature review provides insights about what constructs an impactful ESD: pedagogy, forms of ESD, implementation resources, and measurement of effectiveness. After reviewing ESD literature, I will present the analysis of the case study. Using primary data (interviews with project organizers and students participating in the case program), I will offer a handful of insights for the research questions above.

## 2. Literature review

The research objective demands a basic understanding of what constructs an impactful ESD. In fact, this literature review serves 4 main purposes. First, it presents a definition of ESD. Second, it summarizes the key content attributes of ESD pedagogy. Third, it looks into the implementation side of ESD programs: forms of ESD, resources for education and measurement of effectiveness. Fourth, it presents a brief discussion on non-formal education as a channel to promote ESD.

### 2.1 What is ESD?

UNESCO defines ESD as a mean to “empower learners to take *informed decisions* and *responsible actions* for *environmental integrity*, *economic viability* and a just *society*, for present and *future* generations, while respecting *cultural* diversity. It is about *lifelong learning* and is an integral part of quality education. ESD is *holistic* and *transformational* education which addresses learning content and outcomes, pedagogy, and the learning environment. It achieves its purpose by *transforming society*.” (UNESCO, 2019, emphasis added). In other words, ESD is a lifelong and transformative learning process that supports sustainable development and stands on the principles of sustainable development (Thomas, 2009; UNESCO, 2019).

According to the above definition of ESD, its main purpose is to transform the society so ESD has the following characteristics.

- ESD encourages participatory and lifelong learning and higher-order thinking.
- ESD engages formal, non-formal and informal education.
- ESD focuses on the local needs but is mindful of the outcomes of satisfying those needs in the international context.
- ESD is interdisciplinary, which means that ESD belongs to no single discipline and requires the contribution of all disciplines.
- ESD prepares the society for collective decision-making, workforce, adaptability, and tolerance.

(UNESCO, 2012.)

UNESCO's definition and description of ESD is widely used in practice but one can't fully understand the concept of ESD without learning the two popular views of ESD: intrinsic and instrumental. The intrinsic view of ESD emphasizes that it's a learning and teaching experience so the focus is on the learning process rather than the fixed learning outcomes. As a result, the intrinsic view is strong at nurturing the qualities of learners but rather weak on the real-world orientation. On the other hand, the instrumental view of ESD depicts it as a means to achieve certain desired social changes so its main attention is directed at the contents, purpose, and efficiency of the education. Speaking from pedagogical point of view, the instrumental view of ESD is strongly oriented at the real world with a sense of urgency and focus on the learning outcomes of the learners. (Sterling, 2010.)

Even though the instrumental view of ESD has a longer history than the intrinsic view, the former has received growing criticism since the 1990s. Since the instrumental ESD emphasizes the learning contents and learner's outcomes, it presents a "destination" view (Jickling & Spork, 1998) with the need to pre-set the outcomes of the learning process (Thomas, 2009; Sterling, 2010). Critics have also raised the concern for the politics of knowledge: what should be taught and who decides that (Sterling, 2010). In addition, when ESD is overly instrumentally-oriented, it tends to prioritize economic values over cultural and personal ones (Thomas, 2009).

Revisiting the above definition developed by UNESCO, we can recognize both instrumental and intrinsic elements. ESD is considered to be a means to support sustainable development and addresses the learning contents and outcomes (instrumental view). However, ESD is also defined as a transformative process that empowers learners to take actions and to respect environmental, social, and cultural values simultaneously in addition to economic values (intrinsic view).

## 2.2 ESD pedagogy

Albert Einstein once said “The significant problems we face today cannot be solved by the same level of thinking that created them” so our children need to be educated differently to better deal with the multifaceted sustainability issues. Therefore, this part serves as a foundation to understand ESD pedagogy as it examines the prominent pedagogical approaches and contents in ESD.

### 2.2.1 Pedagogical approaches

In order to achieve its purpose, ESD requires specific pedagogical approaches. Several approaches have been dominating ESD literature over the years. These approaches are, by no means, contradictory but rather complementary. In fact, multidisciplinary learning approach can easily be spotted in ESD literature (Raumolin, 2000; Eilam & Trop, 2010; Clarke, 2012; UNESCO, 2012; McKeown & Nolet, 2013; Lee & Efirid, 2014). It means that ESD requires the contribution of multiple disciplines such as biology, physics, chemistry, sociology, economics and so on. As sustainability issues are often multifaceted and quite complex (Stokke, 1991), future pupils will benefit from knowledge of multiple disciplines instead of a single one.

Another prominent approach in ESD pedagogy is holistic and systematic approach (Raumolin, 2000; Thomas, 2009). This approach in ESD enables pupils to embrace the complexity and interrelatedness of the world (Raumolin, 2000). As environmentalist and writer Jonathon Porritt points out, the failure to view things as systems instead of disconnected actors in those systems is actually one of the most demanding challenges in our time (Porritt, 2007). In fact, the inability to understand complicated relationships is reported to be the greatest cause to the environmental knowledge gap in American

pupils (Coyle, 2005). Since human activities bring about systemic consequences to the ecology (Clarke, 2012), it's important for future pupils to develop the capacity to comprehend those consequences.

ESD pedagogy often adopts student-centered approach (Thomas, 2009; UNESCO, 2012; Lee & Efird, 2014). A student-centered learning environment considers the pupils' learning needs and encourages them to engage in the learning process i.e. in creating and learning knowledge (Jones, 2007). A study has reported that learning means more to pupils when learning contents are relevant to their personal needs and interests and when they are actively engaged in the process of creating knowledge (McCombs & Whisler, 1997). In ESD, the student-centered approach is often reflected through participatory learning (UNESCO, 2012) and active participation (Eilam & Trop, 2010) such as class discussion, which is a stimulating form of class activities. In fact, engaging pupils in class discussion enables them to develop essential communication skills (UNESCO, 2012).

In addition, project-based or issue-based learning is commonly used in ESD (Raumolin, 2000; Eilam & Trop, 2010; Clarke, 2012; UNESCO, 2012). Project-based learning allows pupils to immerse themselves in real problems through the process of defining the problem, experimenting with new ideas and creating solutions for the problems (Blumenfeld, et al., 1991). This approach is also rather experiential because pupils must go through a proactive process entailing forming groups, justifying the problem by doing research, collecting data, writing report, and then presenting their solution (Yasin & Rahman, 2011). Past studies reported pupils to gain deeper learning when they have to structure their comprehension of the materials (Krajcik & Blumenfeld, 2005). Since sustainable development involves a set of complex issues and goals, project-based learning offers pupils hands-on experiences of the concept (Nation, 2008).

### 2.2.2 Pedagogical contents

Although ESD programs worldwide share several common pedagogical approaches (multidisciplinary, holistic and systematic, student-centered, project-based), countries shouldn't replicate curricula from different countries (UNESCO, 2012) because the

local context and national sustainability goals are extremely important to ESD (McKeown, 2002; UNESCO, 2012). Therefore, one should take the local context into consideration while developing the ESD contents namely knowledge, skills, values, and perspectives. ESD literature promotes certain areas that should be included in an ESD and this part will present them in detail.

In terms of knowledge, pupils will continue to benefit from basic knowledge of natural sciences (math, chemistry, physics, etc.) and social sciences (history, sociology, etc.). In addition, knowledge that serves to achieve local and national sustainability goals should be prioritized. Major issues in economics, environment and society should be incorporated into the curriculum. Once again, the local context must be considered when one selects the issues. (McKeown, 2002.) For example, if a teacher decides to introduce biodiversity loss to her pupils, she should also consider including its effects on the local economics, environment, and community in her lesson.

The desired ESD skills and competences remain rather undisputed among ESD educators worldwide. In the time of unpredictable future, educators believe that the future generations will benefit from problem-solving and critical thinking (Raumolin, 2000; McKeown, 2002; Thomas, 2009; Eilam & Trop, 2010; Sterling, 2010; UNESCO, 2012). Participatory decision-making skill is also among the most desired competences since solving sustainability issues requires collaboration among various stakeholders (Thomas, 2009; UNESCO, 2012). As sustainability issues concern multiple disciplines, inter-/multidisciplinary thinking skill will benefit the future generations (Raumolin, 2000; Thomas, 2009; Eilam & Trop, 2010; Clarke, 2012). Moreover, holistic perspective, value-driven and system thinking are also highly-evaluated (Thomas, 2009; Eilam & Trop, 2010; Sterling, 2010).

ESD is designed to orient pupils to define and refine their values (Raumolin, 2000; Thomas, 2009; Eilam & Trop, 2010; UNESCO, 2012). Because understanding one's own values, the others' and the society's is fundamental in achieving a sustainable future (McKeown, 2002), ESD should empower pupils to develop the ability to reflect on their own values and adapt their behaviors accordingly (Thomas, 2009). In other words, pupils can adopt accepted values and/or derive new ones from their study. Pupils

should be encouraged to question the existing values and to co-create the values for their community towards achieving the local and national sustainability goals. Examples of wanted values include respect for other societies i.e. cultures, religions, traditions; concern for human needs, rights, and wellbeing of all people; consideration and respect for the ecology. (McKeown, 2002.)

Developing pupils' perspectives is a significant element in ESD. As multi-perspective is necessary to understand the environmental and sustainability issues (Mogensen & Mayer, 2005), pupils will benefit from the capacity to assess the issues from the view of different stakeholders, which leads to "intra-national and international understanding" (McKeown, 2002). Examples of various perspectives connected to ESD include:

- Time perspective for all problems e.g. in the society and ecology: the problems are changeable in nature and each has a history and a future.
- Interrelation perspective of global issues
- Shared qualities among humankind e.g. we love our own children
- The importance of certain values i.e. economic, social, ecological varies according to a person's background and interests.
- Our problems cannot be solved only by technology and science.

(McKeown, 2002.)

### 2.2.3 Key content attributes of an ESD programs

Based on the previous discussion on ESD, I have identified a handful of key content attributes for an ESD. The key attributes are divided into pedagogical approaches and contents. The attributes are by no mean contradictory but rather complementary. In addition, one should remember that it's not an exhaustive list but one including the most acclaimed attributes of ESD identified in the literature. The table below summarizes the whole list.

Table 1. Key content attributes of an ESD

<b>Approaches</b>	<b>Knowledge</b>	<b>Skills</b>	<b>Perspectives</b>	<b>Values</b>
Multidisciplinary Holistic and systematic Student-centered Project-based	Natural sciences Social sciences Local context	Problem-solving Critical thinking Participatory decision making Inter-/multidisciplinary thinking System thinking	Orienting pupils to adopt perspectives that support sustainable development	Orienting pupils to define and refine their values

### 2.3 ESD implementation

This chapter dives deeper into the implementation aspects of ESD. First, we will explore different forms of ESD. Then, the overall resources for education will be discussed in order to shed light on what is needed to implement an ESD program. Finally, the chapter presents a handful of insights on the measurement of effectiveness of an ESD program.

#### 2.3.1 Forms of ESD

ESD is a big umbrella that provides foundation for many forms of education (UNITAR, 2013). In fact, several forms of ESD have emerged separately to focus on particular issues such as climate change so this chapter will present an overview of different forms of ESD.

##### *Climate change education*

Climate Change Education (CCE) is deeply rooted in ESD in many ways. First of all, it embraces participatory methodology and holistic approach (UNESCO, 2015). Second of

all, in addition to providing knowledge about causes and effects of climate change, CCE offers a multidisciplinary perspective (UNITAR, 2013). Moreover, CCE takes into consideration the local context (UNITAR, 2013; UNESCO, 2015). In fact, like ESD, CCE is "socially-transformative" and adopts teaching and learning methods that empower and inspire learners (Stevenson, et al., 2017). Finally, the desired outcome for learners is also to take responsible actions towards a sustainable future (UNESCO, 2015).

Many organizations have developed curricula for CCE (UNITAR, 2013). Focusing specifically on climate change, CCE equips learners with knowledge so they can answer the following questions:

- What's climate change?
- What's accountable for climate change and how do we identify it?
- Why does it matter to understand climate change?
- What can we do about climate change?

(Stanford Earth, 2020.)

Nevertheless, understanding the concept of climate change is just part of CCE. More than teaching content, CCE must provide learners with new perspectives and empower them to challenge the norms. Individual actions to mitigate climate change is widely encouraged but not enough. Ideally, learners should take on more responsibility and develop their capability of engaging in collective actions, i.e. discontinuing unsustainable lifestyle and adopting a more sustainable one as a collective. Moreover, as the future consequences of climate change are partially-known, CCE must empower learners to build "adaptive capacity and resilience" so that they can respond to possible future hazards. Practically speaking, learners should be educated about the local disaster risks such as floods, heatwaves, forest fires, etc. and about how to respond and adapt to them. Educating every single individual to mitigate and adapt to the consequences of climate change will also increase the community's capacity for disaster risk reduction and resilience. (Stevenson, et al., 2017.)



