

How education strategy can contribute to behavioural change towards sustainability

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Abstract

Education is crucial to achieving sustainable development, but providing knowledge alone is not enough. Through education, individuals can be engaged with sustainability related-issues and can become sustainability change-makers. This thesis considers the approach of Spark the Movement, in a qualitative single case study. The effects on students, participating in a project of NHL Stenden, are discussed in line with the theory of planned behaviour and literature on Education for Sustainable Development. Taking into account the effects on students' attitude, perceived behavioural control and subjective norm, the education strategy offers potential to influence students' behaviour, but improvements can be made.

Keywords: Education for Sustainable Development; behavioural change; sustainability attitude scale; theory of planned behaviour

INTRODUCTION

According to Socrates, people are inherently good, and no one does evil intentionally. Those who do not live a good life, just do not have the knowledge of what a good life entails (Plato and Nicholos, 1998). Is the key for living a sustainable life also to know more about sustainability? Can sustainability education be the key to a more sustainable society?

Since the Brundtland report was published in 1987, sustainability has become one of the most important issues in current society. There is increasing attention to signs of climate change like acid rain, smog alerts, global warming, and the loss of biodiversity. Thus, the general population is more aware of the need to live according to a more sustainable lifestyle (Ambec and Lanoie, 2008). The concept of sustainability has become a policy goal of many governments, institutions and businesses (Muthu, 2019). However, progress to do something about these problems is slow (Fischer et al., 2012). Despite the increasing academic attention for sustainability issues, there is a lack of behavioural change among people in general to solve sustainability issues. Sustainability problems are intergenerational, as is made clear by the definition of sustainability used in the Brundtland report: “meeting the needs of the present without compromising the ability of future generations to meet their needs” (Brundtland Commission, 1987). Because the problems created now have impact in the future, people do not directly feel the incentive to change their behaviour: they do not experience the consequences themselves directly. The traditional market and institutional landscape result in a vicious cycle in which unsustainable behaviour is reinforced. To achieve more sustainable behaviour, reforms and behavioural change are necessary (Fischer et al., 2012).

Increased awareness of the urgency of environmental issues is not enough to trigger behavioural change. According to Fisher et al. (2012), there is a lack of momentum to create actual societal change. They state that it is necessary to create a ‘social avalanche’ with enough momentum to create a ‘snowball effect’. It is vital to find out what can create this social change, otherwise the current institutional framework and habits will reinforce unsustainable behaviour (Fischer et al., 2012). One pathway towards change is through civil society. Considering ways to achieve change in society, this thesis addresses the importance of education.

Individuals have different values and attitudes towards change and sustainability (Ha, 2016). Social change is necessary to tackle sustainability problems; as a way to achieve social change, people can work together in civil society institutions to exercise influence. Civil society

institutions are organizations like foundations, cultural groups and non-governmental organisations. These have less constraints than economic and state institutions. Therefore, they have a potential role to play in enabling controversial reforms. These institutions must provide opportunities for active participation. (Fischer et al., 2012). Through civil society institutions, citizens can participate in collective decision-making and are enabled to shape their own governance (Rochon, 1998).

To make people advocates of sustainability change, it is vital to find out how to change people's attitudes and behaviours toward sustainability. Individuals' beliefs can be influenced by social status, age, gender, and education (Fischer et al., 2012). Education can have significant impacts on the behaviour of individuals. For example, higher educated people have more knowledge about health and live a healthier lifestyle (Mocan and Altindag, 2012). This might also work for sustainability. However, it has been found that sustainability knowledge alone has little influence on behaviour (Zwickle and Jones, 2017; Heeren et al., 2016). Education should thus not focus on providing information only. It should try to engage learners to make them sustainability change makers.

This thesis will focus on how education can contribute to behavioural change, concentrated on sustainability. Knowledge on how to stimulate sustainable behaviour is essential in current society. By reviewing a single, in-depth case study, this thesis will examine the effects of sustainability education on behavioural change. The question this thesis will answer is: How can education strategy contribute to behavioural change towards sustainability? To answer this question, this thesis starts by reviewing the existing literature on sustainability education and behavioural change. Furthermore, the approach of the UN on Education for Sustainable Development is taken into consideration. Subsequently, the research methods are set out and the results of the research are presented. To conclude, the results are discussed in line with the theory to answer the research question. Limitations of the research are identified, and options for further research are suggested.

THEORY

This section will address the current academic debate. First, the theory of planned behaviour is discussed to offer insights in how to achieve behavioural change. Further, the current state of sustainability education is set out and the approach taken by the UN is outlined.

Behavioural change: the theory of planned behaviour

Human behaviour is difficult to explain (Ajzen, 1991), therefore, it is also difficult to determine how to establish behavioural change. Social sciences offer multiple theories about human behaviour and how to foster behavioural change (Fischer et al., 2012). A widely known theory is the theory of planned behaviour, which is frequently cited and seen as an influential model for the prediction of human social behaviour (Ajzen, 2011). The theory offers insights in why sustainability education focused on providing knowledge alone will not lead to behavioural change automatically and what education should focus on to achieve changes in behaviour. In the theory, the intentions of people are central. ‘Intentions are assumed to capture the motivational factors that influence a behaviour; they are indications of how hard people are willing to try, of how much of an effort they are planning to exert, in order to perform the behaviour. As a general rule, the stronger the intention to engage in a behaviour, the more likely should be its performance.’ (Ajzen, 1991, p. 181).

