Dimensions of Perceptions

A Case Study of How Academic Orientations Influence Students´ Perceptions of Sustainable Development

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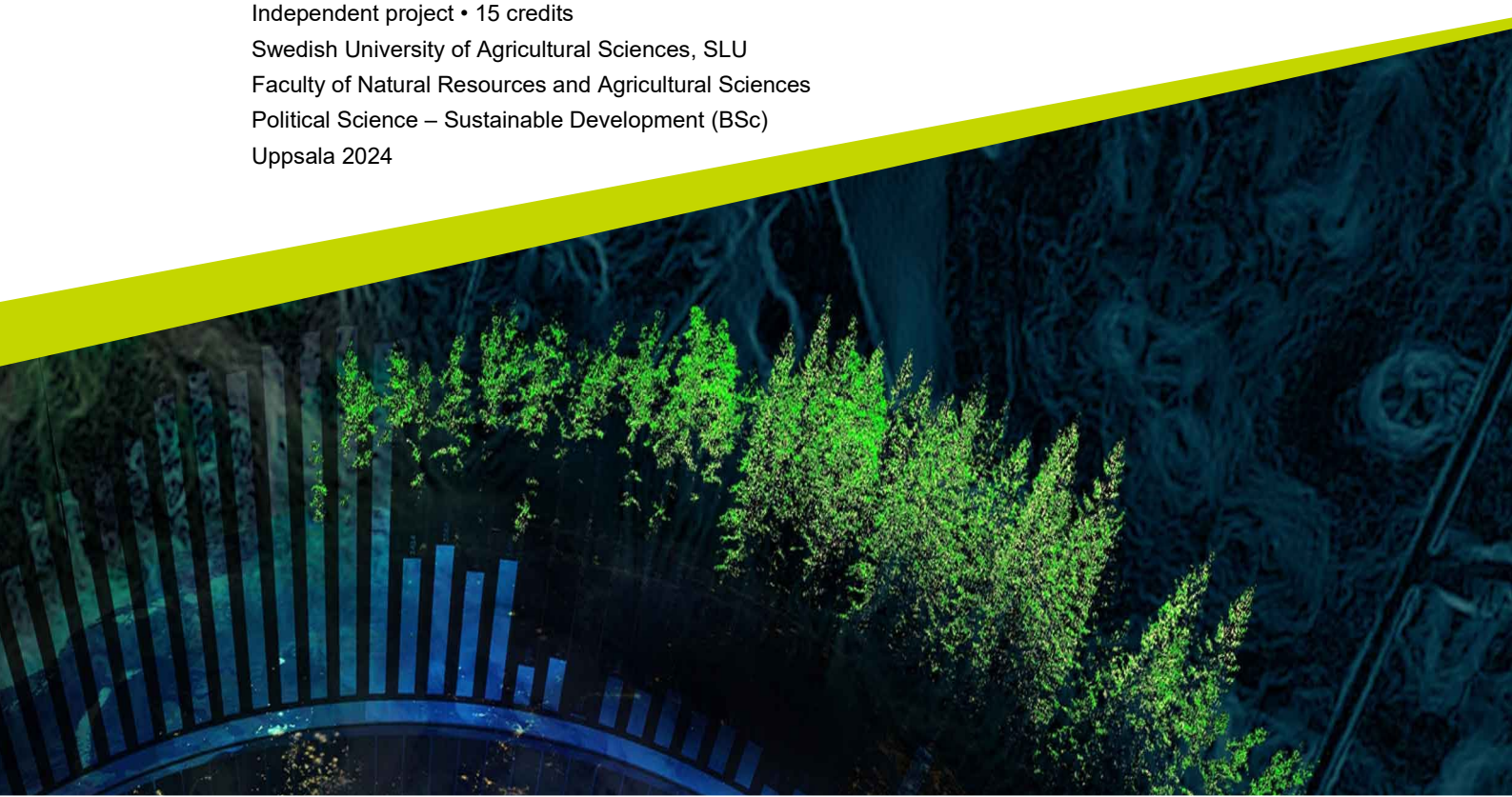
Independent project • 15 credits
Swedish University of Agricultural Sciences, SLU
Faculty of Natural Resources and Agricultural Sciences
Political Science – Sustainable Development (BSc)
Uppsala 2024



Dimensions of Perceptions. A Case Study of How Academic Orientations Influence Students´ Perceptions of Sustainable Development

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Credits:	15 credits
Level:	First cycle, G2E
Course title:	Independent project in Sustainable development, G2E
Course code:	EX1019
Programme/education:	Political Science – Sustainable Development (BSc)
Course coordinating dept:	Department of Urban and Rural Development
Place of publication:	Uppsala
Year of publication:	2024
Copyright:	All featured images are used with permission from the copyright owner.
Online publication:	https://stud.epsilon.slu.se

Keywords: education, student perspectives, three dimensions, sustainable development, youth

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Abstract

Amidst increasing global challenges in social, economic and environmental dimensions, the importance of involving our young generations in the discussions on how to address these connected issues is increasingly being recognised. This case study explores how different academic orientations influence students' perceptions of sustainable development across three distinct programmes at Swedish universities. These are BSc Biology and Environmental Sciences at the Swedish University of Agricultural Sciences, SLU, BSc Business and Economics at Stockholm School of Economics, SSE, and BSc Peace and Conflict at Uppsala University, UU. Through interviews and thesis content analysis across these university programmes, this case study reveals that students' academic orientations influence their contextualisation of sustainable development, providing students with the language and frameworks to discuss and engage with these concepts effectively. This, in turn, influences students' emphasis on the environmental, social and economic dimensions of sustainable development. The findings from this study reveal the pivotal role that education has in equipping future generations with the necessary language and frameworks to navigate and address sustainable development.

Keywords: education, student perspectives, three dimensions, sustainable development, youth

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Abbreviations

Bio students - Students from the Biology & Environmental programme

CSR - Corporate Social Responsibility

CSV - Creating Shared Value

Econ students - Students from the Business & Economics programme

ESD - Education for Sustainable Development

ESG - Environmental, social and governance.