### *Global citizenship education*

Global citizenship education (GCED) responds to the modern world's challenges including ones of sustainable development. In fact, GCED aims to equip learners with knowledge, skills, values, and attitudes that support the development of a creative, innovative, peaceful, just, and sustainable world. (UNESCO GCED, 2019.) GCED also adopts multiple approaches which are used in other forms of education including ESD. Similar to ESD, GCED is transformative and a lifelong learning process. Local context plays an imperative role in GCED in a way that all topics and learning objectives need contextualizing. GCED embraces the holistic approach so it focuses on building learners' capacity to develop a sense of belonging to the broader society and to comprehend the "interconnectedness" of the issues. Going beyond information, GCED orients learners to become critical of the information by helping them develop critical thinking and analysis skills. (UNESCO GCED, 2015.)

There are three learning domains in GCED: cognitive, socio-emotional and behavioural. Each domain comes with specific key learner attributes, topics and learning objectives for different levels of education. Interested educators can find an exhaustive list of keywords associated with the three learning domains in the official guide of UNESCO. Some of the named keywords are employment, globalization, access to justice, compassion, empathy, consumption habits, corporate social responsibility, etc. (UNESCO GCED, 2015.)

#### 2.3.2 Resources for education

According to OECD, resources invested in school systems fall into four areas: spending on education, human resources, material resources, time resources (OECD, 2013). Spending on education encompasses expenditure on education and teachers' salaries. Depending on each institution, the expenditure varies but it can cover administration, building construction, transportation, students' meals, etc. According to OECD, the schools with higher expenditure exhibit higher GPA per capita. Teachers' salaries also belong to expenditure on education but since they account for the biggest shares of the

expenditure, they represent their own category. Teachers' salaries differ greatly among countries, but higher salaries obviously attract more teachers. (OECD, 2013.)

The second resource area is human resources covering (1) teacher per-service training, requirements for a teacher and teachers' profiles and qualifications, (2) student-teacher ratio, (3) teacher shortages and (4) teachers' professional development. In certain countries, teachers must enter take competitive examinations to enter pre-service teacher training. The length of the training also varies according to countries. Longer than 4-year training programs are considered relatively long. Regarding requirements for teachers to work in a school, an exam and/or an education diploma can be demanded by the school. Normally, schools request teachers to attain certain qualifications and profiles. Student-teacher ratio is an imperative indicator in the area of human resources. It's important to remember that student-ratio is not equal to the class size and that the ratios vary greatly among countries and between socio-economically advantaged and disadvantaged institutions. Teacher shortages are most likely to become an obstacle to instruction. More than often, there is more teacher shortage in the rural area (than in the city) and more in socio-economically disadvantaged schools (than in the advantaged schools). Finally, teachers' professional development refers to further education that teachers take part during their stint at a school. In fact, it's not compulsory for teachers to participate in further education in certain countries. (OECD, 2013.) Moreover, there is no proven generalization, to date, between further education for teachers and improved quality of learning for students.

The next area focuses on material resources including school facilities and learning resources. School facilities can refer to buildings, spaces, heating and lighting system, etc. while learning resources encompass equipment and materials that support learning i.e. textbook, computers, internet connection, lab equipment, etc. Research has shown that the availability of material resources can have an impact on a school's performance in a way that the lack of such resources can result in lower quality of learning and teaching. In addition, it's the quality of resources that seem to matter more to the overall performance of a school than their quantity. (OECD, 2013.)

Finally, time resources refer to students' learning time including planned learning time in school and learning time in routine lessons and after-school. According to OECD, there is a connection between students' learning time and their performance. Reports have shown that education systems that offer more extracurricular activities and retain more students for longer periods of time tend to perform better. In addition, experts have suggested that academic learning time must be optimized to enable students to achieve better academic performances. Furthermore, planned lesson time is required for students to achieve the necessary competencies but how much time is needed remains a question. Another significant factor in this area is class size, which can have various impacts on learning. For example, for a big class, a teacher will have less time for individual students than in a smaller class so she might change her teaching styles to make up for the situation and hence, the new pedagogical style might affect students' learning. Nonetheless, there is not a very clear connection between class size and individual's performance and the connection can be very much dependent on cultures. (OECD, 2013.)

Speaking specifically of ESD, several challenges regarding the named resources have been confirmed in the literature. On the basic education level (elementary, high school and vocational school), the identified challenges include lack of classroom time, ambiguous teaching objectives, nonexistent materials, lack of training and support for teachers, inexperienced and uninformed teachers and inadequate evaluation of existing ESD program (Martins, et al., 2006).

### 2.3.3 Measurement of effectiveness

According to the above definition of ESD, its purpose is to transform the society but how do we assess whether an ESD program has achieved its purpose? An ESD program is considered impactful if learners, upon completion, can grasp the key contents presented in the program. The list of key content attributes can be viewed in chapter 2.2.3. Key content attributes. Beyond that, whether an ESD is effective depends on learners' ability to apply the acquired knowledge and skills in a practical multidisciplinary context (Clarke, 2012). Moreover, a UNESCO Sourcebook specifies that an ESD program must empower learners to continue their learning after school and

to enable them to secure sustainable income and lead sustainable lifestyles (UNESCO, 2012). Nevertheless, the ultimate measurement of ESD is for learners to transform the society (UNESCO, 2019).

#### 2.4 Promoting ESD via non-formal education

Non-formal education normally refers to education happening outside of the formal school system. One can associate non-formal education with community learning, adult education or NGO initiatives. (Khasnabis, et al., 2010.) Despite not happening inside the traditional educational system, non-formal education can have a certain format (Affeldt, et al., 2015). Non-formal education often adopts learner-centric and participatory approach so it's quite flexible (Egana del Sol, 2019). As ESD is defined as a lifelong learning process that aims to bring about behavioral and social changes (UNESCO, 2019), it shouldn't be confined to formal and traditional classroom setting (Haigh, 2006; Egana del Sol, 2019).

Non-formal ESD includes various learning processes from outdoor activities to provide practical experiences with nature to initiatives that inspire the youth to become responsible citizens and "change agents" for a sustainable future (Wals, et al., 2017). An example is an initiative organized by a local NGO to increase public awareness of the local sustainable development issues. Similar to formal ESD, non-formal ESD should aim beyond knowledge transmission and awareness raising; in other words, it should inspire and empower learners to take active roles in developing a sustainable world (Wals, et al., 2017).

### 3. Vietnamese education (with focus on non-formal education)

This chapter presents an overview of Vietnamese education so that readers will better understand the context of this study. In this chapter, I will introduce the general system and the latest developments in the recent years. However, I will focus slightly more on non-formal education (NFE) since it's directly related to the context of this study.

### 3.1 General system

Like other education systems, Vietnamese education and training system encompasses both formal and non-formal education. The formal education consists of 12 years of basic education including primary education (grades 1-5) and lower-secondary education (grades 6-9) and upper-secondary education (grades 10-12) (IBE-UNESCO, 2012). Out of 12-year formal education, only primary education will become compulsory for every Vietnamese citizen starting from July 2020 (Huong, 2019). According to MOET statistics in 2018, primary education accommodates the highest numbers of schools, students and teachers (MOET, 2018) but have rather high teacher-student ratios (1:21) compared to those of OECD countries (i.e. Finland 1:14, Germany 1:16, Korea 1:17) (OECD, 2018).

Non-formal education (NFE) in Vietnam is defined as “organized learning activities that cater to persons not enrolled in formal education” (Lam, 2007). The main targets of NFE are adults so NFE is interchangeably used with Adult learning education. Naturally, NFE caters to lifelong learning needs of all Vietnamese so it covers a wide range of programs and purposes from basic literacy for drop-outs and educationally-disadvantaged children to more advanced life skills that serve to generate income, protect mothers’ and children’s health, prevent HIV/AIDS, protect the environment and such. Due to the diverse purposes and educational contents, NFE accommodates a lot of providers such as NGOs, private sectors, mass media, etc. (MOET, 2009.)

One can’t fully understand Vietnamese education system without acknowledging the imperative role of Ministry of Education and Training or MOET. MOET is responsible for governing over all-level of education in Vietnam (Ministry of Education and Training, 2020). The roles of MOET range from setting educational objectives, contents, and programs to regulating examinations and diplomas, training teachers and such. It’s important to remember that MOET establishes all educational objectives and disseminates educational contents for all-level of education in Vietnam. (Ministry of Education and Training, 2020.) As a result, additional contents introduced into the curriculum must be approved by MOET. In addition, MOET directly administers certain high-quality or gifted schools such as Foreign Language Specialized School or High

School for the Gifted (Australian Government | Department of Education, Skills and Employment, 2018).

### 3.2 Latest developments in the recent years

The latest developments in Vietnamese education will provide us with insights about the national targets and priorities for formal education. The latest Education Law introduced in 2018 aims to improve/achieve: teacher's salary, education efficiency, teacher's qualifications and non-tuition fee for lower-secondary education (An, 2018; Australian Government | Department of Education, Skills and Employment, 2018). Besides the big four areas mentioned above, the Education Law 2018 acknowledges the importance of lifelong learning (Australian Government | Department of Education, Skills and Employment, 2018) and considers recognizing certain diplomas issued by foreign education institutes (An, 2018).

Simultaneously, MOET is currently running three national system-reform projects focusing on secondary education sector, teacher education and education renovation (Australian Government | Department of Education, Skills and Employment, 2018). For further details about the project objectives and actions, one can refer to the timeline in Appendix 3. The latest education law and reform projects show that the priority for Vietnamese formal education at the moment is to increase the quality of education in general. Besides the brief acknowledgement of lifelong learning – a feature of ESD (Thomas, 2009; UNESCO, 2019), little is mentioned about the development of ESD.

### 3.3 Non-formal education in Vietnam

This chapter will dig deeper into the non-formal education (NFE) in Vietnam. NFE has a long development history which shows the people's changing attitude towards and the government policy on NFE. First institutionalized in 1998, NFE was only recognized as an alternative to formal education for adults and educationally-disadvantaged children. Not until 2005 did the replacement education law recognize NFE as the second official component of the education system (alongside formal education). The law in 2005 declares that “NFE is responsible to help people to learn while they work, to learn through their life to enrich their personality, to improve their educational levels, their

professional skills, to improve quality of their life, to help them to find and to create jobs by themselves and to adapt to new contexts. The government will make a policy on development of NFE to provide education for all and to build a learning society.” (MOET, 2009.) The new law emphasizes the importance of NFE in catering to people’s lifelong learning needs and in building a learning society that serves the country’s economic and social development.

In fact, NFE includes literacy and post-literacy programs, equivalency programs for drop-outs and educationally disadvantaged people and life skills programs for adults who want to gain new skills or improve their current skills (MOET, 2009). Literacy and post-literacy programs aim to provide learners with basic literacy skills namely reading, writing and calculating. The target group includes illiterate youths and adults over 15 years old. Equivalency programs are designed for educationally-disadvantaged people who don’t have the chance to continue their learning or enroll in formal education. The curriculums of Equivalency programs are based on those of formal education but the programs are shorter, more flexible and simple (about 75%-80% of the duration and contents of formal education). Finally, life skills programs can be organized by local civil society organizations, international NGOs, professional organizations, companies, etc. These programs are for any Vietnamese who wish to continue their learning. The program contents vary greatly but one can find courses/programs about health protection, environment preservation, disease prevention, etc. (MOET, 2009.)

Official NFE infrastructure includes community learning centers, continuing education centers, foreign languages and informatics centers, supplementary education schools. Since 1997, Vietnam has recorded a sharp increase in the numbers of these institutions especially of community learning centers (from 10 centers in 1998 to 9.010 centers in 2008). Unofficial learning facilities include company’s learning centers, NGO’s premises, association’s buildings or any venues where training is organized. (MOET, 2009.) In fact, the education law doesn’t state any specific requirements for unofficial learning infrastructure.

The increasing numbers of learning infrastructure are the result of the educational reform in 1997 but also of the rising learning needs of Vietnamese people. Since 2007, the number of learners participating in NFE programs has increased significantly. For example, the number of learners going to community learning centers has skyrocketed from 200.000 in 2001 to over 10,2 million in 2007. The number of learners registered in distant education and foreign languages and informatics centers have also increased 4-fold and 6-fold respectively. Overall, across official and unofficial NFE institutions, the overall trend is increasing enrolment. Nevertheless, the decreasing trend is only recorded in enrolment for literacy and post-literacy programs. (MOET, 2009.) The decreasing enrolment in literacy and post-literacy is not necessarily a negative sign because it can indicate an increasing level of the national literacy. In fact, the literacy rate in Vietnam has plummeted from 90% in 1945 to 6% in 2000 (Duyen, 2019).