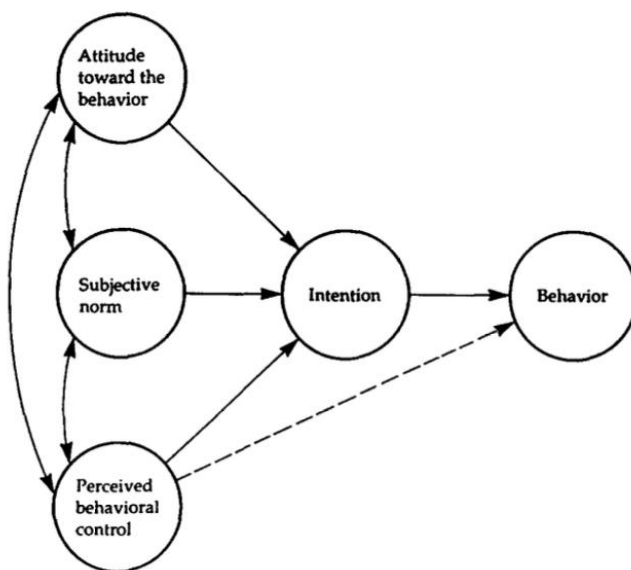


Figure 1: The theory of planned behaviour (Ajzen, 1991)

However, the effect of intention on behaviour is only there when a person has control over their behaviour. Thus, behaviour depends on intention and ability (Ajzen, 1991). Behavioural intention is determined by three antecedents that precede intentions; the attitude towards the behaviour, the subjective norm and perceived behavioural control. A person's attitude towards a certain behaviour is about the degree to which a person thinks the behaviour is desirable. The subjective norm determines the amount of pressure a person feels to behave a certain way.

Perceived behavioural control has a different influence than actual control; actual control determines the extent to which an intention can have an effect on behaviour. Perceived control can predict the probability of a successful behavioural attempt and has influence on a person's attitude towards a certain behaviour (Ajzen, 1991). Thus, in order to display a certain behaviour, a person should first have a positive attitude towards the behaviour, feel social pressure to behave that way, and perceive that the behaviour is possible. According to Ajzen, different kinds of salient beliefs prevail these antecedents (1991). Attitude is influenced by behavioural beliefs, subjective norm by normative beliefs and perceptions of behavioural control by control beliefs. The theory of planned behaviour is criticized because the relation between these salient beliefs and the antecedents for behaviour are not specified. It is thus not clear how one influences the other, and if for example behavioural belief always determines a person's attitude. Often, the relationships are defined according to the expectancy-value theory. Choices are made based on the expectation of success or failure and the value a subject has to a person (Eccles & Wigfield, 2002). Thus for example, behavioural belief influences a person's attitude towards a behaviour when this belief has value to them, and the person expects that changing his attitude according to this belief will lead to success. One does not automatically lead to another, but there is evidence that the relations are significant and the theory provides a useful conceptual framework to think about human behaviour (Ajzen, 1991).

The theory of planned behaviour offers insights in how sustainability education can influence behaviour. As it has been recognized that sustainability knowledge alone does not lead to more sustainable behaviour (Zwickle and Jones, 2017), the theory of planned behaviour offers insights into what education should focus on to achieve behavioural change: attitude, subjective norm and perceived behavioural control. The potential of the theory of planned behaviour to explain variance of behaviour has been recognized by other authors as well (Heeren et al., 2015). The theory has been used widely in entrepreneurship research. Lortie and Castogiovanni have researched the contribution of the theory of planned behaviour to entrepreneurship research, and found 42 articles that used at least a part of the theory (2015). Of these, in 21 articles the theory is used with the aim of explaining and predicting entrepreneurial intentions to create a new venture. Education offers the possibility to shape entrepreneurial intentions. Potter (2008) discusses entrepreneurship education as a key instrument for increasing entrepreneurial intentions. Liñán, Rodríguez-Cohard, and Rueda-Cantuche have done further research on how education can shape entrepreneurial intentions (2011). They state that attitude and perceived behavioural control are important determinants of entrepreneurial intention, thus

education focus on perceived feasibility and desirability. Moreover, the “entrepreneurial orientation” of the individual is essential. This orientation is about ‘their conception of what it is like to be an entrepreneur and how to make the venture survive and thrive’ (Liñán, Rodríguez-Cohard, and Rueda-Cantuche, 2011, p. 209). The perceived subjective norm has the weakest link to entrepreneurial intention and is not seen as an important focus for education.

Thus, while sustainability knowledge alone does not lead to more sustainable behaviour, education can still be helpful to change behaviour. Sustainability education should not focus on sustainability knowledge alone; to promote sustainability behaviour education should also address behavioural barriers and how students can engage in sustainable behaviour (Heeren et al., 2015). Because this research is exploratory, trying to research different ways through which education can lead to different behaviour, this general theory on behavioural change offers enough guidance, while not restricting the possibilities through which education can have an effect on behaviour. This thesis will consider the antecedents necessary for behavioural changes, not actual behavioural change. This is because sustainable behaviour is hard to define; sustainability is a contested concept and individual effects are difficult to measure. By considering peoples’ intentions and the different ways through which these intentions are influenced, this research explores how education can be used to achieve a change in peoples’ intentions, leading to more sustainable initiatives and a more sustainable society.

United Nations and Education for Sustainable Development

In the 1960s, the concept for environmental education emerged. During the Stockholm Conference on the Human Environment in 1972, education was acknowledged to be important in promoting environmental protection (Nikolopoulou, Abraham, and Mirbagheri, 2010). The United Nations Economic Commission for Europe (UNECE) developed a strategy for Education for Sustainable Development (ESD). The UNECE identified objective, basic principles and implications for ESD (Nikolopoulou, Abraham, & Mirbagheri, 2010).