P&C students - Studentsfrom the Peace & Conflict programme

SD - Sustainable Development

SLU - Swedish University of Agricultural Sciences

SSE - Stockholm School of Economics

UU - Uppsala University

“These voices carry the hope of half of the planet, for a sustainable future for all. ”

(Ms. Irina Bokova, Former Director-General of UNESCO, 2015)

1. Introduction

The most commonly accepted definition of sustainable development came from the 1987 United Nations Brundtland Commission defined sustainable development; "Sustainable development seeks to meet the needs and aspirations of the present without compromising the ability to meet those of the future" (World Commission on Environment and Development 1987). The Brundtland Report also gave notice of the importance of the symbiosis of social, economic and ecological perspectives of sustainable development;

"Sustainable development involves more than growth. It requires a change in the content of growth, to make it less Material- and energy- intensive and more equitable in its impact. These changes are required in all countries as part of a package of measures to maintain the stock of ecological capital, to improve the distribution of income, and to reduce the degree of vulnerability to economic crises." (World Commission on Environment and Development 1987).

Sustainable development is commonly based on these three dimensions; social, economic and environmental sustainable development (EU Trade 2024). Yet, if you were to google "the meaning of the three dimensions of sustainability" you would most likely find a plethora of different interpretations of what these dimensions mean for sustainable development. Over the years, policymakers and scientists have been trying to conduct a definition of what these three pillars entail and how they relate to the development of sustainability (Purvis et al. 2018). Personally, I encountered the problem of this seemingly elusive understanding of what sustainable development entails and its practical application to studies, during my

engagement within my University Programme Council. All council participants, including professors, had very different interpretations of what these dimensions mean. With a continuous focus on the Swedish education system, the Swedish Higher Education Act (Swe: Högskolelagen SFS 1992:1434) HL 1 kap 5§ says: “Högskolorna ska i sin verksamhet främja en hållbar utveckling som innebär att nuvarande och kommande generationer tillförsäkras en hälsosam och god miljö, ekonomisk och social välfärd och rättvisa.”or the English translation:
"Universities should in their operations promote a sustainable development that ensures that current and future generations are assured a healthy and good environmental, economic and social welfare and justice.”
Therefore, Swedish law recognises that all higher educational institutions in Sweden should promote the three dimensions of sustainable development into educational programmes. Sweden, and several other countries (UNESCO 2023) made the decision to include the teachings of environmental studies in educational curricula, as it has been seen as a key instrument to realise the Millenium Development Goals (or since 2015 - the Sustainable Development Goals, SDGs) (Wals & Kief 2010).

The theoretical understanding of the interconnectedness of the three dimensions of sustainable development, however, is complex and as an educational task it has not yet been adequately defined, often described as too vague and abstract. As a result of this, there is evidence of students and teachers often feeling overwhelmed, both with regard to the understanding and teaching the concept of sustainable development. (Kioupi & Voulvoulis 2019)

I believe that reflections and academic theses from university students from various programme orientations, meaning different thematic focus, can offer important insights on how they define sustainable development. By learning more of youths' insights and discussions on the environmental, economic and social issues we may find that they can offer more diverse experiences and perspectives that can be crucial for the development of future policies or research in this field (United Nations 2022).

1.1 Aim of research and thesis question

The aim of this study is to gain a deeper understanding of how different academic orientations influence the way students perceive sustainable development. My hypothesis is these students, with different academic orientations will also have different perceptions of what sustainable development entails and emphasise dimensions differently within that perception. To test this hypothesis within the given time limitation of this thesis, I have chosen to conduct a case study of how university students from three different Swedish universities have conceptualised and perceived the entailment of sustainable development. The programmes used for this case study are BSc Biology and Environmental Sciences at the Swedish University of Agricultural Sciences, SLU, BSc Business and Economics at Stockholm School of Economics, SSE, and BSc Peace and Conflict at Uppsala University, UU. To test the hypothesis and gain a deeper understanding of how students from different academic orientations perceive sustainable development, I have chosen to interview three students from each programme as well as to undertake complementary analysis of past thesis papers to examine how the topic of sustainability has been contextualised. While my initial assumption is that students from BSc Business & Economics most likely will emphasise economic dimension and students doing a BSc in Biology & Environmental Sciences will accentuate an environmental dimension and Peace & Conflict students will discuss the social dimension, the chosen methodological approach is designed to provide as neutral and unbiased framework as possible to test these hypotheses. I have chosen a theoretical social constructivist perspective when analysing the results. Social constructivism is a branch of the larger field of constructivism, quoted as, "*Knowledge is constructed in the mind of the learner*" in Bodner, (1986). This theory and how it applies to this study will be further discussed in the theory chapter. The main thesis question that I aim to investigate with this case study is;

In what ways do university students from different academic orientations understand sustainable development differently, and how do they emphasise the environmental, social and economic dimensions of sustainable development?

1.2 Structure of thesis

Following the above introduction chapter, including the aim of research and thesis question, the coming chapters, the second to the sixth are structured as follows. Background (chapter two), contains an overview of the previous academic literature addressing students´ perceptions of sustainability, a background to the university programmes used for this case study and a short overview of the sustainable development definition. In the third chapter I explain the methodological research approach and design for this study, including delimitations. The fourth chapter discusses the theoretical social constructivist approach and its relevance for this study. The fifth chapter contains a presentation of the results gathered from the interviews and theses research. The sixth chapter analyses and discusses the results in relation to the thesis aim and question, and also presents a theoretical view of the results. It finishes with a reflection on the need for future research.

2. Background

This chapter provides an overview of previous research in the field and the research gap this study can contribute to. It also provides a definition of Sustainable Development and presentations of the university programmes used for this case study.

2.1 Previous literature and research findings

There has been previous research on the differentiating perceptions of sustainable development. The base of student perspectives is broad as seen in the following studies.

In Portugal a study was conducted among students of the Portuguese public higher educational institutions in order to gain a deeper understanding of the students' perceptions of sustainable development. An online questionnaire was used, including 1257 students from different schools. The study concluded that while students are aware of sustainable development, many wished for more education on the matter as rising concerns of climate change was documented (Alexio, Leal & Azeiteiro 2020). In Egypt, a study was conducted with the aim to measure students' perceptions towards sustainable development as a concept. The study examined students' perception of sustainable development before and after joining Heliopolis University where the methodical approach of in-depth interviews along with questionnaires were used to gather material. Results of this study show that after joining university students express a stronger understanding of the concept of sustainable development and had adapted their understanding into their everyday life (Khalil, et al., 2013). There has also been research conducted in Sweden. A qualitative case study of how university teachers at Uppsala University and SLU

perceive the sustainable development concept and how they make use of the sustainable development concept in their teaching. Interviews along with theories from psychology as a methodological approach was applied. The study found that many teachers perceived sustainable development as an abstract concept or a so-called oxymoron. The study also found that teachers highlighted pedagogical issues of teaching sustainable development to students with different academic backgrounds, the study concluded that one main challenge in Education for Sustainable Development was the absence of a clear message regarding the sustainable development concept (Karlsson 2016).