In the future, the Vietnamese government plans to improve both quality and quantity of NFE to become a more open, diversified and flexible education. The future development strategies for NFE will focus on several areas which are the biggest blockages to development at the moment. First, public awareness of the importance of NFE will continuously be raised. Second, the legal basis for NFE will also be strengthened. In addition, funding, capacity for NFE personnel and infrastructure will also be considered for improvement. Partnerships for NFE with non-official institutions such as NGOs, civil society organizations will be modified and promoted. Finally, the future strategies will reinforce the management of NFE. (MOET, 2009.) Based on the discussion above, we can see that the future objective for NFE is to create means to facilitate more and better educational programs. The future strategies, while strengthening the performance of official educational providers i.e. ministries, community learning centers, also open doors to non-official providers such as NGOs, private enterprises.

#### 4. The development of ESD in Vietnam

As mentioned above, there are certain developments of ESD in Vietnam, so this chapter is dedicated to reviewing one of the biggest top-down efforts to promote ESD in



Vietnam. From 2013 – 2015, UNESCO, Samsung Corporation and MOET implemented an ESD initiative in Thua Thien Hue - UNESCO's largest intervention on the country-level to promote ESD in Vietnam (UNESCO, 2014). By reviewing this initiative, I will provide a general understanding of its scale, impacts and resources employed in the program. The review can also act as a comparison (of impacts, scales, resources) for the case program. More importantly, the review serves to emphasize two facts. Firstly, the significant impacts and massive scale of the program are due to the vast resources generated for the program. Second, despite the significant efforts, impacts and achievements, there is no future plan to continue this program or to initiate any similar efforts in formal education.

#### 4.1.1 Overview

MOET, UNESCO and Samsung ESD Initiative: Working together for a more resilient and sustainable society was part of a global agreement between UNESCO and Samsung to help education systems respond better to sustainable development challenges. In fact, the Vietnamese education was the first system to benefit from this valuable initiative. (UNESCO Office in Hanoi, 2013.)

The primary aim of this two-year initiative is to enable Vietnam to create “a more resilient and sustainable learning” environment (UNESCO Office in Hanoi, 2013). Three sub-objectives were outlined under the main aim of the initiative.

- Create a supporting environment for ESD by increasing the society and people's awareness of sustainability challenges namely natural disasters, climate change, and biodiversity loss and equipping the people with guidelines constructed as community action plans so that they can respond better to those challenges.
- Develop e-learning resources (about climate change, disaster risk reduction and biodiversity conversation) for teachers and implement training courses to improve their knowledge of ESD and competences to incorporate ESD contents in their teaching and to guide their local communities to devise “disaster preparedness plans”.

- Formulate “disaster risk reduction strategies” and integrate them into the country’s management plans for heritage sites.

(UNESCO Office in Hanoi, 2013.)

Thua Thien Hue province was chosen as the pilot area. Located in the central area of Vietnam, the province is regularly affected by natural disasters such as flooding, typhoons and under direct consequences of climate change. As a result, enhancing the local pupils’ knowledge, skills and behaviors about these topics is extremely important. (ESD Whole School Approach, 2018.) In addition, the province had also planned to evolve into “a municipality of urban ecology, heritage, culture and a friendly environment” (UNESCO Office in Hanoi, 2013).

The initiative adopts the holistic and systematic approach by emphasizing the implementation and impacts on three levels: (1) the school, (2) the local community of the school and (3) the whole society surrounding that community. In addition, as the program covered a wide range of topics, I have summarized the key content components and corresponding achievements in a table which can be found in Appendix 1.

#### 4.1.2 Implementation partners and bureaucratic procedures

##### *Implementation partners*

The two-year initiative involved a series of bureaucratic procedures and collaboration among numerous stakeholders from national, provincial and local levels. In addition, ESD resources were developed while multiple methods and activities were deployed. Besides UNESCO and Samsung, a number of governing authorities and knowledge institutions (public and private) contributed to the implementation of the project. The number of partners also shows the wide scope of this initiative. An exhaustive list of the stakeholders and their roles in the initiative can be found in Appendix 2.

##### *Bureaucratic procedures*

Since the initiative is a top-down effort to promote ESD, bureaucratic procedures are strenuously intricate. Multiple procedures took place simultaneously because the initiative involved a handful of governing bodies of different bureaucratic levels and the collaboration among the authorities is quite limited. It's important to remember that the education and training authorities only deal with the "technical management" while other administrative factors such as finance, personnel are under the administration of other authorities such as Department of Finance or Home Affairs. (MOET & Vietnam Institute of Educational Sciences, 2018.)

#### 4.1.3 Resources

As we can see from previous sections, MOET, UNESCO and Samsung ESD Initiative is a massive program that involved a lot of stakeholders and took two full years for implementation. We have looked at the content development of the program but what about other resources required for this project? This section will dive deeper into resources employed to implement the largest ESD initiative in Vietnam to date.

##### *Finance*

The funding for the initiative came from both Samsung and UNESCO (UNESCO Office Hanoi, 2015). Samsung funded \$1m. for the initiative (UNESCO, 2013; Duc, 2014). It's not clear how much UNESCO funded but the project report confirms that half of the components were funded by UNESCO (UNESCO Office Hanoi, 2015).

##### *Human Resources*

The initiative involved 2 ministries, 5 departments, 5 schools, one pilot province, dozens of institutes and authorities, hundreds of experts and thousands of students and teachers (UNESCO Office Hanoi, 2015).

##### *Information and Communication Technology*

As part of the initiative, an e-learning platform was established to provide local teachers with training in climate change (adaptation and mitigation), disaster risk reduction and biodiversity conservation (UNESCO, 2014). The e-learning software used in the

platform is INOVAE Publisher by French company INOVAE SA. The software is reported to be easy to use and support the production of e-learning lessons with vibrant interactions. (UNESCO Office Hanoi, 2015.)

In order to build the platform, many technical partners had contributed to the technical development. One example is Ha Noi Open University – one of the technical support partners mentioned in the stakeholder map above. Their expertise on e-learning and Information and Communication Technology contributed greatly to the development of learning contents and the training of teachers (UNESCO Office Hanoi, 2015).

## 5. Research methodology and methods

This chapter will provide information about the scientific research process of this study. The figure below demonstrates the type of research, research context, methodology and methods of this study.

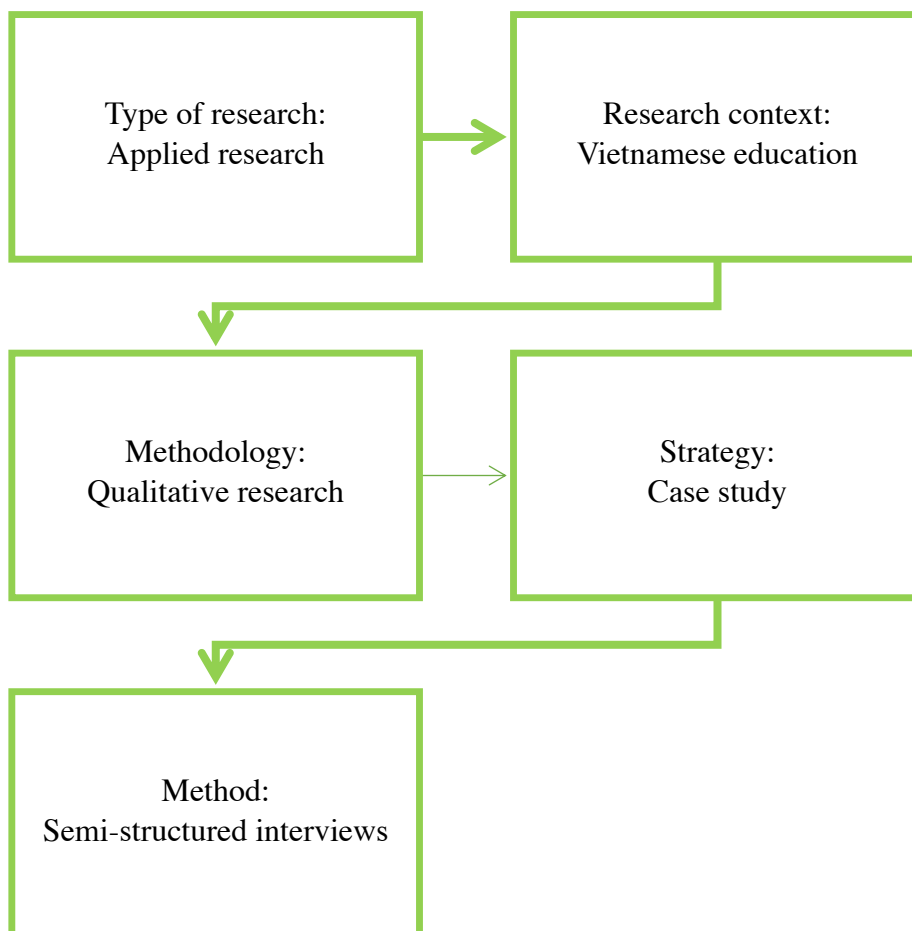


Figure 1. Research process (partially adapted from Saunders, et al. (2012))

The starting point of this thesis is my personal interest in promoting ESD in Vietnam. Having acquired general education in the country and studied the development of ESD in Vietnam, I realized the dearth of ESD contents in school curricula. As a result, I want to uncover effective channels and tactics to promote ESD in Vietnam. Kothari (1990) describes the principal aim of applied research as finding a solution for a problem found in a society or an organization (Kothari, 1990). Based on the research motivation above, this study is, therefore, applied.

Naturally, the context of this study is the Vietnamese education. Since the aim of this study is to discover opportunities to promote ESD via non-formal education, the research context is confined to non-formal education. Education in Vietnam run and

managed by MOET (MOET, 2020) encompasses both formal and non-formal education (MOET, 2009). Non-formal education is becoming more important in catering to people's learning needs due to the country's social and economic development.

When it comes to methodology, there are three common choices: qualitative, quantitative and mixed. The starting point of this thesis is my personal interest in promoting ESD in Vietnam. After forming an assumption that non-formal education is a promising channel to promote ESD in Vietnam, I established the main research objective, which is to discover opportunities to promote ESD in Vietnam via non-formal education. Four "how" research questions are sequentially formulated to assist the research process. Therefore, I find qualitative research methodology most relevant. In fact, qualitative approach focuses on understanding the underlying causes and motives while offering opportunities to assess the subjective attitudes, opinions and behaviors about a certain phenomenon (Kothari, 1990). Moreover, while quantitative research draws on numerical and standardized data (Sauders, et al., 2012), qualitative research deals with words and meanings and derives findings from case studies (Silverman, 2011).

The next stage in the research process is strategy. There are several common research strategies: experiment, survey, archival analysis, history and case study (Bryman, 2008; Sauders, et al., 2012). In fact, a case study is defined as an investigation of a phenomenon within specific real-life context (Yin, 2009, p. 18). As a matter of fact, this thesis is conducted to discover opportunities to promote ESD in Vietnam via non-formal education, so I decided to adopt the case study strategy and selected one of the most prominent ESD initiatives in non-formal education in Vietnam.

Finally, a researcher needs to select (a) research method(s). Semi-structured interviews are best suited for this study because they allow the researcher to elicit the data from the interviewees instead of dictating their responses (Barbour, 2008). Professional interviews differ from casual conversations in a way that the former follow a scientific approach and technique (Kvale & Brinkmann, 2009). As a result, it's important that an interview guide be developed before the interview process starts. An interview guide for semi-structured interviews should include certain themes that the researcher wishes to

explore with the subject and suggested questions (Kvale & Brinkmann, 2009). Therefore, my interview guide will outline the target subjects, forms of interview, themes and suggested questions and potential ethical issues and considerations.

### *Subjects*

The subjects are the individuals involved in the case program. In order to answer the research questions, I interviewed both program organizers and participants. The program organizers will provide data about program contents (RQ1), implementation resources (RQ2) and effectiveness of the program (RQ3). On the other hand, the participants will provide more insights about the program experiences and hence, contribute data to answer RQ1, RQ3 and RQ4 (suggestions to improve the program).

### *Forms of interview*

Since I'm based in Finland while the majority of subjects live in Vietnam, all of the interviews were conducted via voice calls with the assistance of a voice recorder.

### *Themes*

According to Kvale and Brinkmann (2009), an interview guide for semi-structured interviews should specify the themes which need covering in the interviews. For different subjects, the interview themes will be slightly different. For the program organizers, the focus is their experiences with planning and deploying the programs e.g. what works and what doesn't, required resources, bureaucratic procedures, motivation. For the program participants, I interviewed several past participants to get a complete overview of the program experience. Beneficial aspects for this study are the subject's experiences with the program: learnings and gains, suggestions for improvements.

### *Suggested questions*

It's recommended for semi-structured interviewers to prepare a number of questions before the interview. Nevertheless, how strictly the interviewer will follow the questions depends on the objective of the study. One point to keep in mind is that questions used in an interview should contribute both to producing knowledge and to creating an

enjoyable interview experience for the subject. Additionally, in semi-structured interviews, “what” and “why” questions should be answered before “how” questions can be asked. (Kvale & Brinkmann, 2009.)