In 2015, the UN adopted 17 Sustainable Development Goals, to be achieved by 2030. These interrelated goals are broader in scope than the earlier established Millenium Development Goals. They focus on ending poverty, fighting inequality and injustice, tackling climate change while maintaining development and prosperity (Mariño & Banga, 2016). Only one of the 17 goals specifically focuses on quality education – goal number four: to ensure inclusive and equitable quality education and promote lifelong learning opportunities for all (United Nations,

2015). Still, the importance of education is more profound than this single goal. “To create a more sustainable world and to engage with sustainability-related issues as described in the SDGs, individuals must become sustainability change-makers. They require the knowledge, skills, values and attitudes that empower them to contribute to sustainable development. Education, therefore, is crucial for the achievement of sustainable development.” (UNESCO, 2017, p. 7). The goal of education can serve as means for achieving the other goals.

UNESCO, the UN-specialized agency in education, has set up the Education 2030 Framework for Action, providing guidance in the development of quality education for sustainable development (UNESCO, 2017). Through the ESD approach, learners are educated on sustainable development and enabled to make informed decisions. ESD is not designed for a specific region or specific type of school. It is meant to be a flexible framework, to be implemented in all countries of the UN, in all forms of their education systems, at all levels of education. ESD is a holistic form of education: it is not only about learning content and outcomes, pedagogy and the learning environment are also important. In holistic education, learners do not just follow an academic curriculum. It is important that learners find connections to their surroundings and their community, and that they develop themselves by being engaged in their context. Students are not only taught about concepts such as sustainable consumption and climate change by their teacher, they also have to interact and take actions themselves. ESD aims to encourage collaboration, problem-orientation, inter- and transdisciplinarity and linking of formal and informal learning (UNESCO, 2017). This form of teaching enables students to develop the competencies that cannot just be taught by teachers; students have to develop them themselves. Key competencies for sustainability are: systems thinking competency, anticipatory competency, normative competency, strategic competency, collaboration competency, critical thinking competency, self-awareness competency, and integrated-problem solving competency. These competencies enable sustainability behavioural changes: individuals are educated to be informed citizens that understand the SDGs and know how they can contribute to sustainability transformation (UNESCO, 2017).

ESD aims to incorporate all three dimensions of sustainability – economy, society, and environment – into education. The social dimension is about themes like human rights, peace, culture and human security. The environmental dimension focuses on issues that relate to natural resources, climate change and rural development. The economic dimension regards issues such as poverty reduction, corporate social responsibility and reorientation of the market

economy (Wals & Kieft, 2010). ESD is given form by different countries in different ways, central to ESD is that education should learn people the ability to think about global and inter-generational issues and to formulate strategies to solve problems regarding these issues (Wals & Kieft, 2010). In ESD, the shift from training and instruction to learning and capacity building is visible. Learners are enabled to contribute to sustainability themselves, in a way that is meaningful and relevant to their context (Wals & Kieft, 2010). The ESD approach is thus not about providing knowledge alone; it focuses on developing competencies and participation by students. This approach could potentially contribute to behavioural change among students.

However, there are several challenges in the implementation of ESD identified by Wals and Kieft: ‘the lack of financial and governmental support and coordination; the lack of a common understanding and awareness of ESD; the lack of ESD teacher training and the difficulty to evaluate ESD; complicated and heterogeneous educational system to integrate ESD; embedding ESD in a cross-curriculum approach; linking schools, community and society; highlighting the social and economic pillars of ESD; little awareness of ESD; no ESD common approaches; lack of research in ESD; the role of the media; putting more emphasis on non-formal and informal education; lack of ESD tools and materials; and the involvement of stakeholders’ (2010, p. 38). An organization in the Netherlands working to implement the ESD approach in Friesland is Spark the Movement.

METHODOLOGY

This section outlines the research background and the methods through which data has been gathered. This thesis focuses on a single-case. Through qualitative research, an in-depth analysis is made with the aim of making theoretical inference with wider applications. To conduct this research, a project of Spark the Movement in combination with NHL Stenden, a Dutch Higher Education institution, is reviewed. The methods of Spark the Movement and NHL Stenden are analysed in line with the literature. Further, participants in the project are interviewed and have filled out a survey.

Research background

Spark the Movement is an organisation in Friesland that strives to a sustainable, circular world. They try to achieve this through the educational system (Spark the Movement, 2020). This thesis explores the approach of Spark the movement and examines whether this approach is fit to achieve a more sustainable society. To conduct this research, a project of Spark the Movement

in combination with NHL Stenden, a Dutch Higher Education institution, is reviewed.

Spark the Movement. Spark the Movement works with three pillars to create an integrated approach. The three essential concepts Spark the Movement adopts are the SDGs, the seven principles of design, and the Whole School approach. The importance of the SDGs has been discussed above. The seven principles of design are about design for a circular economy. The Whole School approach aims to see coherence between what we learn, how we learn, where we learn, from whom and with whom we learn. Combining these three principles, the goal is to create a circular and integrated educational system, in which is worked from a shared vision to align the curriculum, didactics, business operations, the expertise of the team and the involvement of education with the developments in the region (Huitink & Swart, 2020).