Education for Sustainable Development, ESD, is a term used when discussing sustainability education and refers to the integration of sustainable development issues into teaching and learning (UNESCO 2023).

Another similar study in 2020 in Sweden addressed upper secondary students' views on the three dimensional concept of sustainable development and their interconnectedness. The aim of this study was to study the diversity of students' views of sustainable development, to gain an understanding of how students consider the three dimensions when addressing sustainability issues. The study used a mixed methods approach using questionnaires and interviews. This study concluded that students' views, though thorough different approaches, most specifically relate to the economic dimension. The study also found that by recognizing these differences there is an opportunity to strengthen educational strategies to enhance the understanding of the complexities and dynamics of sustainability issues (Berglund 2020).

A study conducted in Spain in 2020 delved into researching approaches for teaching and learning about the subject of sustainability, in order to characterise students' perceptions in relation to the three dimensions. The study focused on Master degree students in education, with the aim to identify teachers training needs for Education for Sustainability. The study used a mixed methods approach of questionnaires and interviews and found that views from informants mainly reflected a perception of sustainability that was linked to the environmental dimension (García-Gonzalez et al., 2020).

A study undertaken in London 2019 explored the systematic approach for connecting sustainability goals and the conceptual understanding of sustainability to educational outcomes. It stressed that even though many educational strategies and policy recommendations stress the importance of implementing sustainability in education, these have had little positive impact as the contextual understanding of sustainable development often is deemed too vague and abstract. Authors mean that this leads to a disengagement from ESD from both teachers and students following the lack of understanding the exact entailment of sustainable development. The study found that in order to design appropriate educational pedagogies for ESD that deliver what they are designed for, then definitions and understandings of sustainable development need to be brought to light (Kioupi & Voulouis 2019).

Prior studies investigating perspectives of university students have been conducted in this field. These have been comparative studies between Swedish and Russian students (Rootzén, 2006) and of Swedish and German students (Brandt, 2016). Based on my literature review, I have not found studies of the difference in perceptions of sustainable development and how it relates to the three dimensions, amongst university students in Sweden. Further, I have not identified any studies in this context, combining interviews and analysis of students´ thesis content. With this study I aim to fill this knowledge gap and ultimately see if and how this approach of methodologies could contribute to the research aimed at the enhanced understanding of students' perceptions of sustainable development. Results of this study may also relate to ESD but I am not targeting ESD explicitly in this study.

2.2 Sustainable Development definition

The most commonly used explanation for sustainable development comes from the Brundtland Report, which highlights using resources in ways that satisfies the needs of the present without limiting future generations the same possibilities (World Commission on Environment and Development 1987). The United

Nations official site further explain sustainable development as the integration of the three dimensions of sustainability; economic, social and environmental. The three dimensions are explained as a balancing act, where one can not be replaced by the other; they are all to be regarded with equal importance. Further, economic growth, social inclusion and environmental protection has to be balanced and regarded equally to define development as sustainable (United Nations, 2023). Following the use of these dimensions as a way to define sustainable development, the United Nations´ members states adopted the global development goals, first the Millenium Development Goals (MDG) and thereafter the Sustainable Development Goals (SDGs). The seventeen SDGs are the core of Agenda 2030 for Sustainable Development. The SDGs represent a call for action and were created as a way to encompass the practical entailment of the three dimensions so countries, organisations and people could use these goals as framework to lean on when discussing sustainable development (UNDP 2015). In the following parts of this thesis, I will be using the abbreviation of SD when referring to sustainable development.

2.2.1 Biology and Environmental Sciences at the Swedish University of Argicultural Sciences

From the overall SLU environmental policy the university posits:
"SLU contributes to ecologically, socially and financially sustainable development. Environmental thinking and environmental aspects are integrated in all decision-making and are part of all activities within SLU's organisation. The environmental work att SLU is a long-term process which builds on continual improvement and is based on the environmental regulations in force." (SLU, 2023)

This bachelor programme from which I will be conducting interviews and analysing previous theses are from the three-year Bachelor programme in Biology and Environmental Science, or Biologi och Miljövetenskap as it is called in Swedish. Depending on the major you choose will result in either a degree of Bachelor of Science with a Major Biology or a degree of Bachelor in Science with a Major in

Environmental Science. The first year of the programme is co-read til the students decide what to major in during the second year; however, both majors have a strong focus on environmental studies. Some courses included in the programme are Essential chemistry, Ecology, Energy and Environment, both majors also offer students a chance to apply for qualified internships within the chosen subjects (SLU, 2024).

2.2.2 Business and Economics at Stockholm School of Economics

SSE has a sustainability strategy plan for 2023-2027 which outlines the following in regard to the study of sustainable development:

"As one of Europe's leading business schools, SSE educates leaders and equips them with the knowledge, skills and dispositions to pursue this global agenda for sustainable development. Because the solutions to the challenges we face do not exist within a single academic discipline, a multidisciplinary approach is necessary with collaboration across all of SSE's core subjects- business, economics and finance -and involving all SSE's various activities." (HHS 2023)

The programme that I will be gathering material from SSE is the three-year Bachelor programme in Business and Economics with the chance to specialise in; Accounting and Financial Management, Economics, Finance and Management: Operations, Consulting and Change and Marketing. Similar to the Biology and Environmental Science programme at SLU, there are mandatory courses all students within the programme have to take before deciding what to further specialise in. Specialisations include for example; Data Analytics, Finance, Innovation and Global Challenges. The programme also offers a chance to apply for a qualified internship as part of the course electives (SSE 2024).

2.2.3 Peace and Conflict at Uppsala University

Uppsala University has a strategy plan for sustainability saying as following:

“The mission of Uppsala University is to gain and disseminate knowledge for the benefit of humankind and for a better world. The University rests on the fundamental belief that investments in education and research contribute to a better future. The ultimate goal is for research and education to make a difference in society in the long term. Our University will put all its breadth and combined strength into supporting sustainable development, engaging with the wider community and promoting openness and respect.” (UU 2023)

In this study I will be gathering material from the three-year Bachelor programme in Peace and Conflict at Uppsala University. The programme leads to a Bachelors of Social Science with a chance to major in Peace and Conflict Studies or Development Studies. Similar to the other selected programmes, both majors require a fundamental basis of both fields of study before deciding a major in the latter part of studies. Other than the chosen major, the programme offers students a chance to engage in one term of studies of their choice as well as an opportunity to apply for a qualified internship or an exchange year before writing their bachelor's thesis. (UU 2024)

3. Theoretical framework

Background on social constructivism

Psychologist Jerome Bruner introduced the theory of constructivism in 1966, emphasising that individuals build their own understanding of the world through experiences and by reflection of those experiences. This way of thinking is often linked to cognitive theory, this approach is sometimes also known as cognitive constructivism. It suggests that learning is an active process in which learners adjust their already existing beliefs or disregard new information based on how it aligns with prior knowledge (Idaresit Akpan et al. 2020).