Based on the interview themes above, I’ve drafted the following questions. The table below sums up the pre-designed questions.

Table 2. Interview questions

For program organizers	For students
- How did you create the contents of the program?	- What was your motivation to join the program?
- What resources i.e. staff, knowledge, finance, technology did you need for such initiative/program? Could you elaborate on each element?	- What was your expectation before the program?
- What bureaucratic procedures did you have to go through to organize the initiative/program?	- What did you gain from the program?
- What were the implementation challenges in the initiative/program?	- Are there any learnings from the program that you can apply in your daily life?
- What worked well in terms of initiative/program implementation?	- How do you plan to apply the learnings from the programs?
- What is the future plan for the program?	- Would you recommend the program to another person?
	- What suggestions do you have to improve your experience?

*Potential ethical issues and considerations*



During the preparation for semi-structured interviews, there are several ethical issues to which one must attend. Ethical issues can arise in each and every of seven research stages namely thematising, designing, interview situation, transcription, analysis, verification and reporting (Kvale & Brinkmann, 2009). Considering the research scope, objective and process of this study, I identified few potential ethical issues with consent, confidentiality, personal consequences and the researcher's role. Overall, there are seven ethical questions regarding this study.

1. What are the valuable results of this study?
2. In what ways can the study contribute to bettering the subject's situation?
3. What is the best way to obtain the subject's consent?
4. How much information about the study can and should be given to the subject before the interview?
5. Who is allowed to access the interviews?
6. What are the consequences for the subject due to taking part in the study?
7. What are the consequences for the subject when the study is published?

(Adapted from Kvale and Brinkmann (2009))

The corresponding actions and insights will be presented later in Data collection and analysis chapter.

#### 6. Case study: CHANGE's Vietnam Climate Leadership Initiative

CHANGE is an official partner of WildAid – a renown global organization to protect wildlife and 350.org – an international movement to fight climate change in Vietnam (Bao Tai Nguyen & Moi Truong, 2018). Founded in 2013, CHANGE aims to (1) combat environmental degradation and climate change, (2) reduce illegal consumption of wild animals and (3) encourage sustainable development (CHANGE VN, 2017). In fact, CHANGE was awarded the title of “Vietnam's Excellent Environmental Organization” in 2017 (Bao Tai Nguyen & Moi Truong, 2018). Over the course of seven years, CHANGE has organized 150 campaigns, reached over 25.8 million people and received total amount of \$12.9m funding (CHANGE VN, 2017).

To fully grasp the identity of CHANGE, we need to mention its founder - Hong Hoang. Hoang is a prominent figure with strong influences and good reputation in environmental activism in Vietnam (Duggleby & Davidson, 2014; Nhan, 2018). She's recognized as Climate Hero (Duggleby & Davidson, 2014) and one of the 12 scholars participating in the Obama Foundation Scholars Program at Columbia University (Obama Foundation, 2019). Hoang is the driving force behind all of CHANGE's initiatives and the leading environmental activist in Vietnam (Nhan, 2018). The role of Hoang is proven to contribute to the overall impacts of the case program. More details will be discussed in the next chapter.

One of CHANGE's the most significant program is the annual Vietnam Climate Leadership Initiative targeting at Vietnamese youths (age 14 – 24) who are concerned about the environment and want to act. The program aims to inspire the young leaders to initiate their own projects or join similar projects to fight climate change in their local areas. (CHANGEvn, 2019.) In fact, the program specifically aims at young residents of the Mekong Delta which is under heavy consequences of climate change: rising temperature, extreme drought, soil salinization, floods and mudslides (M.Q, 2019). Therefore, the program is organized in different provinces (Long Xuyen, Phan Thiet, Can Tho) around the area (CHANGEvn, 2017; Bao Tai Nguyen va Moi Truong, 2018; CHANGEvn, 2019). Officially starting in 2017 with 28 youngsters (CHANGEvn, 2017), the program has gradually increased to 30 in 2018 (Bao Tai Nguyen va Moi Truong, 2018) and then to 50 in 2019 (Nhi, 2019). Joining the program, participants are provided with free accommodation, transportation, and meals during the training and their own projects after the program will be considered for funding provided by the case organization and its partners (CHANGEvn, 2019).

Despite the continuity of the program and its increasing reach, the organization hasn't conducted any analysis to evaluate the program. Therefore, I decided to carry out a thorough investigation in order to understand its contents and assess its impacts as well as the experiences of the participants. By the end of this study, the analysis will have helped confirm my assumption at the beginning (that there are opportunities to promote ESD in Vietnam via non-formal education) and explore similar opportunities.

## 7. Data collection and empirical findings

This chapter will present the process of collecting and analyzing data followed by a list of empirical findings.

### 7.1 Data collection and analysis

To collect enough data, I conducted eight semi-structured interviews with program organizers and participants. Out of the eight interviewees, two work for the case organization and they are in charge of overseeing and implementing the program. In terms of students participating in the program, three interviewees are simply first-time participants while the other three not only participated in the program but also came back the following year to help organize the program. Consequently, five interviews provide data from the program organizer's perspective while six interviews shed light on the participant's experiences of the program.

I followed two strategies for sample selection. Regarding the program organizers, the sole criterion for choosing the internal staff is their direct and deep involvement in the program. While one interviewee is the main program coordinator, the other one is the key person who designs the program contents and supervises the whole program. As the result, the interviewees have official information and provide an insider's perspective. The data from their interviews will contribute to answering RQ1 (program contents), RQ2 (implementation resources) and RQ3 (effectiveness of the program).

The selection of the program participants to be interviewed is both random and selective. Data from these interviews will be used to answer RQ1 (program contents), RQ3 (effectiveness of the program) and RQ4 (suggestions to improve the program) so I randomly selected participants from different years (2017 - 2019) to guarantee to the diversity and extensiveness of the inputs. In fact, out of six participant interviewees, one participated in program 2017, two in 2018 and three in 2019. All six participants are between the age of 21 - 25 and are/were students during their first participation in the program. During the interview process, it came to my knowledge that several participants came back the following year and joined as supporters for the organizing team. Therefore, I purposely approached the ones who qualified the criterion and

interviewed them. In fact, their interviews (3) provide information about both the experiences and the implementation process of the program.

The figure below sums up the profile of the interviewees.

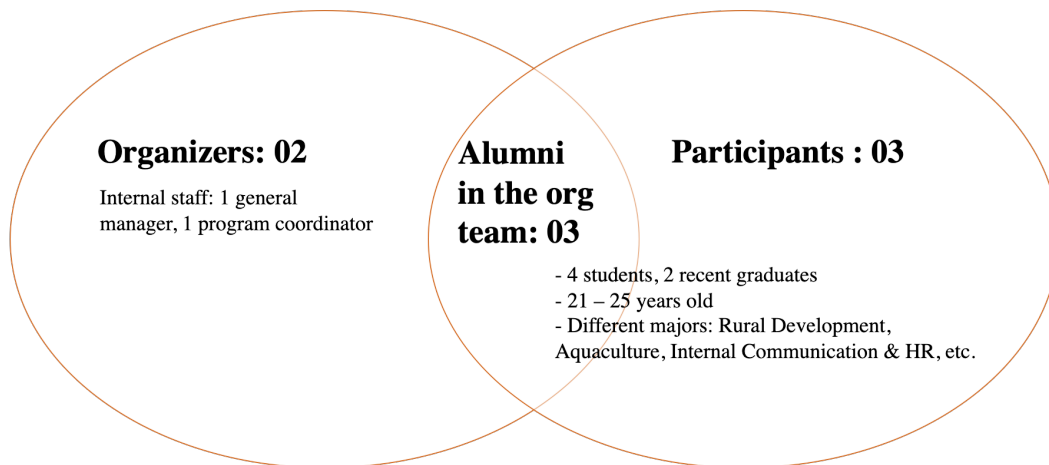


Figure 2. Interviewee profile

According to Guest, et al. (2006), the saturation point is reached when there is no new information found in the data. For this study, data saturation occurs between interview number 7 (with participant year 2017, part of organizing team year 2019) and interview number 8 (with one participant year 2019). In both interviews, the interviewees either repeated the information already found in the existing data or provided no new information that's relevant and useful to the study.

It's important to emphasize that during the data collection process, the potential ethical issues listed in chapter 5. Research methodology and methods were considered and/or communicated to the subjects. For example, verbal consent was obtained at the beginning of every interview. At the requests of certain interviewees, all personal information is not specified in this study. The table below sums up all considerations for the ethical issues.

Table 3. Potential ethical issues and corresponding actions

<b>Considerations (adapted from Kvale and Brinkmann (2009))</b>	<b>Insights and actions taken</b>
What are the valuable results of this study?	A comprehensive analysis of the case study (which has never been done before)
In what ways can the study contribute to bettering the subject's situation?	As the study produces a comprehensive analysis of the case program, it provides a fresh outsider's perspective that can contribute to improving the program. That the program is improved will benefit both the program coordinators and possibly the participants in the long run.
What is the best way to obtain the subject's consent?	Consent was verbally confirmed at the beginning of each interview.
How much information about the study can and should be given to the subject before the interview?	All background information about the study and the author was communicated beforehand. Also, some interviewees asked for the interview questions prior to the interview.
Who is allowed to access the interviews?	The author of the thesis
What are the consequences for the subject due to taking part in the study?	No imminent consequences because individuals' names and information are not specified in the thesis.
What are the consequences for the subject when the study is published?	No imminent consequences because individuals' names and information are not specified in the thesis. Non-public

	information specified by the interviewees is taken out of the official records.
--	---

Following the data collection is the data analysis process including three steps: meaning coding, condensation and interpretation. According to Kvale and Brinkmann (2009), coding can be driven by concepts pre-developed by the researcher or by data from the interview. In fact, I developed several key themes before the interview process but a handful of sub-themes have emerged from the data. The table below presents all themes used for data analysis.

Table 4. Key themes for data analysis

<b>Pre-designed key themes</b>	<b>Sub-themes collected from the data</b>
<b>Program contents</b>	Agenda Forms of activities Open sources Inspiration for content creation Content co-creation with partners
<b>Program resources</b>	Human resources Funding Equipment
<b>Bureaucracy</b>	Licenses
<b>Implementation challenges</b>	Bureaucratic challenges Pressure from local authorities
<b>Program achievements</b>	Publicity Engagement and inspiration
<b>Program experiences for participants</b>	Pre-program motivation Pre-program expectation After the program
<b>Gains for participants</b>	Knowledge Skills

	Values Attitudes
<b>Suggestions for improvement</b>	

After identifying the key themes, I highlighted over 100 keywords from the interviews. Then I proceeded to the meaning condensation step, which focuses on formulating shorter expressions of meanings expressed in the interviews (Kvale & Brinkmann, 2009). The 100 keywords were then combined to form condensed expressions of meanings. A list of 59 condensed meaning expressions under the corresponding themes is compiled and shown in the table below.

Table 5: Condensed meaning expressions

Key themes	Sub-themes	Condensed meaning expressions		
Program contents		Causes of CC	Working with different stakeholders	
		Effects of CC	Fundraising	
		Current status of CC	Teamwork	
		Leadership	Team building	
		Design thinking	Project management	
	Agenda			
	Forms of activities	Interactive	Group work	Games
	Open resources	350 open source		
	Inspiration for content creation	Founder's experiences		
	Content co-creation with partner	UNICEF (partner)		
Program resources	Human resources	Logistics coordinators	Program lead	
	Funding	Foreign funding		
	Equipment	Projector	Paper	
Bureaucracy	Licenses	Program license	Underage license	
Implementation challenges	Bureaucratic procedures	The biggest challenge	Difficult	An obstacle
	Pressure from local authorities	Threatening the feasibility of the program	Significant	Out of the organization's control
Program achievements	Publicity	Good public image	Good branding	Public interest
	Engagement and inspiration	Inpired people	Good engagement during the program	
Program experiences of participants	Pre-program motivation	To meet new people	To get new experiences	To get new knowledge
	Pre-program expectations	Knowledge about CC	New contacts	Exceeded
	After the program	Changes in personal lifestyle	Abolish one-use plastics in daily life	Apply skills in work and own projects
		willing to recommend the program	feel more empowered and inspired	
Gains for participants	Knowledge	Knowledge about CC	Design thinking	
	Skills	Leadership	Fundraising	Communication
		Teamwork	Interviewing	Project management
	Values	Equal treatment	The sense of belonging to a community	
	Attitudes	The responsibility to act	The importance of the community	
Suggestions for improvement		Extend the length of the program	Increase the intake	

The final step in the data analysis process is meaning interpretation which refers to the practice of going beyond what is said and obvious in the interviews; therefore, meaning interpretation often generates longer formulations of text than the original statements

(Kvale & Brinkmann, 2009). The results of this step are also the empirical findings of this study, which are presented in the following chapter.