Spark the Movement tries to raise awareness of sustainability issues, to make people realise it is necessary to make changes. They try to emphasize an action perspective, in which they focus on what people can do themselves to contribute. Spark the Movement works with the “small wins” approach, in which change is created through beginning with small, local steps. By making small adjustments, people are encouraged to stop talking and start doing. Small, approachable steps lead to substantial changes in the end. Accumulating a series of small wins can result in transformative change (Termeer & Dewulf, 2018). It is valuable to identify the small wins that are made, to be aware of effects and institutionalize positive changes. Small wins can activate new changes through several mechanisms: energizing, learning by doing, logic of attraction, bandwagon effect and coupling. Next to driving initial changes, these propelling mechanisms can accelerate the amplification of small wins. Small wins bring excitement because they are achievable, realistic goals. This motivates people and makes them more optimistic. Further, small wins result in a learning by doing approach. By taking action, outcomes can be evaluated and feedback on the effectiveness of actions is provided. Moreover, the logic of attraction explains that people are more inclined to work for projects that show success. The visible results of small wins motivate people to work and put more resources towards a project. Furthermore, in a bandwagon effect, small wins are a way to inspire others. They show what people can do to contribute themselves, in a concrete and approachable way. Besides, the coupling mechanism can cause events to lead to other events as reactions. The robustness mechanism describes how multiple small wins together can result in a sustained change (Termeer & Dewulf, 2018).

Spark the Movement works to connect sustainability initiatives. These initiatives can come from the educational sector, but also from companies or other organisations. Spark the Movement works across different educational levels and organizations: primary, secondary and higher education are all included. They work together with these organizations and help them develop the ideas they have for sustainability projects. One way connections are created is through the “wall of fame”, in which sustainability initiatives by different organisations are displayed, offering inspiration to others. Next to connecting different organisations, Spark the Movement also aims to connect curriculum, didactics and operational management. They bring different organisations different organisations with sustainability ideas in contact with each other, (Huitink & Swart, 2020). The approach of Spark the Movement reflects the holistic approach of ESD and offers an example of how the ESD philosophy can be implemented locally.

ESD and the methods of Spark the Movement can influence all three determinants of behavioural intention. By involving students in the importance of sustainability and the SDGs, they will learn more about the social norm in sustainability. Because they are encouraged to contribute to sustainability themselves in their own context, they can experience higher behavioural control. This might change their attitude towards sustainability problems.

NHL Stenden. NHL Stenden is a Dutch educational institution at the level of Higher Vocational Education. Four students, from the programme Entrepreneurship and Retail Management, participate in a project centred on the Circular Quarter in Leeuwarden. This is a quarter in the shopping area of Leeuwarden with authentic boutiques and specialty shops. The Living Lab Circularity aims to make the Circular Quarter more sustainable, and to implement the ideas of the circular economy in this quarter. Spark the Movement assisted NHL Stenden with the design of the project and advised them on how to organise the project. In line with approach set out by ESD, students are asked to participate, to develop skills and capacities. They are stimulated to take action and to try to make society more sustainable. By organizing activities, developing events and developing and practicing circular skills in collaboration with the worlds of work/business and education, both gain insights, inspiration, actions and behaviour to accelerate the climate transition. Two of the four students have participated in a similar project with the Circular Quarter before, they have been in contact with the entrepreneurs there and they have visited the Circular Quarter. The other two students have not worked with the entrepreneurs of the Circular Quarter before now.

Data Collection

Table 1

Data selection procedures

Type of data	Data gathering	Purpose
Data for project analysis	Data for analysing the education methods has been gathered from Spark the Movement's toolkit and NHL Stenden's module book (Huitink and Swart, 2020; Roest & Noppers, 2020).	Assess the theoretical base for the approach in NHL Stenden's project.
Sustainability Attitude Scale (SAS)	Students were asked to fill out the online survey twice: once before the project started (17 April 2020) and once during the project (25 May 2020).	The SAS is an established scale, consisting of eleven statements, to which respondents can agree or disagree, on a scale from 1 (strongly disagree) to 6 (strongly agree). The scale provides a wider, multidimensional scope than other measures and incorporates all three domains: ecological, social and economic. It is relatively short to fill out, which enables an efficient but still reliable insight into people's views on sustainability. The measure can be used as a one-time assessment, but can also measure development or change over time (Zwickle & Jones, 2017).
Interviews	The students participating in het project at NHL Stenden have each been interviewed online twice: once before the project started (17-20 April 2020) and once during the project (25 May 2020).	The questions in the interviews considered the intentions and behaviours of students towards sustainability. Questions are asked regarding attitude, perceived control and social norm, and het influence the project has had on these.

Data has been collected from several sources; an overview can be found in table 1. Due to time constraints, it is not possible to interview the students after they have completed the project. The effects of the project are measured on the short-term, which makes this research relevant as it shows if education can bring along an immediate effect in behavioural change towards sustainability. As sustainability issues are immediate, education can offer interesting possibilities for immediate behavioural change, starting from the educated youth, which can influence other generations as well.

The SAS has been developed and tested in a process of several years, with the aim of measuring both the independent domains of sustainability and combinations of those domains in a short survey. In order to specify which statements needed to be included, several studies have been conducted. After multiple some exploratory studies, two problems remained; the need to expand statistical analyses so the number of items could be reduced, and the need to obtain a representative sample. Following, the SAS statements were tested on approximately 1,000 undergraduate students at the University of Michigan State. The data were analysed by confining them into the three different domains. Item Response Theory was applied to select items that were discerning. With this study, both of the earlier problems were addressed. Zwickle and Jones concluded on eleven statements to measure all three domains of sustainability with internal reliability. These statements were tested with a study of 1,895 undergraduate students, in which participants filled out the SAS, the New Ecological Paradigm (NEP), and other questions about sustainability beliefs and behaviours. The NEP is an established measure of sustainability attitude. In comparing the SAS with the NEP, the SAS performed better, with greater correlation coefficients. By conducting these studies, Zwickle and Jones established construct and content validity, predictive power, and internal reliability (Zwickle & Jones, 2017). The SAS has been used later on in studies measuring students' sustainability attitudes, for example in a study by Michel on the effect of Education for Sustainability in the higher education curriculum (2019) and in a report on campus sustainability in Ohio. The SAS can be found in Appendix A.