Social constructivism is a variety of cognitive learning which highlights the cooperative aspect of learning which was developed by Soviet post-revolution psychologist Lev Vygotsky in late 1970s. This theory, as discussed by the Berkeley Graduate Division (2024), diverges from more traditional views of other cognitives who believed that learning could be isolated from its social environment. This view was contested by Vygotsky who asserted that all cognitive functions stem from its social environment and should therefore be understood as their products. He highlighted that language and the culture we are surrounded by are of great importance in shaping our cognitive development as well as how we interpret our surroundings. Language and the culture provide the structures in which we as humans experience, convey and comprehend reality. Moreover, Vygotsky believed that human cognitive structures are fundamentally shaped by social interactions. Thus, knowledge is not merely constructed by the individual but rather co-constructed through social collaboration (ibid, 2024).

3.1 Social constructivism and environmental studies

Applying social constructivism as a theoretical perspective on environmental issues and studies have increased over the years (Klein 2002). Following this theoretical notion, social constructivism maintains that learning is fundamentally a social process, wherein individuals construct knowledge and ways of understanding through collaborative interactions where ultimately our social environments and surrounding cultural norms help shape the way we view reality. Applying the theory to environmental education and environmental issues offers an interesting view of how we define sustainable development. Implying that there is a need for sustainable development and that there are environmental issues needed to address is the result of a shared social construction that environmental aspects are worth protecting. The theory means that what society perceives as environmental problems are not inherently problematic but become accepted as issues as larger groups of both influential people and our overall surroundings begin to recognize that these are problems worth dealing with (Gómez Gonz ález Cozío 1998). The theory emphasises the need to recognize that people will approach a learning situation with a different array of prior life experiences which in turn significantly impacts each person's interpretation of that situation or experience (Robottom 2004).

3.2 Relevance to this study

By reviewing students' answers and theses contents with a social constructivist perspective, I aim to gain a deeper understanding as to how students' academic orientation influences their perception of SD. As described further in the methodology chapter, all interviews are conducted on students' respective university campuses meaning that students are thinking and reflecting on answers in the same place where they normally come to learn and also reflect on what they have learnt. Theses content analysis further complements this, by providing an insight as to how students academically articulate and apply gathered knowledge of sustainability in text. The social constructivist perspective emphasises the role of

context and social interactions in the learning process, meaning that knowledge is not only constructed individually but also through active interaction and conversation with peers. (Greenwood 2020) The use of the theory will help understand the glasses of which students use to define problems and emphasises relating to sustainability, which will provide deeper insights as to how varied academic orientations influence the way students discuss and understand SD. This theoretical approach aims to disclose the ways in which students' different academic orientation have influenced their perceptions, to investigate if and how students emphasise dimensions differently.

4. Methodology

4.1 Mixed methods as research approach

To address my hypothesis i.e. to explore how different academic orientations influence students' perceptions of SD, I have used two different and complementing ways of collecting information. These two approaches encompass interviews with informants, which are students of the described programmes, as well as an assessment of thesis contents from students enrolled at the same programme. While both approaches weigh heavily on qualitative methodology, I have intentionally combined both qualitative and quantitative methodologies to enhance data collection, analysis and interpretation. This approach of mixing qualitative and quantitative has been an increasingly favoured research method for social analysis (Matthews & Rob 2010, p.40). Qualitative research is mainly used for gathering descriptive data such as personal insights, subjective experiences and thoughts. This approach of research focuses more on the expressions and perspectives of participants. On the other hand, a quantitative research method is primarily used for gathering and analysing numerical and structured data, this approach is often used for statistical research and analysis. (ibid, p.140).

When conducting literature research for this study, I noticed that while many studies had conducted questionnaires in relation to interviews, I did not find a study where theses content analysis in relation to interviews had been conducted when researching students' perceptions and understanding of SD. I therefore decided to test analysing previous theses from students enrolled at each respective programme along with the in-depth interviews as a complementary way to gather more nuanced knowledge of students' perspective. The quantitative approach involved the

counting of relevant keywords in previous theses from students enrolled at the studied programmes followed by a qualitative content analysis. The content analysis aimed to see if there was varied emphasis placed on dimensions in students' theses as a way to gain a deeper understanding as to if and in what way respective programmes had influenced students' perceptions of SD. Using this methodological approach, allowed for an investigation into students' perceptions while maintaining as much neutrality as possible. I selected these specific programmes because they closely align with the three dimensions; BSc in Business and Economics to the economic dimension, BSc in Biology and Environmental Sciences to the environmental dimension and BSc in Peace and Conflict to the social dimension. This selection was designed to explore in depth whether and how students perceptions and emphases on sustainability are influenced by their academic orientation.

4.2 Qualitative method

In the main qualitative component of this study, I have conducted individual, semi structured interviews with nine students, three students from each of the programmes. The interviews were semi-structured, meaning that the interview questions followed the specific topic, which for this thesis, was the perception and definition of SD and its relation to the three dimensions, amongst university students (Bryman 2002, p.301). The participants, hereafter called informants or students, of this study have not been identified by name, gender or age as this study's focus purely lies in their insights regarding SD and no other variables were addressed. However, considering that this study specifically aims to understand students' perceptions of SD, the information gathered are from students who are within the age-range of 19-25. All interviews were conducted on the university campuses where students are enrolled. This meant that students were situated in a familiar learning environment which naturally encouraged reflection on studies. The selection of participants was chosen based on random loose connections.