## 7.2 Empirical findings

Like mentioned above, from the data emerged eight key themes, 21 sub-themes, over 100 keywords and 59 condensed meaning expressions. As a result, the findings will be presented in the order of the themes. The first key theme is program contents.

Table 6. Key theme #1: Program contents

<i>Sub-themes: condensed meaning expressions</i>	<p>Agenda: Causes of CC, effects of CC, current status of CC, leadership, design thinking, working with different stakeholders, fundraising, teamwork, team building, project management</p> <p>Forms of activities: interactive, group work, games</p> <p>Open resources: 350 open sources</p> <p>Inspiration for content creation: Founder's experiences</p> <p>Content co-creation with partner: UNICEF</p>
--	--

The contents of the program provide participants with general knowledge about climate change. Various local and international experts on climate change and climate change solutions are invited to come and explain the topic and/or introduce about global movements. The participants get answers for the following questions:

- What is climate change?
- What is the global situation?
- How is the situation in Vietnam and similar lowland areas?
- How is climate change affecting the life of Vietnamese people?
- What causes climate change in Vietnam?



The main topic circles around climate change but also takes into consideration the local context. For example, fossil fuel was once chosen as a sub-topic. The high consumption of coal is believed to contribute a great deal to climate change in Vietnam. To understand the effects, the participants were invited to a coal power plant. During the trip, the participants talked to the locals living in the surrounding area to examine the effects of power plant on their daily lives. Another sub-topic covered in one initiative is renewable energy introduced as an alternative to fossil fuel. Local experts were invited to explain the concept and present several applied energy models. The participants also got an opportunity to visit a solar power plant and learn about the technology used to create solar energy.

Besides knowledge about climate change, the participants get training in project management, leadership, design thinking, teamwork, team building, fundraising, working with different stakeholders. An example challenge is that the participants had to approach donors and persuade them to sponsor the lunch money. If they failed the challenge, they had to pay for lunch themselves. In fact, the skills trained by the organizers belong to the project management area because the final aim of the initiative is to inspire participants to run their own programs. Nevertheless, new skills are added to the agenda for example i.e. design thinking depending on the global trends. Still, the participants explored design thinking in the context of project management. The participants first created different personas with different needs and devised a corresponding plan to satisfy those needs. Afterwards, they went on a field trip to interview the locals and learn about their concern and needs. During the trip, the pre-made personas were tested and the actual needs from the locals were identified. The original project plans were then adjusted to better suit the needs of the local area.

Although the program includes both knowledge and skill contents, the focus is more on skill training. The knowledge parts are generally covered quickly in one session (less than 20% of the agenda time). In fact, most of the knowledge presented is very general without deep analysis or further investigation into the topic.

The forms of the activities are mostly interactive. As the organization wants to promote interactive learning, the organizers avoid passive lecture-style activities and encourage

peer learning. Instead of traditional lecture-style presentation, the program organizers rely on group work, games, plays and field trips to deliver the program contents. For example, leadership training was delivered in a game. In order for the participants to understand different leadership styles and profiles, the organizers first presented the four most common leadership styles so that the participants could identify their own leadership styles. The whole group was then divided into smaller teams of leadership profiles and they had to take part in a debate about which leadership would be best to lead the whole program. After the debate, the participants not only learned about the different characteristics a leader could have but they also understood the importance of the differences in teamwork.

The contents of the program are developed based on the global themes and movements and referenced from [350 open resource center](#). In addition, a post-program questionnaire is distributed to participants to find out which contents are most useful to them. The organizers then use the results as a reference to develop relevant contents for the program next year. Depending on the year, the process of creating contents can also involve a partner; therefore, the contents can include additional contents proposed by the partner, i.e. children's rights. One inspiration source for the content creation is the organization founder's real-life experiences, which is believed to empower and inspire the participants.

Despite the diverse sources and references, the content creation process involves one or two internal staff members who aren't ESD or CCE experts. No sign of external ESD or CCE experts is found in the data. The knowledge about climate change is normally delivered by the founder, who's not a recognized expert in climate change or sustainable development. Therefore, concern over knowledge legitimacy may arise.

The following table sums up the second key theme - program resources.

Table 7. Key theme #2: Program resources

<i>Sub-themes: condensed meaning expressions</i>	Human resources: logistics coordinators, program lead
--	---

---

	Funding: foreign funding
	Equipment: projector, paper

---

Speaking of the resources for the program, three main resources were identified in the interviews. Regarding human resources, the staff are divided into several functions, but some functions are more significant than the others. Logistics coordination is one. As the program is organized in one selected city while participants come from all over the country, transportation and accommodation arrangements for participants must be coordinated. Moreover, coordination of workshop venues and catering is also done by local supporters since the case organization is based out of the host city. Besides the logistics team, the program lead is another significant role. As the case organization runs multiple projects simultaneously, the allocation of internal staff to this program is limited. In fact, the core team includes two internal staff members with the support of volunteers who are program alumni. To sum up, the organizing team includes roughly 10 people, but a handful of supporters get involved in the program every year. Even though PR staff were not emphasized, they are actually very important because they help spread the words about the program and hence, contributes greatly to the good publicity the program has achieved.

Funding is another significant resource for the program. Funding for one program normally comes from diverse sources such as foundations, embassies and enterprises. Nevertheless, foreign funding accounts for a noticeable portion. The funding of the program affects how the program is implemented. The less funding the team gets, the more additional sponsorship (venue, accommodation) the team must bring in. Depending on the location of the program, funding for one program ranges from \$7.000 to \$35.000.

The case program doesn't apply advanced technology or complex equipment. Since it might not always be available, the organizers ensure that it is not part of fundamental equipment. Instead, the use of projector, paper, and flipchart is emphasized.

The following table sums up the third theme - bureaucracy.

Table 8. Key theme #3: Bureaucracy

<i>Sub-themes: condensed meaning expressions</i>	Licenses: program license, underage license
--	---

Since the case program is a non-formal educational project initiated by an NGO, program licenses are critical to the program. The organization must obtain all licenses before the program starts. There are two main types of licenses: program license and underage license. The program license for the whole program requires a comprehensive application including program agenda, partners, location and funding. The license application must be done annually and scheduled well-ahead of the program because there is no official estimate of processing time. Another type of license that the program organizers must obtain is underage license. When a participant is below 18 years old, a separate license and parents' consent are obligatory to guarantee the participation of the individual.

The following table sums up the fourth theme - implementation challenges.

Table 9. Key theme #4: Implementation challenges

<i>Sub-themes: condensed meaning expressions</i>	Bureaucratic procedures: the biggest challenge, difficult, an obstacle
	Pressure from local authorities: threatening the feasibility of the program, significant, out of the organization's control

The biggest implementation is definitely the bureaucratic procedures to obtain licenses for the program. The process is very challenging and unclear without any official guidelines. If the contents of the program are classified as politically-sensitive or -

controversial, the process becomes diligently difficult or even futile. For instance, coal power used to be categorized as a politically-sensitive topic so the program adopting coal power as the main theme was cancelled. Or when a large-scale marine life destruction caused by a Taiwanese steel plant created waves of protests in the central part of Vietnam a few years ago, any contents related to the scandal became politically sensitive. The most recent sensitive topic is climate change especially in the south-western provinces, some of which are witnessing the most detrimental consequences of climate change. Another factor affecting the process is the origin of funding. Foreign funding which accounts for a noticeable portion of the program becomes a challenge in obtaining the program license due to suspicion of money laundering.

Nevertheless, there are measures to help facilitate the bureaucratic process. The most effective measure is partnering up with a local stakeholder such as a university or an institution. The partner can take care of the license application or offer protection to the case organization to obtain the license. Another tactic is avoiding emphasizing the contents and topics in the application. Instead, highlight the purpose of the program, the benefits for participants and the morale of the organization. For long-term operation, the best measure is nurturing and developing a certain degree of political sensitivity by following closely the local developments and maintaining a good relationship with the local authorities.

Alongside the challenging bureaucratic process to obtain the program license, substantial pressure from the local authorities appear to be the next obstacle. Obtaining the license for the program is not enough to run the program smoothly. Representatives from the local authorities and police forces can have an active presence in the program and reserve the rights to shut down the program at any time if they view it as an imminent threat. In other words, the pressure can threaten the feasibility of the program. In fact, the local authority has once interrupted the program, ceased all activities and requested all of the organizing team and participants to leave the city. Since the pressure is out of the organization's control, having a local partner can create a positive impression on the relationship with the local authorities.

One noteworthy insight about the implementation challenges is besides the two most significant challenges above, different levels of the organization recognize different blockages. As managerial staff are more concerned with the overall program, they find it challenging to source ideas for program contents and to maintain participants' enthusiasm after the program. On the other hand, executive staff are more involved in the implementation, so they find the lack of human resources more problematic since the scale of the program increases every year while the staff allocation remains the same.

The following table sums up the fifth key theme - program achievements.

Table 10. Key theme #5: Program achievements

<i>Sub-themes: condensed meaning expressions</i>	<p>Publicity: good public image, good branding, public interest</p> <p>Engagement and inspiration: inspired people, good engagement during the program</p>
--	--

The program, despite its young history, has attained two achievements. The program has created, for itself, a good public image and generated a lot of interest from the publics. The PR team is reported to be very effective in spreading the words about the program so most of the established news outlets in Vietnam report on the program. The program is popular among young environmental enthusiasts. In fact, during the recruitment process, hundreds of applicants sign up with the hope to join the program. In addition, the case organization has an established status in the environment field in Vietnam, so it also helps fortify the image of the program.

Good engagement is definitely an impressive achievement for such a young program. Participants are generally reported to actively participate in all activities and to be well engaged during the program. After the program, the participants either recommend it to their friends or come back to support the program i.e. being part of the organizing team,

interning for the case organization. Nevertheless, the highest accolade is for the achievement of having 100% of the interviewed participants inspired and empowered. The evidence is ubiquitous in their follow-up actions after the program: changing their lifestyle, passing their learnings to people around them, starting their own environmental initiatives, transitioning to the environmental field, continuing to take part in other environmental programs, etc. In addition, they all remain members of a community initiated by the case organization and, one way or another, support the organization.

It can be concluded from the data that the program owes its success to two factors. First, its founder's real-life experiences provide participants with a practical view into climate change as well as a great sense of relatability and credibility. In fact, the founder has been involved in a number of global and local environmental movements. As a result, she's able to present a local perspective that's very native and relatable to Vietnamese people. In addition, after years of working in the field, she has accomplished a prominent status and attained "an aura of a trusted leader". All and all, it's undeniable that 100% of the interviewed participants are somewhat impressed and inspired by her personality, experiences and achievements. Second, the interactive forms of the activities enable participants to engage easier in the program. Instead of sitting and listening passively to presentations, participants get to take part in hands-on group work and games that make them utilize the knowledge and skills presented in the program. They are also "forced" to interact and collaborate with one another in order to succeed in the given challenges; hence, engagement is easier fostered.

The following table sums up the sixth key theme - program experiences of participants.

Table 11. Key theme #6: Program experiences of participants

<i>Sub-themes: condensed meaning expressions</i>	<p>Pre-program motivation: to meet new people, to get new experiences, to get new knowledge</p> <p>Pre-program expectations: knowledge about climate change, new contacts, exceeded</p>
--	---

	<p>After the program: changes in personal lifestyle, abolish one-use plastics in daily life, apply skills in work and own projects, feel more empowered and inspired, willing to recommend the program</p>
--	--

In this theme, several sub-themes have emerged from the interviews. The main motivation for most participants to join the program is to have a new experience outside of their comfort zones and daily living environment. In addition, the participants also look forward to meeting new people and gaining new knowledge. The motivation pretty much dictate the pre-program expectations. It's quite common among the participants to expect new knowledge about climate change and contacts from the program. Most importantly, all pre-program expectations are either satisfied or very much exceeded.

The changes participants witness after the program are also part of their program experiences. Like mentioned above, 100% of the interviewed participants feel inspired and empowered after the program. Consequently, the participants exhibit the following changes: changes in personal lifestyle i.e. abolishing single-use plastics in daily life, knowledge and skill application in work and own projects i.e. applying project management skills in their own projects and willingness to recommend the program i.e. 100% of the interviewed participants have recommended/plan to recommend the program to others.

The program experiences of participants contribute valuable insights to evaluate the effectiveness of the program. Based on the findings from the interview, we can conclude whether the program has achieved its objectives and satisfied the measurements for effectiveness found in ESD literature.

The following table sums up the seventh key theme - gains for participants.