Next to filling out the SAS, participants have been interviewed. The participants have signed a consent form in which they gave permission to the interviews being recorded, transcribed. These interviews are semi-structured, with support of an interview schedule. The schedule provided guiding questions to structure the interview and to ensure that every interviewee is asked about the same topics (Thomas, 2011). Simultaneously, there is room to in-depth and ask further on particular topics (Easwaramoorthy & Zarinpoush, 2006). This open-ended type of interviewing offers enough room to explore the possibilities, making it fit for this exploratory research. By comparing the answers of the different interview moments, the effects of participating in the project are discerned. The questions focus on behavioural control, social norm and attitude of students towards sustainability, taking into account the theory of planned behaviour. Further, questions are asked about their behaviour directly. The interview questions can be found in Appendix B.

By examining the effect of the project on students' attitude, the subjective norm they experience, and perceived behavioural control, this thesis gives insights into whether the educational ideas of ESD and the methods of Spark the Movement have the potential to lead to behavioural change. Behavioural change itself is difficult to measure, as sustainability is a contested concept and it is hard to determine to what extent a person is living sustainably. This research therefore studies latent preference, as it regards the intention of people to behave sustainably. To measure attitude, the SAS is used. Additionally, several questions about students' attitude towards sustainability are asked. To measure perceived behavioural control, students are asked questions about how they think they can contribute to a more sustainable society. To measure social norms, students are asked about perceived pressure to live more sustainable. Additionally, more direct questions regarding the influence of the project on their thoughts and capabilities are asked. This will give a good indication if the approach of Spark the Movement is actually working to change the mindsets and therewith the behaviours of people. Changing mindsets and intentions can, via civil society institutions, result in societal change (Fischer et al., 2012).

Unfortunately, at the time of conducting this research, the Corona crisis is ongoing. This means that the students cannot participate in the project as they would usually. Under normal circumstances, they would visit the Circular Quarter and be in contact with the entrepreneurs there regularly. However, due to the crisis the project has been changed and has to take place online; the students have worked via Microsoft Teams. Furthermore, the students cannot be interviewed in person so the interviews will take place via Google Meet.

Data Analysis

The approach of Spark the Movement is analysed with the ideas of the UN on ESD in mind, as well as the theory of planned behaviour. Furthermore, the specific project with NHL Stenden is analysed. This analysis has the purpose of finding a theoretical base for the approach of Spark the Movement to create a change in the mindsets of students. The results of the two SAS measurement moments are compared and analysed. Additionally, the interviews were transcribed using intelligent verbatim transcription. The transcripts were analysed and coded to identify themes and patterns in interviewees' responses.

In short, this thesis collects data from three types of sources; documents on the project set up, interviews and questionnaires. These types of data supplement each other, with the aim of

drawing a complete picture of the project and its effects on students. The interviews and questionnaire are conducted at two moments, before and during the project, in order to analyse if the project had an effect

RESULTS

Table 2

Analysis of the approaches of Spark the Movement and NHL Stenden according to ESD

ESD approach	Spark the Movement	NHL Stenden
Incorporate three dimensions of sustainability: economic, social, environmental	Including the Sustainable Development Goals: these have economic, social and environmental goals. The seven principles of design address the circular economy.	Attention for circular economy, working together with sustainable enterprises.
Holistic form of education	Whole School approach: incorporates didactics, business operations, and the curriculum. Connecting what students learn, how they learn, where they learn, from whom and with whom they learn.	The process is more important for grading the students' work than the end product. Teachers follow the process students go through and give them feedback. They have a coaching role. Personal development is an important aspect in the project. Students have to specify in which way they want to develop personally. They work and reflect on their skills. Further, students think about real-life local problems and are in this way engaged with their surroundings.
Collaboration	Spark the Movement connects different organisations with sustainability initiatives to organize activities together.	Students work together and are encouraged to put each other's qualities and abilities to use: complementing each other to come to the best end product. Further, students work together with entrepreneurs.
Problem Orientation	Spark the Movement takes small, local problems into consideration and looks for practical solutions.	NHL Stenden works with Design Based Education, in which students think about practical problems and try to design solutions. In this way, schools are not seen as

		separated from real life contexts. Theory and practice are integrated. The students are asked to make a context map, in which they originate, integrate, and combine relevant developments in the context of the retail industry into the design of a product, plan, scenario or proposal that has a focus on the vitality of a (retail) concept or retailing environment.
Inter- and Transdisciplinary learning	Connections between different organisations are ideally multi-disciplinary, multi-level and multi-age.	Students are normally educated on economics and retail. In this project, the students learn about sustainability in combination with entrepreneurship.
Develop competencies: <ul style="list-style-type: none"> - Systems thinking competency - Anticipatory competency - Normative competency - Strategic competency - Collaboration competency - Critical thinking competency - Self-awareness competency - Integrated problem solving competency 	According to Spark the Movement, learning for sustainable development enables every person to acquire the knowledge, skills, attitudes, and values necessary to create a sustainable future. The action approach of Spark the Movement aims to develop students' skills and thus their competencies.	During the module, the importance of personal development is emphasized. Students discuss this according to ten key competencies: teamwork, responsibility, commercial awareness, decision making, communication, leadership, trustworthiness & ethics, results orientation, problem solving, and organisational skills. Furthermore, students are encouraged to take actions themselves, with a smaller role for the teachers. This fosters competence development as well.

Table 2 gives an overview of the approaches of Spark the Movement and NHL Stenden according to ESD.

Students filled out the SAS and were interviewed before the start of the project. The second round of questionnaires and interviews took place when students had worked on the first part of the assignment, the context map. For this context map, students were expected to choose a

particular industry and to explore, analyze and combine trends and developments (Roest & Noppers, 2020). Next to this context map, students are expected to make a future vision, in which they describe how the industry could go further, addressing influences that can benefit or disturb the industry (Roest & Noppers, 2020). The effects of making the future vision are outside the scope of this research, due to time constraints.