The one-on-one interview format was chosen to avoid the biases and conflicts that can arise in group settings. This approach ensured that each student freely could express their views without direct influence from others, which allowed students to discuss the topics using their own words and thoughts, hence enriching the depth of their responses which was the aim of using this method (Robson & McCartan 2016, p.300). When conducting semi-structured interviews it is common to send an interview guide to the participant beforehand in order for the interview session to remain within the researched topic (Bryman 2002, p.301). The interview guide acts as an agenda for the interviews allowing the participants a chance to see the questions beforehand ensuring more precise answers as well enabling the participant to get a chance to prepare answers (Matthews & Rob 2010, p.228). For this study, each student received the same interview guide with questions 20 minutes before the interview, ensuring equal opportunities to shortly prepare for the interview. I intentionally chose such a short time for students to prepare, so that it would minimise the risk of informants googling information beforehand. It was a way to ensure that thoughts and insights from students were their own. Ahead of each interview, an overall wellness check was conducted to ensure informants felt comfortable doing the interview. Each interview was recorded and transcribed with permission. I also chose to take notes during the interviews so that when thoughts or questions arose while the student was speaking I had a chance to ask them and not interrupt as they were speaking. As the interviewer it was my job to lead the session and ensure that the informant felt comfortable while also ensuring that discussion held was relevant to the aim of the study, which is in line with Matthews & Rob 2010, p.196. All informants were Swedish and many of them felt more comfortable doing the interview in Swedish, this led to 6 out of 9 interviews being conducted in Swedish. The same interview questions were used. Swedish quotations and citations have been translated to English for appropriate use for this study.

4.2.1 Interview guide

Introduction

Wellness check along with a presentation of participant and researcher.

Explanation of confidentiality and asking for permission to record and transcribe. Presentation of the topics for interviews, for the aim of research and thesis question and the use of information.

Interview questions:

1. *What does the term "sustainable development" mean to you?*

2. *What challenges do you foresee in achieving sustainable development?*

3. *In line with your prior studies, how has the subject of sustainability been discussed?*

4. *Do you remember a certain time during your coursework where sustainable development was particularly highlighted? If so, what was mentioned and in what course/es?*

5. *Has your definition or perception of what sustainable development means evolved during your time at the university?*

4.3 Quantitative method

I chose to focus exclusively on theses published in the year 2023 as to gather the most recent theses. This approach allowed for a more precise assessment and comparison to insights gathered from interviews. From the year 2023, a total of 20 publicly available theses from each programme was used. The sources were Epsilon archive for Student Projects, SSE official online library and UU DiVA. The reason I selected 20 theses was because there were only 20 theses available from the BSc in Biology and Environmental Science, dated 2023. In comparison there were 71 available theses from the BSc in Peace and Conflict and 120 theses from the BSc in Business and Economics. In order to get the same presentation in numbers from the two latter programmes, a randomised selection of 20 theses per programme was made using the Excel RAND function (=RAND()). Using a randomised controlled

collection for research, is frequently portrayed as the best way of establishing a generative causation (Robson & McCartan 2016, p.32).

A content analysis was performed on each individual thesis. Content analysis is a technique for looking at the presence of which certain words occur in text or data and to observe how these words are used, as a way to aid in understanding underlying meaning and relationships to each other (Matthes & Rob 2012, p.395). The search function (command + F) in the PDF of each theses was used for the following keywords:

- Sustainable development (Hållbar utveckling)
- Sustainability (Hållbarhet)
- Agenda 2030 (Agenda 2030)
- SDGs (Globala hållbarhetsmål)

If the thesis analysed was in Swedish, the search for the keywords used the corresponding Swedish translation. (Words in brackets above). I motivate the use of these specific keywords because they all relate to sustainable deveopment in a way that is not directly specified to either of the three dimensions of sustainable development. If a certain keyword appeared at least one time in a thesis, it was counted as one. For the set of theses (20) for each programme, the numbers were added up for each keyword. Thus, this part of the methodology was based on quantitative measures, with the purpose to see if the words were more prevalent in one programme, in comparison to the others. For each thesis, where any of the listed keywords above was located, I analysed the relevant contents and made notes of students' SD interpretation. These referred to how the concept of sustainability was approached and how the three dimensions related within that context, including any specific emphasis on any of the three dimensions or if they were given equal attention. This was a qualitative methodology approach. The above represent three pathways for information - the output from interviews, numeric values (the occurrence of keywords in theses) and the result from analysing the theses that included the keywords.

4.4 Delimitations

This thesis is contextually limited to the Swedish educational arena, considering that the empirical material of this study is solely based on interviews and theses research from students at specific Swedish universities. However, the theories and methods used for this research are not limited to this specific empirical material and Swedish context. They can be applied to similar research with other geographical or cultural aspects. Further should be mentioned that I will be using dimensions and aspects synonymously throughout this essay when referencing social, economic and environmental sustainable development. Sometimes a fourth pillar is applied to the definition of sustainable development. These often come in the shape of either human sustainability or culture sustainability (RMIT University 2017) (Hawke 2001). However, I will only be referencing the three mentioned dimensions as these are the recognised dimensions of sustainable development according to the United Nations (2023).

5. Results

In this section I will first present the results from interviews and then the results from the analysis of theses.

5.1 Results – Interviews

The following are the views and understandings gathered from interviews, following the order of the questions. The informants' answers from all three programmes are merged under each question. The students answers to questions three and four tend to blend together, thus these answers have been compiled.

1. *What does the term "sustainable development" mean to you?*

Biology and Environmental Science students, hereafter called **bio students**, had a clear emphasis on the environmental aspect of sustainability in relation to the other aspects. When answering this question, all **bio students** highlighted the importance of sustainable resource use and the maintenance of natural balance in nature as well as the importance of biodiversity and ecosystem services for sustainable development. "*When I think of sustainability, I mainly think of the climate and creating a future where people can live together with nature, we are dependent on it.*" Responses from Business and Economics students, hereafter called **econ students**, primarily focused on economic elements of sustainability. Students discussed sustainable development in terms of maintaining economic growth, sustaining national welfare and getting industries to adjust to be more eco-friendly. **Econ students** also highlighted the importance of future resource availability, but in relation to sustain economic stability to create a sustainable future. "*I believe in growing the economies in terms of increased income and economic welfare, where*

economic resources are also available for future generations." Peace and Conflict students, hereafter called **P&C students**, mainly discussed the political and economic aspects of sustainable devleopment. Some stressed a forward-thinking approach where sustainable development is reached by successful integration of positive economic growth along with effective climate policies. "*Sustainable development is an investment in the future, both economically and politically where development is beneficial for future generations*." Another student emphasised a clear negative view on capitalism in light of sustainable development - meaning that the economic and environmental aspects, are impossible to coexist the way they are today if we are to have a sustainable future. When answering this question - all students' responses contained a strong emphasis on the importance of using and preserving resources in a way that allows both people today as well as future generations to meet their needs, whether through ecological balance, economic policies or political strategies.