Table 12. Key theme #7: Gains for participants



<i>Sub-themes: condensed meaning expressions</i>	<p>Knowledge: knowledge about climate change, design thinking</p> <p>Skills: leadership, teamwork, fundraising, communication, project management, interviewing</p> <p>Values: equal treatment, the sense of belonging to a community</p> <p>Attitudes: the responsibility to act, the importance of the community</p>
--	--

In terms of gains for participants, findings are concentrated in four domains: knowledge, skills, values and attitudes. In terms of knowledge, the most common topics stuck with the participants after the program are knowledge about climate change and design thinking. Speaking of skills, leadership, teamwork, fundraising, communication, project management and interviewing are the most mentioned. If we revisit the key theme #1, we can spot a discrepancy between the designed contents and the contents the participants reported to gain. Moreover, the weights on knowledge and skills are uneven. Based on the data, the participants allocate much more weight to skills than to knowledge. In addition, the significance on ESD- or CCE-related skills is much less than that of project management skills.

In addition, the participants also reported to have gained new values (equal treatment, the sense of belonging to a community) and attitudes (the responsibility to act, the importance of community). The gains in values and attitudes are not derived from any specific activities in the program, but more from the collective experiences of the program. As we can see from the key theme #1, they weren't planned in the program contents.

Finally, the last key theme - suggestions for improvement is presented in this table.

Table 13. Key theme #8: Suggestions for improvement

<i>Sub-themes: condensed meaning expressions</i>	Extend the length of the program, increase the intake
--	---

Not much inputs were generated for this key theme because 100% of the interviewed participants reported positive experiences of the program. However, the key suggestions emerging from the interviews are for the length and the intake. The program is now designed with activities from early morning to late evening. Moreover, it normally runs uninterrupted for several days, so the workload is reported to take its toll on many participants. Even though the overall experience is generally positive, the length of the program can be increased in order to improve the experiences for the participants. Another suggestion is to increase the intake for the program so that more people can join and benefit from it.

## 8. Conclusion

Based on the literature review and research findings, I will provide answers to the research questions in this chapter. In addition, I will also discuss the research validity, reliability and limitations. Finally, suggestions for further research and a few concluding remarks will wrap up this thesis.

### 8.1 Answers for research questions

To achieve the research objective, which is discovering opportunities to promote ESD in Vietnam via non-formal education, I have selected a case study and developed four research questions (RQs) to assess the case study.

- RQ1: How are the contents of the case program compared from the contents benchmarked in ESD literature?
- RQ2: How resource-dependent is the case program?
- RQ3: How effective is the case program?
- RQ4: How could the effectiveness of the case program be improved?

8.1.1 RQ1: How do the contents of the case program differ from the contents benchmarked in ESD literature?

The table below demonstrates ESD contents review in the literature and found in the case program. The highlighted rows illustrate the resemblance between the literature and the case company.

Table 14: Content comparison between textbook ESD and the case program

<b>Attribute</b>	<b>Literature review</b>	<b>Case program</b>
Approach	Multidisciplinary	
Approach	Holistic and systematic	
Approach	Student-centered	Useful contents evaluated by participants in post-program questionnaire are added to next year program.
Knowledge	Natural sciences	Causes, effects and current status of climate change
Knowledge	Social sciences	
Knowledge	Local context	Current situation of climate change in Vietnam How the lives of Vietnamese people are affected by climate change
Skill	Problem-solving	Challenges of various topics are given to participants.
Skill	Critical thinking	
Skills	Participatory decision making	Participants worked in teams. Participants interacted and collaborated with one another to solve the challenges.
Skill	Inter-/multidisciplinary thinking	
Skill	System thinking	

Perspectives	Orienting pupils to adopt perspectives that supports sustainable development	Participants acknowledged the importance of equal treatment and the sense of belonging to a community. Moreover, they have attained the responsibility to act.
Values	Orienting pupils to define and refine their values	Participants displayed behavioral changes in personal lifestyle after the program.
Extra		<ul style="list-style-type: none"> <li>- Design thinking</li> <li>- Leadership</li> <li>- Fundraising</li> <li>- Project management</li> <li>- Working with different stakeholders</li> </ul>

As can be seen from the table above, the contents of the program reflect certain attributes of ESD reviewed in the literature. Moreover, the program provides knowledge about climate change and has resulted in behavioural changes and the sense of responsibility in the participants, so it partially reflects CCE. Nevertheless, the program greatly differs from textbook ESD and CCE in three significant aspects. First of all, multidisciplinary – a signature feature of ESD has no presence in the program agenda. The holistic and systematic approach is somewhat reflected in the emphasis of the community but there is no clear application of the approach. Second of all, as the program undoubtedly leans towards skill training, the knowledge transfer is quite inadequate. Finally, besides mitigating climate change, CCE also emphasizes on adapting to its effects. The latter is obviously missing from the program. As a result, we can conclude that the program incorporates certain textbook ESD contents while lacking some significant attributes.

#### 8.1.2 RQ2: How resource-dependent is the case program?

The case program is very resource-dependent but its dependence on different resources varies greatly. Some critical resources to the program are assistance in bureaucratic

procedures, funding, human resources, inspiration for content creation. As can be seen from the findings, the most critical resource is the assistance to obtain program licenses. Since the case program is a non-formal educational initiative organized by an NGO, obtaining the licenses is the deciding factor to the program. Failing to fulfil this factor can very much threaten the feasibility of the program. As a result, its dependence on the licences is utmost. In fact, involving a local stakeholder will help facilitate the license application.

Funding is paramount to the program because it helps covers program expenses such as venue hire, accommodation and transportation support for participants and workshop expenses. Without sufficient funding, the organizing team would experience a lot of implementation hiccups with unexpected extra work. However, thanks to the established status of the case organization, funding is not too difficult to secure. Nevertheless, foreign-origin funding can become an obstacle in the process of obtaining the program license so a good balance between domestic and foreign funding should be considered.

Human resources (HR) are obviously important in the implementation of the program but they are quite flexible. Based on the findings, we can see that the organizing team is quite efficient considering that it involves very few people to organize programs of this size and scale. The program lead is of paramount importance to the success of the implementation. Logistics staff also play a critical role because the program implementation involves a lot of logistics coordination i.e. venue and supplier scouting, accommodation and transportation arrangements for participants, etc. In addition, PR staff help contribute greatly to the good publicity that the program has achieved so they are also an important HR factor. The three mentioned HR factors (program lead, logistics staff, PR staff) are inevitably vital for the success of the program. However, extra HR namely volunteers and supporters get involved in the program every year. The volunteers can be program alumni while the supporters are the staff of other teams inside the case organization.

Finally, the inspiration for content creation is viewed as one of the most needed resources for the program. Even though this resource mainly concerns the managerial

level of the case organization, it contributes to the creation of contents which obviously affect the effectiveness of the program as well as the program experiences of participants. Like mentioned above, the program is quite different from textbook ESD or CCE so having more inspiration, ideas or legitimate knowledge sources i.e. an expert would facilitate the process of designing contents for the program.

### 8.1.3 RQ3: How effective is the case program?

The case program is very effective in many aspects. First of all, it has succeeded in attracting the attention of the mass media. Most established media report on the program so the publics are more or less aware of the program. However, whether the public awareness of climate change increases is unclear. Second of all, the program is rather effective in communicating certain knowledge domains i.e. climate change, leadership, design thinking, fundraising, project management. The interviews with certain participants have shown that they were fully aware of the issues because they managed to explain and elaborate those concepts very well. In addition, they have committed to spreading the knowledge to people around them.

Third of all, the program is effective in attracting young environmental enthusiasts and retaining them in the community. The program normally receives hundreds of applications before the program from young people all over the country and even from ones who live abroad. After the program, all participants remain in the community and support the organization one way or another i.e. recommending the program to others, joining the organizing team the following year.

Most important of all, the program is very effective in inspiring and empowering participants. 100% of the interviewed participants reported to have been inspired by the program, to have felt supported during the program, to have had a positive experience and to have recommended or plan to recommend the program to other people.

Moreover, they have adopted certain new values and perspectives i.e. the sense of belonging a community, equal treatment and experienced behavioural changes in their lifestyles i.e. abolishing the use of one-use plastics in daily life. Behavioural changes

are undoubtedly the biggest impacts, ones that are desired in any forms of education be it ESD or CCE.

Nevertheless, the assessment of the program effectiveness, at the moment, are solely relying on the participants' self-reflection. In fact, there is no concrete proof of the behavioural changes except for their own self-reflection. Moreover, the participants' ability to apply the gained knowledge and skills is still open for evaluation.

To sum up, if we evaluate the effectiveness of the program based on its original aims which are building a network of adolescent leaders, equipping them with necessary skills and knowledge and inspiring them to start their own initiatives to fight climate change, the program has certainly achieved its target. However, whether the program has satisfied the ultimate goal of ESD - transforming society is yet to see.

#### 8.1.4 RQ4: How could the effectiveness of the case program be improved?

Two suggestions were proposed by the interviewees: extending the length of the program and increasing the intake. The literature review has shown that time resources are extremely important in education and that there is a connection between students' learning time and their performance, extending the length of the program might actually improve the quality of learning for program participants and hence, boost its effectiveness. At the moment, the program is quite competitive and aims specifically at young people who are passionate about the environment and climate change. Increasing the intake and lowering the admission barrier could enable the program to reach less-enthusiastic youngsters and hence, spread its effects on a bigger scale.

The content creation process involves one or two internal staff members who aren't ESD or CCE experts. The knowledge about climate change is normally delivered by the founder, who's not a recognized expert in CC or sustainable development. Therefore, one suggestion to alleviate concern over knowledge legitimacy and to increase the program credibility is bringing in ESD or CCE experts. Moreover, in order to actually measure the program effectiveness and identify areas from improvements, the case organization must develop and implement a follow-up evaluation after the program. For

now, the behavioral changes are solely reported by the participants themselves without any further verification.

## 8.2 Research validity and reliability

I will take advantage of this chapter to discuss the research validity and reliability. While reliability indicates the “stability” of the research results, validity refers to the “truthfulness” (Whittemore, et al., 2001). In fact, reliability and validity are very closely related. According to Lincoln and Guba (1985), “since there can be no validity without reliability, a demonstration of the former is sufficient to establish the latter. (Lincoln & Guba, 1985)”. Moreover, as the concept of validity traditionally originated from quantitative research, qualitative researchers are divided on how to apply and to assess validity in qualitative research (Johnson, 1997; Whittemore, et al., 2001). Nevertheless, one of the most repeated and commonly-found keywords related to validity is credibility (Whittemore, et al., 2001; Golafshani, 2003). Again, criteria to assess and techniques to guarantee credibility vary greatly in the literature but the researcher’s ability i.e. avoiding researcher bias, critical self-reflection has stood out as a significant factor (Johnson, 1997; Whittemore, et al., 2001; Patton, 2002). Therefore, I will now explain my thought process and tactics during the research process.

The starting point of the study is my personal interest in promoting ESD in Vietnam. After scouting different ESD projects (in public schools, private schools, community learning), I have uncovered that ESD remains a low priority in Vietnamese education and all educational contents are decided by MOET. Moreover, the top-down efforts to promote ESD in public schools or formal education have no planned continuity. Therefore, the study must head to another direction to search for an alternative channel to promote ESD. Non-formal education has then emerged as a potential option. Especially in the research context (Vietnamese education, non-formal education), an established NGO has been running and expanding a climate change initiative for several years. It shows that there is public interest and such program is feasible. As a result, I selected the program to test my assumption (that there are opportunities to promote ESD in Vietnam via non-formal education) and to explore similar opportunities.



In order to test this assumption, I conducted a thorough investigation into the program: contents, implementation and effectiveness. Understanding what constructs the program agenda i.e. contents, program design is not enough because the assumption demands further analysis of the feasibility of the program i.e. required resources to implement such program. Although the program has been continuing for several years, its performance has never been measured. Is it popular because there's no other alternative for the publics or has it actually resulted in personal and societal changes? By looking into the program itself, the implementation process and its effectiveness, I have gained a complete understanding of the program and hence, developed certain capacity to assess which opportunities exist under what circumstances.

Four research questions were formulated to ensure that all areas of this program are covered. The methodology and methods used in this study are as followed.

- Type of research: applied
- Research context: Vietnamese education, non-formal education
- Research methodology: qualitative
- Research strategy: case study
- Method: semi-structured interviews

During the research process, I have used various sources from official governmental websites, trustworthy internet newspapers to reports and articles in both Vietnamese and English. The full list of sources can be accessed in the reference list. One tactic I used to avoid researcher bias is interviewing representatives from different stakeholders (i.e. a teacher in a private school, a principal from a public kindergarten, three ESD coordinators) at the beginning of the research to challenge my own assumption. Naturally, the interviews acted more as references to my reflection than sources to generate primary data for the study.

Regarding the sample selection, I adopted both selective and random strategy to ensure that the data are relevant and diverse. During the data collection and analysis process, I pre-designed eight key themes, collected 21 sub-themes emerging from the data, compiled a list of over 100 keywords and finally produced a list of 59 condensed

meaning expressions. In fact, the data analysis was done in both Vietnamese (the interview language) and English (the report language). The meaning coding and interpretation was iterated to guarantee sound and legit findings. One technique recommended by Johnson (1997) is participant feedback which was applied during the data analysis process. Ambiguous meaning interpretations were confirmed with relevant interviewees. The empirical part was done as ethically and scientifically as possible but due to the qualitative nature of this study, I can't deny the possibility that another observer may arrive at different conclusions.