Sustainability Attitude Scale

Table 3

SAS questionnaire results

	<i>before project</i>	<i>during project</i>	<i>difference</i>
1. Equal rights for all people strengthens as community.	4.75	5.5	+ 0.75
2. Community cooperation is necessary to solve social problems.	5.5	5.75	+ 0.25
3. Generally speaking, consumerism is not sustainable.	3.75	5.5	+ 1.75
4. Access to clean water is a universal human right.	5.75	6	+ 0.25
5. I am willing to put forth a little more effort in my daily life to reduce environmental impact.	5.25	6	+ 0.75
6. An unsustainable economy values personal wealth at the costs of others.	5	5.25	+ 0.25
7. I believe that many people can work together to solve global problems.	5.5	5.75	+ 0.25
8. Clean air is a part of a good life.	5.75	6	+ 0.25
9. Our present consumption of natural resources will result in serious environmental challenges for future generations.	5	6	+ 1
10. The well-being of others affects me.	4	4.75	+ 0.75
11. Biological diversity in itself is good.	5.25	5	- 0.25

The number indicates the average of students' responses.

Table 4

Sustainability attitude results

	<i>before project</i>	<i>during project</i>	<i>difference</i>
Overall sustainability attitude	5.05	5.59	+ 0.54
Ecological Sustainability subscale	5.44	5.75	+ 0.31
Social Sustainability subscale	3.95	5.44	+ 1.49
Economic Sustainability subscale	4.67	5.58	+ 0.91

The number indicates the average of students' responses.

Interviews

Students' responses reflect the information in the module book. They confirm the participatory style of education. They all picked a particular topic of interest and prepared interactive lectures to educate their peers on his topic. *'You could pick a topic of your own interest and concentrate*

your work on that. 'One wrote about the oil industry, someone else about capitalism and someone about energy. You could write about what you were interested in.' Each of the students recognizes that they learned from each other. *I learned from the interactive lectures we did together. You view things from different perspectives and you learn a lot from that.'*

They enjoy working on the project and feel engaged with the subject. *I think the project is really interesting and pushes you to think.* *I like the project! It is very different from what we do normally. I think the economy is very interesting (...) and this is the economy from a different perspective.* *I liked making the context map and I put a lot of time into it. (...) Honestly, I think this this is the nicest project in the whole programme.'* They emphasize that their study did not give any attention to sustainability issues before they started working on the project. *I am currently a third year student, and only now this theme has become important. My development as a student has actually been without attention for sustainability issues.'*

In the first round of interviews, the students did not feel influenced by a social norm. *Other people do make you think about sustainability, but it's not like I react to it very much.* *It's not like when someone on social media tells me to do something, I automatically do it. I stick to my own standpoints.* *I do what I think is right and do not really look at others.* *In my hometown there is not much attention for sustainability. I try to separate myself from this viewpoint, because I do have attention for such matters.'* While working on the project, students still feel like they are not influenced by a social norm to act a certain way. *I act for myself and because I want to.'* They do notice there is a difference in social norm based on how much people engage with sustainability. *I think there is a social norm in our group, because everybody works on the subject. You notice there is more awareness.* *I sense that when people are more aware of sustainability issues, this leads to behavioural change.* *I think the social norm is not there, because half of the people does not know anything about sustainability.'*

The students think differently about the extent to which they can control sustainability issues. In the first interviews, all have the feeling that you have to start yourself with changing your behaviour. *You have to start with yourself.* *Only when you are living sustainable yourself you can convince others to do so as well.'* In the second round of interviews, three of the four students talk about how their own behaviour has an influence on other persons. *For example, I influence my boyfriend and talk about documentaries to watch.* *Our neighbours did not*

separate their waste, but since we started doing that, we also bring a waste bag for them and they separate their waste as well now. 'If you as an individual start to show better behaviour, you can inspire others to do so as well.' Contrastingly, one student, that concentrated on the role of the government in working on the context map, thinks an individual cannot do as much and perceives big corporations and the government as the ones that need to constitute change. In making his context map, he found that the government does not act on sustainability issues well. *'One person cannot do it alone. (...) Big organizations like Shell (...) have such a large influence on the government that you cannot do much as an individual.'*

All agree that the entrepreneurs at the Circular Quarter were not involved enough, although they realise that the Corona measures have made this especially difficult. *'What we are doing is aimed at Circular Quarter, but there is no engagement of the entrepreneurs yet.'* *'I think the Circular Quarter should have been involved more from the beginning onwards, instead of just getting our advice at the end of the project.'* Further, students would have wanted more information on the goal of the project. *'I think it should be made more clear what is expected from us and what we are going to do for the Circular Quarter.'* *'We have talked to our teacher and honestly told her that we do not really get what is expected from us in the end.'* Two of the students have never visited the Circular Quarter before, and have not met any of the entrepreneurs. Students that worked with the entrepreneurs at the Circular Quarter before have doubts if their reports will have an impact on the enterprises, as they felt like some entrepreneurs were more cooperative than others. *'In the previous project, we worked on storytelling and that was fun to do, but I do not feel like what we did had any impact or that the entrepreneurs benefitted from our work. (...) There were only two entrepreneurs that seemed to be cooperative, the others did not want to cooperate.'* *'It really depends on the entrepreneurs and whether or not they want to cooperate.'* The students still see the importance of the project and want to help the entrepreneurs and municipality with their ideas. *'At least we can broaden their horizons, they can decide themselves what to do with it.'* *'I still want to do my work well, but I do feel a bit less motivation.'*

The students do not have the idea that the project has brought them competences to deal with sustainability issues. However, they recognize that the project has made them more aware of sustainability problems. They recognize these problems and see different perspectives. *'I know better how to do research about sustainability and how to analyse what I have found.'* *'I think*

I have better analytical skills now, I know better how to think critically and distinguish main and side issues.’ ‘I can better recognize circular initiatives and intentionally choose for these.’