2. *What challenges do you foresee in achieving sustainable development?*

The challenges that **bio students** primarily spoke about focused on the dangers of societal reluctance to change lifestyles. They stressed that until those in more comfortable positions (referencing to people in the global north) learn to live a little bit "worse" and make sacrifices for global sustainability we won't have actual sustainable development. These students also expressed concern and scepticism about the political willingness to make the necessary decisions for environmental protection in fear it might steer potential voters away. All **bio students** stressed the dangers of the focus on viewing economic growth as a way to reach SD, meaning the focus needs to shift from human development to environmental development in order to achieve a SD. Where a student expressed "*Capitalism is the biggest threat in a way, as its founding interest goes against so many aspects of sustainability, like growth over reduced emissions*." Responses from **econ students** mainly focused on economic and industrial challenges. Students spoke of the inefficiency and the dangers of waste in textile industries as well as the difficulty in making sustainability appealing and profitable for companies as the main challenges for achieving sustainable development. One student expressed "*We need to make*

sustainability profitable for companies". **Econ students**' answers stressed the need for businesses to invest in sustainable practices and technology, such as renewable energy, where solar energy was specifically mentioned. **P&C students** specifically referenced economic and bureaucratic hurdles for achieving sustainable development, mentioning the responsibilities of larger economies, "*The biggest obstacle is how to get countries with stronger economies to take their responsibility and become more sustainable.*" They highlighted the challenges of capitalism and its effects on smaller, local enterprises and advocated for a systematic shift toward supporting small-scale businesses to foster a more sustainable and circular-economy.

Altogether, students' answers often related back to the current conflict of how economic structures and practices can coexist with sustainable goals. There was also a seemingly general belief from all students that there is an unsustainable resistance from both the public and politicians to make the necessary but potentially uncomfortable changes for a more sustainable future.

3. *In line with your prior studies, how has the subject of sustainability been discussed?*
4. *Do you remember a certain time during your coursework where sustainable development was particularly highlighted? If so, what was mentioned and in what course/es?*

Bio students reported that courses usually discuss sustainability through a scientific lens, where the discussion formed around the importance of biodiversity conservation, ecosystem services and building resilience against changes in nature following climate change. Students expressed that courses primarily focused on natural sciences like ecology and plant physiology. Students perceived these subjects as the foundation for achieving sustainable development, however, two students express a want for more practical knowledge on how to integrate sustainability more systematically in both societal and economic structures. **Econ students** noted that the subject of sustainability is often framed around the SDGs and integrating these in various PESTEL (Political, Economic, Social, Technological and Environment) analyses or when writing mission statements for

companies. All **econ students** highlighted the importance of corporate social responsibility (CSR) when discussing sustainability in relation to previous coursework. Students also acknowledged that the subject of sustainability often is treated as a checkbox item rather than deeply integrated into the curriculum. All students mentioned the specific courses *Global Challenge 1* and *2* as the course that especially focused on sustainability issues, "*in these courses the focus is more on changing mindsets and how to make companies more sustainable … we spoke a lot about CSR and CSV (Creating Shared Value)*." and expressed that in accounting courses they learned about sustainability in terms of how to incorporate ESG (Environmental Social and Governance) into financial accounting. The **P&C students** reported that the subject of sustainability is often discussed in regard to how the consequences of unsustainable practices may lead to disputes and conflict, "*By not dealing with these consequences we have learnt how it can ultimately lead to disputes between groups of people and societies that are competing for the same limited resources*." All students expressed that the topic of SD is most often discussed from a consequence management perspective. Students discussed learning about sustainability in terms of the dangers of unemployment and how this can lead to involvement in radical groups as well as learning about how gender- and class issues also are an important aspect of sustainability. Students specifically mentioned the course *Global Sustainable Development* where sustainability was discussed in terms of dealing with climate change scepticism and how sustainability issues ultimately can lead to conflict; "*We discuss how effects of climate change lead to larger refugee crises and also wa*r."

5. *Has your definition or perception of what sustainable development means evolved during your time at the university?*

All in all, answers for this question varied a lot between students and unit of students. Many students expressed a feeling of that while the entailment of sustainable development hasn't changed that much, they now express having a more evolved vocabulary to more accurately communicate sustainability.

When answering this question a **bio student** says *"... not so much changed, more that my understanding has evolved, I´ve had the same idea of sustainability, it's just*

that now I have a new way of explaining what I mean." The same **bio student** expressed an appreciation for the coaction of social, environmental and economic sustainability but explained that since starting the programme the student feels that "*ecology is the foundation for building sustainable society*". Another student expressed that they did not see how these could effectively be integrated in the capitalist system that the world is in today. The overall consensus gathered from **bio students** was a rather strong opinion of ecological development as the foundation of sustainable development. Students expressed that after starting the programme, they now view the environmental element of development as more crucial than industrial development to achieve SD.

The **econ students**, explained that since starting the programme they feel they have a new way of viewing and approaching sustainable development.

"*It was just something that I knew was important and a challenge but I didn't see it in my everyday life. It wasn't until I started this programme and learnt more about eco-friendly methods and how for example CSR and PESTEL-analysis can be used to manage sustainability issues*" said one of the **econ students**. The students mentioned that since starting university the participants have attained a new vocabulary and an interest for talking about sustainability issues because of the perception of a better understanding for it. Overall students expressed that their understanding had stretched from viewing sustainability as mainly an environmental issue - they now emphasise the monetary dimensions of sustainability by exploring how businesses can profit from and contribute to sustainability. All **P&C students** expressed that their fundamental understanding had not changed, but expressed thinking about sustainability more in private contexts. Since starting the programme students express that they are now more aware of the direct impacts of sustainability issues on human lives and health, as well as the overarching role sustainability has in mitigating conflicts, using lack of resources, drought and climate refugees as examples. "*Since starting the programme, I have started to think of sustainability in different terms, but I wouldn't say that my definition of it has changed. From my perspective, the change is that I have become more aware of how sustainability can have direct consequences on people's lives and health - like climate refugees for example*."

Alltogther, students from the three studied programmes have been introduced to the subject of sustainability in their studies. None of the students directly spoke of the three dimensions as a concept of explaining sustainability. During the discussions, some students would however inadvertently lean into using social, economic and environmental descriptions as a way of answering questions. For other students, I had to directly ask about the three dimensions. Only one student had never heard of the three dimensions before and asked if it was the same thing as ESG.