### 8.3 Research limitations

Despite the efforts to produce a sound study, I must acknowledge certain limitations of this study. First of all, at the moment, the program is considered effective in inspiring the participants to adopt new behaviours in their personal lifestyle i.e. abolishing the use of single-use plastics, spreading climate change knowledge to people around them. However, this measurement is solely based on their self-reflection and there is no other evidence of such effects on the participants. Properly measuring their changes in behaviours would have delivered a more credible evaluation. Due to the limited time and personal resources invested in this study, I couldn't afford to take such measure.

Second of all, despite its prominent status, the program is still so young. In fact, the program targeting Vietnamese climate change officially started in 2017. Moreover, as the program is heavily resource-dependent, the feasibility of the program depends on the resources of the organization. Therefore, the program is planned on a yearly basis and no long-term strategy or vision has been made for it. Furthermore, although the scale of the program is rather significant in Vietnam, it's still limited to dozens of participants every year. As a result, the extent to which the findings of this study or the results of the program can be interpreted remains a question.

### 8.4 Recommendations for further research

Recommendations for further research include, first and foremost, evaluation of behavioural changes after the program. In order to verify the post-program changes of the participants – one measurement of the program effectiveness, a scientific study must

be conducted. Potential research areas include (1) old and new habits concerning the change behaviours i.e. abolishing one-use plastics, spreading knowledge to other people and (2) causes for the new behaviours i.e. how much the program contributes to the changes.

Another recommendation for further research is whether the program can be implemented in a wider scale without compromising the results. At the moment, the program is quite limited, but it is expanding every year by taking in more participants or extending the length of the program. Thus, one could look into the impacts of the program over the year to assess whether it still achieves the same results while expanding. It would provide valuable insights for long-term implementation of the program.

#### 8.5 Concluding remarks for this thesis

The starting point of this thesis is my personal interest in promoting ESD in Vietnam. At the point of writing, ESD remains a low priority in Vietnamese formal education so I decided to research non-formal education as an alternative channel to promote ESD in Vietnam. After having carefully investigated a case study of a prominent ESD program organized by an established NGO in Vietnam, I can certainly conclude that there are indeed opportunities to promote ESD via non-formal education. The analysis of the case study has shown that it's feasible to organize a non-formal educational program which encompasses certain content attributes of textbook ESD/CCE and simultaneously brings about absolute impacts on the participants. While it's more straightforward to incorporate more ESD contents in the program agenda, measuring the actual impacts might be more complicated. Naturally, resources play an imperative role in the implementation of such program. Since the program is an informal initiative organized by an NGO, assistance to obtain the program licenses remains the paramount resource. The process of obtaining the licences can certainly affect the extent to which the program can be expanded and replicated. Nevertheless, the fact that the program has continued for several years and now attracted more and more participants is a tell-tale sign of the increasing public interest in ESD in Vietnam and the various opportunities to promote it through similar non-formal education channels like this program.

## References

Affeldt, F. et al., 2015. A Non-Formal Student Laboratory as a Place for Innovation in Education for Sustainability for All Students. *Education Sciences*, 5(3), pp. 238-254.

An, V., 2018. *Draft of amended education law: A series of new policies will be changed and supplemented. [In Vietnamese: Dự thảo Luật Giáo dục sửa đổi: Sẽ thay đổi, bổ sung một loạt chính sách mới]*. [Online]

Available at: <https://dantri.com.vn/giao-duc-khuyen-hoc/du-thao-luat-giao-duc-sua-doi-se-thay-doi-bo-sung-mot-loat-chinh-sach-moi-20180516165458967.htm>

[Accessed 19 March 2020].

Australian Government | Department of Education, Skills and Employment, 2018.

*VIETNAM SCHOOL EDUCATION POLICY AND SYSTEM UPDATE*. [Online]

Available at: <https://internationaleducation.gov.au/International-network/vietnam/publications/Documents/Vietnam%20School%20Education%20Policy%20and%20Systems%20Update.pdf>

[Accessed 17 March 2020].

Bao Tai Nguyen & Moi Truong, 2018. *CHANGE is awarded "Vietnam's excellent environmental organization" in 2017. [In Vietnamese: CHANGE được vinh danh là "Tổ chức môi trường xuất sắc nhất Việt Nam năm 2017"]*. [Online]

Available at: <https://baotainguyenmoitruong.vn/change-duoc-ving-danh-la-to-chuc-moi-truong-xuat-sac-nhat-viet-nam-nam-2017-238783.html>

[Accessed 25 June 2020].

Bao Tai Nguyen va Moi Truong, 2018. *30 youngsters join Vietnam Climate Leadership Camp in 2018. [In Vietnamese: 30 bạn trẻ tham gia Trại Thủ lĩnh Khí hậu Việt Nam năm 2018]*. [Online]

Available at: <https://baotainguyenmoitruong.vn/30-ban-tre-tham-gia-trai-thu-linh-khi-hau-viet-nam-nam-2018-241655.html>

[Accessed 24 June 2020].

- Barbour, R., 2008. *Introducing Qualitative Research: A Student Guide to the Craft of Doing Qualitative Research*. Padstow: SAGE Publications Ltd.
- Blumenfeld, P. et al., 1991. Motivating Project-Based Learning: Sustaining the Doing, Supporting the Learning. *Educational Psychologist*, 26(3 & 4), pp. 369-398.
- Breiting, S., Mayer, M. & Mogensen, F., 2005. Quality Criteria for ESD-schools: Guidelines to Enhance the Quality of Education for Sustainable Development. *Austrian Journal of Environmental Education*.
- Bryman, A., 2008. *Social Research Methods*. New York: Oxford University Press Inc..
- Bush, T., 2012. Authenticity in Research: Reliability, Validity and Triangulation. In: A. R. J. Briggs & M. Coleman, eds. *Research Methods in Educational Leadership and Management*. s.l.:SAGE, pp. 75-90.
- CHANGE VN, 2017. *CHANGE*. [Online]  
Available at: <https://www.changevn.org/#>  
[Accessed 7 January 2020].
- CHANGE, 2020. *CHANGE: Overview | LinkedIn*. [Online]  
Available at: <https://www.linkedin.com/company/change-vietnam/>  
[Accessed 7 January 2020].
- changevn.org, 2019. *VIETNAM CLIMATE LEADERSHIP INITIATIVE | NEWS & EVENTS*. [Online]  
Available at: <https://cleanairbluesky.org/en/vietnam-climate-leadership-initiative>  
[Accessed 15 January 2020].
- CHANGEvn, 2017. *28 young leaders gather at Vietnam Climate Leadership Camp 2017. [In Vietnamese: 28 thủ lĩnh trẻ tập hợp tại "Trại thủ lĩnh khí hậu Việt Nam 2017"]*. [Online]  
Available at: <https://www.changevn.org/tin-tuc/169-28-thu-linh-tre-tap-hop-tai-trai-thu-linh-khi-hau-viet-nam-2017>  
[Accessed 24 June 2020].

CHANGEvn, 2019. *Vietnam Climate Leadership Initiative (14/12 - 17/12/2019)*. [In Vietnamese: *Sáng kiến thủ lĩnh khí hậu - VCLI (14/12 - 17/12/2019)*]. [Online] Available at: <https://www.facebook.com/notes/change/sang-kiem-thu-linh-kh%C3%AD-hau-vcli-1412-17122019/2520336561347374/> [Accessed 9 April 2020].

Clarke, P., 2012. Exploration Two: Is Education Fit for Purpose if the Purpose is Sustainable Living?. In: *Education for sustainability: Becoming naturally smart*. London: Taylor & Francis Ltd, pp. 29 - 49.

Clean Air, Blue Sky, 2019. *Vietnam Climate Leadership Initiative*. [Online] Available at: <https://cleanairbluesky.org/en/vietnam-climate-leadership-initiative> [Accessed 12 March 2020].

Coyle, K., 2005. *Environmental Literacy in America: What Ten Years of NEETF/Roper Research and Related Studies Say about Environmental Literacy in the U.S.*, Washington: National Environmental Education and Training Foundation.

Duc, N., 2014. *Samsung invests 1m. USD in Vietnamese education*. [In Vietnamese: *Samsung chi 1 triệu USD cho giáo dục Việt Nam*]. [Online] Available at: <https://baodautu.vn/samsung-chi-1-trieu-usd-cho-giao-duc-viet-nam-d4933.html> [Accessed 24 March 2020].

Duggleby, L. & Davidson, L., 2014. *HONG HOANG, INSPIRING VIETNAM'S YOUTH*. [Online] Available at: <https://climateheroes.org/heroes/hong-hoang-inspiring-vietnams-youth/> [Accessed 25 June 2020].

Duyen, M., 2019. *Vietnam gains significant achievements in eradicating illiteracy and universal education*. [In Vietnamese: *Việt Nam đạt được nhiều thành tựu trong xóa mù chữ và phổ cập giáo dục*]. [Online] Available at: <https://dantocmiennui.vn/viet-nam-dat-duoc-nhieu-thanh-tuu-trong-xoa-mu-chu-va-pho-cap-giao->

[duc/236959.html#:~:text=%C4%90%C3%A2y%20th%E1%BB%B1c%20s%E1%BB%B1%20%C3%A0%20m%E1%BB%99t,t%E1%BB%B7%20%E1%BB%87%2096%2C35%25.](#)

[Accessed 27 June 2020].

Egana del Sol, P. A., 2019. Education for Sustainable Development: Strategies and Key Issues. In: L. F. W., et al. eds. *Quality Education. Encyclopedia of the UN Sustainable Development Goals*. Cham: Springer.

Eilam, E. & Trop, T., 2010. ESD Pedagogy: A Guide for the Perplezed. *The Journal of Environmental Education*, 42(1), pp. 43-64.

*ESD Whole School Approach*. 2018. [Film] Directed by UNESCO-Vietnam. Vietnam: UNESCO Office in Vietnam.

Golafshani, N., 2003. Understanding Reliability and Validity in Qualitative Research. *The Qualitative Report*, 8(4), pp. 597-607.

Guest, G., Namey, E. & Mitchell, M., 2013. *Collecting Qualitative Data: A Field Manual for Applied Research*. California: SAGE Publications Inc..

Haigh, M. J., 2006. Promoting Environmental Education for Sustainable Development: The Value of Links between Higher Education and Non-Governmental Organizations (NGOs). *Journal of Geography in Higher Education*, 30(2), pp. 327-349.

Huong, N., 2019. *Primary education is compulsory education. [In Vietnamese: Giáo dục tiểu học là giáo dục bắt buộc]*. [Online]  
Available at: <https://luatvietnam.vn/tin-van-ban-moi/giao-duc-tieu-hoc-la-giao-duc-bat-buoc-186-21584-article.html>

[Accessed 14 March 2020].

IBE-UNESCO, 2012. *World Data on Education: Seventh edition 2010-11* , Geneva: IBE-UNESCO.

- Jickling, B. & Spork, H., 1998. Education for the Environment: a critique. *Environmental Education Research*, 4(3).
- Johnson, R. B., 1997. Examining the Validity Structure of Qualitative Research. *Education*, 118(2), pp. 282-292.
- Jones, L., 2007. *The Student-Centered Classroom*. Cambridge: Cambridge University Press.
- Khasnabis, C., Heinicke Motsch, K. & Achu, K., 2010. Non-formal education. In: C. Khasnabis & K. Heinicke Motsch, eds. *Community-Based Rehabilitation: CBR Guidelines*. Geneva: World Health Organization.
- Kopnina, H., 2012. Education for sustainable education (ESD): the turn away from 'environment' in environmental education?. *Environmental Education Research*.
- Kothari, C. R., 1990. *Research Methodologies: Methods & Techniques*. 1 ed. New Delhi: New Age International Publishers.
- Krajcik, J. & Blumenfeld, P., 2005. Chapter 19: Project-based Learning. In: R. K. Sawyer, ed. *The Cambridge Handbook of the Learning Sciences*. St. Louis: Cambridge University Press, pp. 317-334.
- Kvale, S. & Brinkmann, S., 2009. *InterViews: Learning the Craft of Qualitative Research Interviewing*. 2 ed. Thousand Oaks: SAGE Publications, Inc..
- Lam, C., 2007. *Country Profile commissioned for the EFA Global Monitoring Report 2008, Education for All by 2015: will we make it?: Country Profile of Vietnam on Non-Formal Education (NFE)*, s.l.: UNESCO.
- Lee, J. C.-K. & Efirid, R., 2014. *Schooling for Sustainable Development Across the Pacific*. Dordrecht: Springer Netherlands.
- Lincoln, Y. S. & Guba, E. G., 1985. *Naturalistic Inquiry*. s.l.:SAGE Publications Inc..