All of the students are more conscious and aware of sustainability issues, they think about their own decisions and talk about it with others. *‘I talk to others about the project a lot, I really spread it as well.’ ‘The project has made me more aware that change is really necessary eventually, so we can better start now.’ ‘I notice I am more conscious about what I buy.’ ‘I am more conscious about what I eat and I look at the labels on products.’ ‘I have learned new things about sustainability and realised there was a lot I did not know yet.’*

DISCUSSION

This section discusses the results outlined above in line with the theory, and the research question. Dealing with most of the ESD challenges described above, Spark the Movement has encouraged the implementation of the ESD approach in Friesland and has managed to advise NHL Stenden in setting up a project that engages students with sustainability issues. The approaches of Spark the Movement and of NHL Stenden are largely in line with the vision set out in ESD. This means that both institutions are aware of developments in education, and seem to work mostly according to these developments. The integration of all three dimensions of sustainability could be improved, as there is more attention for economy and environment, as well as the amount of inter- and transdisciplinary learning. Furthermore, although both institutions aim for competence development, some competences get more attention than others. There is thus room for improvement to implement the aspects of ESD to a higher degree. The competences NHL Stenden has identified to be developed are not the same as aimed for by ESD, however, this does not mean that these competences are not developed while working on the project.

The results of the SAS questionnaire before the project started indicated a sustainability of 5.05 on the scale from one to six. The students’ attitudes were thus already high on the scale. During the project, their sustainability attitudes have increased. Except for statement eleven, the average response has increased for every statement. The social sustainability attitude has increased most, and economic sustainability has increased substantially as well. This indicates that the project has influenced and heightened students’ sustainability attitudes. Students are more aware the urgency of sustainability issues, which also comes forward in the interviews.

The changes in perceived control are less clear. Although some students have the feeling that their impact is too small, others are trying to contribute as much as they can and are doing this even more since they are working on the project. The change in perceived control is dependent on the topic students have worked on. Furthermore, the responses indicate that students sometimes lack knowledge of what actions they can take. Because the students did not get in contact with the entrepreneurs yet, they do not see the end goal of the project from the beginning onwards. Furthermore, the students that did a project at the Circular Quarter had doubts about entrepreneurs' willingness to adapt and to listen to students. Therefore, the students are not convinced that their end product will be put to use eventually. The project could be improved by involving the entrepreneurs of the Circular Quarter from the beginning onwards. Cooperation between students and entrepreneurs from the start will enable students to work on real life problems and to see the practical implications of their work.

The students do not feel much social pressure, but they are aware of a social norm on sustainability. They feel like they are not influenced by the social norm and they act according to what they think is right, not according to what they think is expected from them. They perceive most people to think too little about sustainability issues, so the social norm is not encouraging them to behave more sustainable. However, people that know more about sustainability influence people around them, making them more conscious. The project has made students more aware of the difference in social norm between people that are engaged with sustainability and those that are not. Although sustainability knowledge alone is not enough to bring about sustainable behaviour, it does seem to be a prerequisite.

The students are not aware of many competences being developed because of the project. However, looking at the key competences for sustainability identified for ESD, there are many that the project contributes to. Through working together with each other and with the entrepreneurs, students develop their collaboration competency. Through making a future vision, they need to think strategically and to anticipate. Students are asked to think critically about sources. By emphasizing personal development, students are asked to raise their self-awareness. Moreover, by looking at real enterprises and designing a future vision, the students are developing integrated-problem solving competency. Only the systems thinking competency does not seem to be included in the project.

Although this project has had a significant impact on student's sustainability attitude and has helped them develop competencies for sustainable development, the students all stress that this project was the only way through which they engaged with sustainability issues during their studies. Throughout the first two years of their studies they did not address sustainable development. Moreover, students that did not choose this particular project in their programme can complete the study without working on sustainability issues at all. Thus, sustainability is not interwoven in education, which leads to a low sustainability orientation from before the start of the project.

CONCLUSION

Both Spark the Movement and NHL Stenden are advancing the implementation of ESD. Because of their work, students are made increasingly aware of sustainability issues. Their sustainability attitudes are improved and they develop the capacities necessary for sustainable development. This offers excellent grounds for sustainable behavioural change. Contrastingly, the behavioural control and subjective norm perceived by students have not substantially changed. Although both Spark the Movement and NHL Stenden are heading in the right direction, adjustments need to be made to make sustainability education even more effective.

As discussed above, the perceived control and attitudes are seen as the most important factors to bring about the intention for sustainable behaviour. The interviewees' responses confirm that they do not feel influenced by a subjective norm in their sustainability behaviour. However, the subjective norm has the potential to be more influential when sustainability knowledge is higher; students do experience a subjective norm in groups with sustainability knowledge. Furthermore, the perceived control of students remains low when they are not aware of how they can contribute themselves. Emphasis should be put on what students can do themselves in a concrete manner. Theoretically, Spark the Movement has this focus already, in applying the small wins approach. However, the interviews make clear that this focus is missing in practice.

Just like the entrepreneurial orientation is essential for entrepreneurial intention, sustainability orientation is essential for sustainability intentions. If sustainability knowledge is increased, the sustainability orientation will be better as well. This sustainability orientation can positively influence all three antecedents of behaviour; students' desire, perceived feasibility and

perceived social pressure. Increasing sustainability knowledge will lead to better sustainability orientation and higher influence of the antecedents of behaviour.