5.2 Results – Thesis Analysis

For each of the three programmes, this chapter presents results from the search for the prevalence of keywords in each of the randomised selected theses, together with a summary of the relevant text in the thesis that included the keywords.
As an overview*, table 1* shows the results from the survey of keywords across the different programme theses and as seen from the table, the selected thematic words were few.
Keywords:
Sustainable development (Hållbar Utveckling)
Sustainability (Hållbarhet)
Agenda 2030 (Agenda 2030)
SDG (Globala hållbarhetsmål)

Table 1. Prevalence of the selected keywords in 20 thesis each from the university programmes BSc Business and Economics, BSc Biology and Environmental Science and BSc Peace and Conflict.

University Programme	Number of theses that include the keyword at least once, percentage (presented as the number of theses out of the total number of 20	Keywords occurring most frequently	Number of theses to include keyword *Sustainable Development* at least once	Number of theses to include keyword *Sustainability* at least once	Number of theses to include keyword *Agenda 2030* at least once	Number of theses to include keyword *SDG* at least once
BSc Biology & Environmental Science	5 (25%)	*Sustainabilty*	2	5	2	2
BSc Business & Economics	3 (15%)	*Sustainabilty*	2	3	1	1
BSc Peace & Conflict	3 (15%)	*Sustainable Development*	3	3	2	2

Biology and Environmental Science theses

The analysis of the theses from Biology and Environmental Science students showed that 25% included the use of the searched keywords. The main keyword used was also sustainability. The way in which sustainability is discussed varies. Among these five theses, one thesis, bases the entirety of the thesis on an analysis of how the three aspects of sustainability (economic, environmental and social)

were integrated when implementing and planning the heating installation of three artificial grass pitches in Uppsala. The author of this thesis also links the discussion and results to see its relation to the SDGs. In another thesis the subject of sustainability is discussed in light of the examination of the implementation of Sweden's Biodiversity Strategy 2030 among stakeholders to assess how and to what extent Swedish stakeholders have integrated the strategy plan into policies. Further, another thesis discusses sustainability in context of an evaluation of different energy sources used to power a system designed to collect litter from Fyrisån (a river in Uppsala). In this thesis, the use of multi-criteria analysis was conducted to examine the balance of economic and welfare considerations of each source. Another thesis discusses the topic of sustainability in the context of the importance of ensuring the livelihood of domestic pollinators in relation to maintaining a sustainable biodiversity and ecosystem. The last thesis, looks at sustainability with a primary focus on the SDGs, more specifically SDG 12.3 aimed towards global food waste at retail and consumer level, suggesting that level to be halved by 2030. The author of this thesis approached the investigation of this goal by examining food waste quantities and categories at different elementary schools in Uppsala in order to assess the carbon footprint of that waste.

Overall, theses from Biology and Environmental Science primarily emphasises the environmental dimension of sustainability, exploring diverse approaches to biodiversity and ecosystem conservation. These studies integrate economic and social considerations, as seen in the analysis of energy sources and the implementation of SDGs, showcasing a holistic approach to sustainable practices.

Business and Economics theses

The examination of theses from the Business and Economics programme, showed that 15% included the keywords, where the use of the word sustainability was most common. The first of the theses to include keywords is in the context of investigating the impact of carbon risk premium on stock returns within firms in the EU+28, EEA and Switzerland - more specifically the correlation between carbon emissions and stock return. Authors discuss sustainability in the context of corporate finance, analysing financial risks faced by high-emitting companies and

reputational risks stemming from environmental impacts. The other two theses have a stronger focus on the integration of sustainability in companies finance strategies. The second thesis examines companies' relationship between CSR and earrings management by investigating companies' financial and sustainability reports where the evaluation of CSR effectiveness was measured using ESG scores. Sustainability is discussed in the context of how companies' CSR activities and financial accountability can enhance the overall credibility and sustainability of a company. The third thesis examines the use of MSC (Management Control Systems) impact organisations sustainable innovation work. The thesis examines how systems within the agricultural sector can integrate social and environmental issues within financial operations, delving into an organisation aspect of sustainability.

Overall, the theses from Business and Economics predominantly lean towards exploring the economic dimension of sustainability, focusing on how corporate strategies can integrate environmental and social considerations to enhance overall business sustainability and financial credibility.

Peace and Conflict theses

The survey across the theses from Peace and Conflict students showed that 15% included the keywords. While the numbers are few and thematically related, it was noted that the most common keyword found in these theses was Sustainable Development, not Sustainable. One of the theses included an analysis of how and to what extent International Guidelines Disaster Recovery is adapted into national recovery policies in Mozambique. The study's aim was to examine how the government incorporates sustainable practices and the SDGs into these policies. With authors meaning that the escalating impacts of climate change would result in natural and resource disasters which would affect developing countries in the global south in a more challenging way than already developed countries in the global north. Another thesis focuses on investigating the role of public opinion and societal norms in shaping policies related to and dealing with climate change. The thesis suggests that by understanding the public perception of sustainable development, the creation of climate policies will be more effective, considering that people resonate with suggestions and guidelines. Lastly, the third thesis approaches

sustainability in relation to unemployment. The topic of sustainable development is discussed in regard to how unemployment serves as an important factor to achieve the sustainable development goal of inclusive and sustainable economic growth, relating the discussion toward SDG 8 (decent work and economic growth). The author investigated specifically the unemployment rates in Latin America, explaining that unemployment can act as a socioeconomic variable for inequality in a country's labour market.

Altogether, the theses from Peace and Conflict, tend to use the social dimension of sustainability, to explore how societal norms and effective governance can address and mitigate the impacts of environmental and economic challenges on societal stability. Additionally, the theses frequently discuss conflict resulting from climate change, connecting the two areas.

6. Discussion

In this section, I summarise the findings of this study in an analytical discussion as well as in a concluding discussion. In the concluding part results are discussed in relation to the aim of this thesis and prior research.

6.1 Analytical Discussion

The research question for this thesis was*: In what ways do university students from different academic orientations understand sustainable development differently, and how do they emphasise the environmental, social and economic dimensions of sustainable development?* Based on the interview answers and the results from the thesis content analysis we see that university students from different academic orientations of this case study have varied understandings of sustainable development and often frame understandings from the weight of respective programmes. Through these results we can also see that the dimensions of sustainable development are also emphasised differently. In *interviews*, bio students emphasised the importance of ecological stability in terms of biodiversity and strong ecosystems, many viewing the growing focus on economic growth as a threat to sustain a long-lasting environmental sustainable development. This environmental emphasis aligns with the themes in students' *theses*. Students explore practical applications and assessments of how sustainability aspects are regarded in environmental management and conservation tactics, such as the testing of schools' food waste implications and environmental impact of heating grass pitches. These findings show that bio students mainly tend to discuss sustainability synonymously from an environmental outlook.