M.Q, 2019. *Mekong Delta experiences heavy loss due to climate change*. [In Vietnamese: *Đồng bằng sông Cửu Long đang tổn thương nặng nề do biến đổi khí hậu*]. [Online]

Available at: <https://laodong.vn/xa-hoi/dong-bang-song-cuu-long-dang-ton-thuong-nang-ne-do-bien-doi-khi-hau-739650.lido>

[Accessed 24 June 2020].

Martins, A., Mata, T. M. & Costa, C. A. V., 2006. Education for sustainability: Challenges and trends. *Clean Technologies and Environmental Policy*, 8(1).

McCombs, B. & Whisler, J. S., 1997. *The Learner-Centered Classroom and School: Strategies for Increasing Student Motivation and Achievement*. 1 ed. San Francisco: Josey-Bass Publishers.

McKeown, R., 2002. *Education for Sustainable Development Toolkit*. Knoxville: Waste Management Research and Education Institution.

McKeown, R. & Nolet, V., 2013. *Schooling for Sustainable Development in Canada and the United States*. Dordrecht: Springer Netherlands.

Middleton, F., 2019. *Reliability vs validity: what's the difference?*. [Online]

Available at: <https://www.scribbr.com/methodology/reliability-vs-validity/#:~:text=Reliability%20and%20validity%20are%20concepts,the%20accuracy%20of%20a%20measure>.

[Accessed 18 June 2020].

Ministry of Education and Training, 2020. *Functions, tasks, powers and organizational structure of the Ministry of Education and Training*. [Online]

Available at: <https://en.moet.gov.vn/about/chuc-nang-nhiem-vu/Pages/default.aspx?ItemID=2092>

[Accessed 15 January 2020].

Ministry of Education, 2006. *Sustainable development in education: Implementation of Baltic 21E – programme and Finnish strategy for the Decade of Education for Sustainable Development (2005-2014)*, Helsinki: Helsinki University Press.

MOET & Vietnam Institute of Educational Sciences, 2018. *Education for Sustainable Development (ESD) in Vietnam - PROJECT: Strengthening ESD Policy in Vietnam*, Hanoi: s.n.

MOET, 2009. *The development and state of The art of Adult Learning and education: National report*, s.l.: UNESCO.

MOET, 2018. *Education and training brochure 2018. [In Vietnamese: Tờ gấp giáo dục đào tạo năm 2018]*. [Online]

Available at: <https://moet.gov.vn/thong-ke/Pages/to-gap.aspx?ItemID=5875>

[Accessed 17 March 2020].

MOET, 2018. *Education and Training Vietnam 2018*, Hanoi: MOET.

MOET, 2020. *Functions, tasks, powers and organizational structure of the Ministry of Education and Training*. [Online]

Available at: <https://en.moet.gov.vn/about/chuc-nang-nhiem-vu/Pages/default.aspx?ItemID=2092>

[Accessed 14 March 2020].

Mogensen, F. & Mayer, M., 2005. *ECO-schools - Trends and Divergences: A Comparative Study on ECO-school Development Processes in 13 Countries*, Vienna: Austrian Federal Ministry of Education, Science and Culture.

National Assembly of Vietnam, 2019. *Education Law. In Vietnamese: Luật Giáo Dục 2019*. [Online]

Available at: <https://thuvienphapluat.vn/van-ban/giao-duc/Luat-giao-duc-2019-367665.aspx>

[Accessed 15 January 2020].

Nation, M. L., 2008. Project-based Learning for Sustainable Development. *Journal of Geography*, 107(3), pp. 102-111.

Nhan, M., 2018. *Meet the climate heroine who receives Obama Foundation Scholarship*. [In Vietnamese: *Gặp nữ "Anh hùng Khí hậu" nhận học bổng danh giá Quỹ Obama: Không chỉ người giàu và giỏi mới có thể bảo vệ môi trường*]. [Online] Available at: <https://kenh14.vn/gap-nu-anh-hung-khi-hau-nhan-hoc-bong-danh-gia-quy-obama-khong-chi-nguoi-giau-va-gioi-moi-co-the-bao-ve-moi-truong-20181005120145484.chn> [Accessed 25 June 2020].

Nhi, L., 2019. *Vietnam Climate Leadership Initiative* [In Vietnamese: *Sáng kiến Thủ lĩnh Khí hậu Việt Nam*]. [Online] Available at: <http://daidoanket.vn/moi-truong/sang-kien-thu-linh-khi-hau-viet-nam-tintuc453805> [Accessed 24 June 2020].

Obama Foundation, 2019. *Meet the 2018-2019 Scholars at Columbia University*. [Online] Available at: <https://www.obama.org/inaugural-scholars/#columbia> [Accessed 25 June 2020].

OECD, 2013. *PISA 2012 Results: What Makes Schools Successful? Resources, Policies and Practices (Volume IV)*, s.l.: OECD Publishing.

OECD, 2018. *Students per teaching staff*. [Online] Available at: <https://data.oecd.org/teachers/students-per-teaching-staff.htm> [Accessed 17 March 2020].

Patton, M. Q., 2002. *Qualitative evaluation and research methods*. 3 ed. Thousand Oaks: Sage Publications, Inc..

Porritt, J., 2007. *Capitalism as if the World Matters*. London: Earthscan.

- Raumolin, J., 2000. *Towards Sustainable Education in Europe: A Proposal for Criteria and Indicators for Sustainable Education*, Kotka: Kirjapaino Jahkonen Oy.
- Salkind, N. J., 2010. *Encyclopedia of Research Design*. Thousand Oaks: SAGE Publications.
- Sauders, M., Lewis, P. & Thornhill, A., 2012. *Research methods for business students*. Essex: Pearson Education Limited.
- Silverman, D., 2011. *Interpreting qualitative data*. London: Sage Publications Ltd.
- Stanford Earth, 2020. *Climate Change Education - Curriculum*. [Online] Available at: <https://earth.stanford.edu/climate-change-ed/curriculum> [Accessed 10 June 2020].
- Sterling, S., 2001. *Sustainable Education: Re-visioning Learning and Change*. Bristol: Green Books Ltd.
- Sterling, S., 2010. Learning for Resilience, or the Resilient Learner? Towards a Necessary Reconciliation in a Paradigm of Sustainable Education. *Environmental Education Research*, 16(5 - 6), pp. 511 - 528.
- Stevenson, R. B., Nicholls, J. & Whitehouse, H., 2017. What Is Climate Change Education?. *Curriculum perspectives*, 37(3), pp. 67-71.
- Stokke, O., 1991. Sustainable development: A multi-faceted challenge. *The European Journal of Development Research* , 3(1), pp. 8-31.
- Thomas, I., 2009. Critical Thinking, Transformative Learning, Sustainable Education, and Problem-Based Learning in Universities. *Journal of Transformative Education*, 7(3), pp. 245-264.
- UNEP, 1975. *The Belgrade Charter: a framework for environmental education*, Belgrade: s.n.

UNESCO GCED, 2015. *Global Citizenship Education: Topics and Learning Objectives*, Paris: UNESCO.

UNESCO GCED, 2019. *Global citizenship education*. [Online]  
Available at: <https://en.unesco.org/themes/gced>  
[Accessed 10 June 2020].

UNESCO Office Hanoi, 2015. *Working together for a more resilient and sustainable society: MOET, UNESCO and Samsung ESD initiative, Final report, extended version*, Hanoi: UNESCO.

UNESCO Office in Hanoi, 2013. *MOET, UNESCO and Samsung launch initiative to build a more resilient, sustainable learning society in Viet Nam*. [Online]  
Available at: <http://www.unesco.org/new/en/member-states/single-view/news/moet-unesco-and-samsung-launch-initiative-to-build-a-more-r/>  
[Accessed 6 January 2020].

UNESCO, 2012. *Education for Sustainable Development Sourcebook*. Paris: UNESCO.

UNESCO, 2013. *UNESCO and Samsung to support education in Vietnam*. [Online]  
Available at: <http://www.unesco.org/new/en/media-services/single-view/news/unesco-and-samsung-to-support-education-in-vietnam/>  
[Accessed 12 March 2020].

UNESCO, 2014. *ESD Initiative for Viet Nam Summary – April 2014*, Hanoi: UNESCO.

UNESCO, 2015. *Not just hot air: Putting climate change education into practice*, Paris: UNESCO.

UNESCO, 2019. *What is Education for Sustainable Development?*, s.l.: s.n.

UNITAR, 2013. *Resource guide for advanced learning on integrating climate change in education at primary and secondary level*, s.l.: UNITAR.

United Nations Sustainable Development, 1992. *United Nations Conference on Environment & Development*, Rio de Janeiro: s.n.

Vinhomes Land, 2020. *Vinhomes Riverside urban area. [In Vietnamese: Khu đô thị Vinhomes Riverside Long Biên]*. [Online]  
Available at: [https://vinhomesland.vn/vinhomes-riverside/#Tong\\_quan\\_Vinhomes\\_Riverside\\_Long\\_Bien](https://vinhomesland.vn/vinhomes-riverside/#Tong_quan_Vinhomes_Riverside_Long_Bien)  
[Accessed 26 March 2020].

Wals, A. E. J., Mochizuki, Y. & Leicht, A., 2017. Critical case-studies of non-formal and community learning for sustainable development. *International Review of Education*, Volume 63, pp. 783-792.

Whittemore, R., Chase, S. K. & Mandle, C. L., 2001. Validity in Qualitative Research. *Qualitative health research*, 11(4), pp. 522-537.

Yasin, R. M. & Rahman, S., 2011. Problem Oriented Project Based Learning (POPBL) in Promoting Education for Sustainable Development. *Procedia Social and Behavioral Sciences*, Volume 15, pp. 289-293.

Yin, R., 2009. *Case Study Research*. California: Sage Publications Inc..

## Appendices

### Appendix 1. Key content components and achievements

<b>Key content components</b>	<b>Achievements</b>
Build teachers' capability of integrating ESD contents in daily teaching	Available e-learning courses about climate change, disaster preparedness and biodiversity conservation
Increase awareness of ESD for school principals, parents and authorities	A supporting environment for ESD was created in five pilot communities.
Increase awareness of ESD for the media and gain visibility for the initiative	Media professionals gained knowledge about ESD and increased their capabilities of reporting ESD. Various quality publication increased the visibility of the initiative.
Project monitoring, evaluation and documentation	A Monitoring and Evaluation Plan recorded the progress and overall evaluation of each component. The overall implementation was daily recorded. Further recommendations were also documented.
Tools for school risk assessment and preparedness plan preparation	An Assessment and Preparedness Toolkit was developed and tested in five pilot schools, whose local communities were then empowered. The Toolkit has then become available nation-wide.
Introduce satellite imagery as evidence for decision-making	Training in how to use satellite imagery and understand the values of applying space

	technology was conducted for authorities and local community members.
Community Action Plans	The pilot communities increased their capacities to develop their Community Action Plans. Based on participatory method, five drafts were proposed.
Disaster Risk Management for Heritage sites	Disaster Risk Management plans were developed for 3 Heritage sites and now are currently being implemented.



Appendix 2. Stakeholder list

Implementation partners	Technical support
<p>MOET</p> <ul style="list-style-type: none"> <li>• Continuing Education Department</li> <li>• Department of Teachers and Education Administrators</li> <li>• Primary Education Department</li> <li>• Department of Science, Technology and Environment</li> <li>• Department of Facilities, School Equipment and Children’s Toys</li> </ul> <p>National Institute for Education Management</p> <p>Provincial People’s Committee</p> <ul style="list-style-type: none"> <li>• Authorities of the pilot province authorities</li> <li>• DOET at the pilot province - 5 pilot schools</li> </ul>	<p>Hanoi Open University</p> <p>Hue University of Sciences</p> <p>Vietnam National Institute of Education Sciences</p> <p>Ministry of Information and Communication</p> <p>National Radio Voice of Vietnam</p> <p>Live &amp; Learn Vietnam</p> <p>Vietnam Man and Biosphere Program</p>

Appendix 3. Ongoing reform projects in Vietnamese education (adapted from Australian Government | Department of Education, Skills and Employment (2018))



### Renovation of General Education Project

- Curriculum development
- Development and dissemination of aligned textbooks
- Learning assessment and analysis for continuous improvement of curriculum and policy

### Secondary Education Sector Development Program, phase II

- Innovative school models
- Upgraded teacher standards
- Strengthened science, technology, engineering and mathematics education
- Locally-tailored cognitive skill-oriented vocational guidance
- Support to emerging disadvantaged groups
- Strengthened locally-based decision-making

### Enhancing Teacher Education Program

- Improved capacity of leading Teacher Training universities and central teacher management units
- Development of a teacher and principal training needs assessment system
- School-based and continuous professional development for teachers and principals
- Access to capacity building programs and resources through an information and communication technology-based system
- Mobilized world-class expertise