To improve the potential for behavioural change, students should learn more about how they can contribute to a more sustainable society. More emphasis should be put on the impact students can make themselves. Students should be engaged with their direct surroundings and made aware of the contributions they can make. This makes them aware that they can have an impact themselves, instead of feeling dependent of the governments, corporations and their families or housemates. Furthermore, sustainability has to become the norm. While projects like these definitely help raise awareness among students and change their attitudes, it is vital that students are engaged with sustainability issues from the beginning onwards. Sustainability should be interwoven throughout the whole curriculum, not only in their higher educational studies, but starting from primary education. This will result in a more conscious society, in which sustainable behaviour is the norm for everybody, not only for knowledgeable groups.

This research is not without limitations. First, this study takes into consideration the different antecedents for behavioural intention. However, it does not measure actual behavioural change. People might feel like their intentions have changed, but this does not mean that they actually display these changes as well. Changing mindsets and attitudes of students can create societal change through talking to others and convincing others of their opinions. However, without actually changing their behaviour and also living sustainably, the effects are less.

Second, this study took place during the Covid-19 crisis. This has limited face to face contact between students, teachers and the entrepreneurs at the Circular Quarter. This decreased contact between students, which has resulted in less social pressure. When students would have met and went to class together, they might feel more engaged with the subject and be more aware of a subjective norm. Also, more interaction with each other could help students to think about the actions others are taking and what they can do as well. Furthermore, the Covid-19 crisis has changed the situation in the world and has shed new light on sustainability issues for many people. This may have influenced the students' sustainability attitudes as well. We cannot measure the changes *ceteris paribus*, and this has to be kept in mind with interpreting results.

Third, the scope and timeframe of this study is limited. Unfortunately, the deadline of the

project that is used as a case study is outside the timeframe of this research. Therefore, this thesis can only take into consideration the process of making the context map, the future vision is outside the scope of this research. This second part is more practical and problem-solving oriented, which are reasons to believe they will influence student's sustainability intentions further. This offers opportunities for further research. Moreover, the long term effects of participating in the project are not measured. Further research can explore this as well. Furthermore, only four students participated in the project. Although every participating student has been interviewed, a sample of only four students is limited and this makes it difficult to make inferences from the results when participants give contrasting responses.

To conclude, sustainability education offers opportunities to encourage sustainable development. Sustainability education has shown to positively influence mainly the sustainability attitude of students, and perceived control and subjective norm as well. Sustainability should be included in the curriculum from the beginning to improve sustainability orientation; sustainability knowledge is a prerequisite for behavioural change. Further, in education strategy, the focus should be put on perceived feasibility and desirability of sustainability. This will increase the chances of students becoming sustainability change-makers.

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APPENDIX A – SUSTAINABILITY ATTITUDE SCALE

The statements in the SAS are the following:

- 1) Equal rights for all people strengthens as community.
- 2) Community cooperation is necessary to solve social problems.
- 3) Generally speaking, consumerism is not sustainable.
- 4) Access to clean water is a universal human right.
- 5) I am willing to put forth a little more effort in my daily life to reduce environmental impact.
- 6) An unsustainable economy values personal wealth at the costs of others.
- 7) I believe that many people can work together to solve global problems.
- 8) Clean air is a part of a good life.
- 9) Our present consumption of natural resources will result in serious environmental challenges for future generations.
- 10) The well-being of others affects me.
- 11) Biological diversity in itself is good.

All items set to a 1—Strongly Disagree, to 6—Strongly Agree, scale.

Scoring note:

- Overall measure of sustainability attitude: Calculate mean of all 11 items
- Ecological Sustainability Subscale: Calculate mean for Items 4, 8, 9, and 11
- Social Sustainability Subscale: Calculate mean for items 1, 2, 7, and 10
- Economic Sustainability Subscale: Calculate mean for items 3, 5, and 6

(Zwickle and Jones, 2017)

APPENDIX B – INTERVIEW QUESTIONS

Questions Interview I

- What does ‘sustainability’ mean to you?
- What are you expecting from the project about the Circular Quarter?
- How does sustainability play a role in your life right now?
- Do you think it is important to make sustainability changes in current society?
 - o Why?
- How does social pressure influence your attitude and behaviour regarding sustainability?
- How do you think you can have an impact in making society more sustainable?
- How would you estimate your own knowledge on sustainability?
- How does your studies contribute to your knowledge on sustainability?
- How do you make sustainability changes in your own life?
- What kind of skills do you think are important to have to contribute to making society more sustainable?
- In what way do your studies contribute to developing these skills?

Questions Interview II

- What does ‘sustainability’ mean to you?
- What have you done until now in your project at NHL Stenden?
- What are you still going to do for the project?
 - o What do you think of the project at NHL Stenden?
 - o What are you learning by being engaged in the project?
- Do you think it is important to make sustainability changes in current society?
 - o If so, why?
- How does sustainability play a role in your life?
- How would you estimate your own knowledge on sustainability?
- How does your education contribute to your knowledge on sustainability?
- How do you think you can have an impact in making society more sustainability?
- How are you making sustainability changes yourself?
- How does social pressure influence your sustainability behaviour?
- To what extent has the project influenced your thoughts on sustainability?

- To what extent has the project influenced your thoughts on your own influence on sustainability?
- To what extent has the project influenced your view on the social norm on sustainability?
- In what way has the project influenced your own sustainability behaviour?
- How has the project changed your abilities to address sustainability issues?
- Do you feel like your work will influence the entrepreneurs at the Circular Quarter?
- How would you improve the project?