Conversely, econ students primarily approached sustainable development through the lens of sustaining economic viability and growth. Their discussions, evident in both *interviews* and *theses*, mainly focused on integrating and promoting sustainable development in ways that are profitable for companies and businesses. Students apply theoretical frameworks such as CSR, PESTEL-analyses and ESG as standards to strategically integrate sustainability concepts into business operations and finance strategies as ways to make companies more aware of sustainability issues and get them to take appropriate action. The frameworks used by students when discussing sustainable development reflect an academic understanding of sustainability where economic innovation and SD are closely intertwined.

The P&C students reveal a stronger socio-political approach to SD, focusing on conflict management and maintaining a political stability where environmental and economic aspects are merged in a way that meets the needs for a broader population. In *interviews* students explain that their coursework is rooted in political theory, which frames SD through the lens of conflict resolution and management, partially in response to the effects of climate change. This academic focus is also mirrored in *theses*, where students examine government recovery policies and side effects of unemployment, emphasising the need for inclusive policymaking to create social stability and justice as necessary means to address sustainable development.

6.2 Concluding discussion

Through a combination of *interviews* and *thesis content analysis*, this case study sought to gain a deeper understanding of how university students from different academic orientations perceive sustainability and its relation to the three dimensions. Unlike many previous studies that approached this subject using a combination of questionnaires and interviews, I opted for a thesis content analysis along with interviews.

Questionnaires have the drawback that participants are often confined to pre-selected answers that may limit their expression of understanding and insights to

the subject. *Theses* allow students greater freedom to approach the subject and I believe the content analysis of theses added a new layer and nuanced students perceptions of sustainable development. Also, the in-depth *interviews* deepened our understanding of the varied thoughts and perceptions of sustainable development of students. As mentioned in the literature research, a study conducted previously in Sweden revealed that upper secondary students tend to lean towards an economic dimension when discussing sustainable development, while the study conducted in Spain revealed that the studies researched master students tended to emphasise the environmental dimension. In this case study I have investigated university programmes that are very different and as seen from the results, so were the perceptions of sustainable development and the emphasis of the dimensions. As suggested in earlier research from the United Kingdom (Kioupi & Voulouis, 2019), the understanding of sustainability is often quite vague and abstract. This may lead to a disengagement from both students and teachers as suggested in earlier research (ibid). By viewing these results we potentially see a similar disengagement from students at these Swedish universities. From the *theses analysis* we can see that out of the 20 theses analysed across the three programmes, no single program had more than five *theses* that explicitly mentioned sustainability or sustainable development wording. The *thesis content analysis*, however, provided an insight to the ways students chose to integrate sustainability within their academic work.

The *thesis content analysis* revealed similar patterns of choice in regard to the frameworks and language students used in *interviews* to explain the experienced change in understanding sustainability since starting their programmes. This is also where the social constructivist theoretical perspective becomes relevant and interesting. I here attach the citations made from some students in *interviews* when discussing how their understanding has shifted since starting their programmes,
"... not so much changed, more that my understanding has evolved, I´ve had the same idea of sustainability, it's just that now I have a new way of explaining what I mean." …"*ecology is the foundation for building sustainable society*"(Bio student, 2024)

"*It was just something that I knew was important and a challenge, but I didn't see it in my everyday life. It wasn't until I started this programme and learnt more about eco-friendly methods and how for example CSR and PESTEL-analysis can be used to manage sustainability issues*" (Econ student 2024)

"*Since starting the programme, I have started to think of sustainability in different terms, but I wouldn't say that my definition of it has changed. From my perspective, the change is that I have become more aware of how sustainability can have direct consequences on people's lives and health - like climate refugees for example*." (P&C student 2024)

We see that even though students say they may not have shifted their understanding of sustainability since starting their programmes, they all expressed having received a new form of language and frameworks to employ when discussing sustainable development. As the social constructivist perspective suggests, our understanding and construction of reality is influenced by the language and social environments we are surrounded by. This theoretical perspective allows us to integrate these findings to a broader educational and societal context. By viewing these results we see that through their academic orientations, students have attained a new vocabulary to use when discussing sustainable development. While students may not have fully recognised its significance, from this theoretical perspective, I suggest that this has also enhanced their overall understanding of sustainable development. From a social constructivist perspective, we can appreciate that the differentiating university environments, interactions with peers and the individual backgrounds of interviewed students and thesis writers may also have influenced the way students interpret sustainable development. Although students might have discussed information relating to other dimensions in class, by these interviews and the thesis content analysis, this study was able to capture the wordings and frameworks that students remembered and found impactful in regard to sustainability issues. This finding is important because as seen from the results, students' approach to sustainable development in interviews was also reflective of the way students chose to integrate it into their thesis work. So from these results we see how different academic orientations have influenced students' choice of words and frameworks used when discussing sustainability issues.

The diversity of academic orientations have contributed to the varied emphases in how the students articulated and perceived sustainability, indicating the critical role that educational environments has in shaping students discourse. The advancements in students' vocabulary have equipped them with the tools necessary to articulate and explain issues relating to sustainability as well as the strategies optimal for dealing with them. There is an importance of incorporating the voices of the youth into the discussions of sustainability, as these are the voices of future generations. This study has provided a deeper insight to the role students' academic orientation has in influencing these voices. By equipping students with the essential language and frameworks, this study illustrates the pivotal role that education has in shaping how future generations will address and communicate sustainable development.

6.3 Future research possibilities

This study encourages further research and exploration into the impact of education on students' understanding of sustainability issues and ways to address these. If I were to undertake this study again, I believe this study and the use of social constructivism as a theoretical approach would have benefitted from incorporating observational or ethnographic research methods. Further research could also explore different theoretical approaches to nuance the understanding of how students engage with and understand SD. For instance, by delving deeper into the theoretical understanding of the term ‘sustainable development’ and theories specifically related to sustainability. I also believe that it could be interesting to compare insights from students from more programmes and universities to see if the results would differ from these findings.

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Acknowledgements

I would like to express my gratitude for all the people who made this study possible. First I would like to thank all of the interviewed university students, for giving their time and providing valuable insights. I would also like to thank all of the thesis writers for their valuable contribution. Lasty, I would like to express my greatest gratitude to my supervisor, Helena Eriksson, for her helpful constructive feedback and for devoting her time.

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