Exploring Higher Sustainability Education from an Intersectional Lens

How Interdisciplinarity Risks (Re)Producing Racial Injustices

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Exploring Higher Sustainability Education from an Intersectional Lens: How Interdisciplinarity Risks (Re)Producing Racial Injustices

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Abstract

Grounded in an intersectional framework and the theoretical concepts of coloniality of knowledge and climate emotions, this study examines higher sustainability education in Uppsala (Sweden) and shows how it runs the risk of (re)producing racial injustices. Based on empirical data from two student surveys and a total of 15 interviews with teachers and students, the thesis shows that there are diverse and sometimes uncertain approaches to teaching sustainability and emotions; that sustainability education focuses primarily on critical thinking and training 'researchers', but leaves students - especially those from outside the EU - unprepared for other work; that emotional awareness is often lacking, negative emotions are significantly more prominent than positive ones, and emotional numbness appears among teachers and students who study sustainability for a longer time; and that sustainability education does not sufficiently address future dimensions. These findings reveal how higher sustainability education risks reproducing racial injustices by constructing class diversity, blurring the lines between diversity and intersectionality, and objectifying non-European students as a learning experience for others. The thesis also discusses how solutions could be implemented, highlighting the role of positive anticipatory thinking. Sustainability education is an ambiguous space with room for improvement, but most importantly, it needs to take seriously the risk of reproducing racial inequalities.

Keywords: higher sustainability education, intersectionality, coloniality of knowledge, climate emotions, interdisciplinarity, anticipatory thinking, future orientation

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1. Introduction

> *"Do you want to gain the knowledge and skills required to deal with complex challenges towards sustainable development? Are you interested in conducting your studies with a diverse group of international students?" (UU 2024).*

If you are thinking about studying sustainable development in Uppsala, Sweden, this will be the first thing you read. It is the introduction to the Master's Programme in Sustainable Development (MSD) at Uppsala University and the Swedish University of Agricultural Sciences on the web - the programme that I myself joined in 2021 and that promotes itself as built on three pillars: interdisciplinarity, systems thinking and future orientation (UU 2024).

I have always found its interdisciplinary nature to be one of the most interesting parts of the MSD programme. For a white male student from Germany, learning with students from all over the world was an amazing experience that dramatically changed my understanding of the world. After graduating from the MSD programme in June 2023, I became increasingly interested in intersectional and decolonial studies. Sustainability education, like the MSD programme, is built on a very diverse student body. Bringing together students of different genders, cultures, countries, and disciplines to learn in an interdisciplinary environment is considered a strength in sustainability education (e.g., Lozano et al. 2017). However, bringing together such a diverse student body can also lead to inequalities – based e.g. on gender, race, ethnicity, origin. However, how inequalities can be reproduced in the process of bringing together a diverse student body to study sustainability is rarely studied.

Engaging with sustainability in higher sustainability education means engaging with a reality that can affect mental health and affects people emotionally (e.g. Clayton & Karazsia 2020, Clayton 2020, Ogunbode et al. 2022, Coppola & Pihkala 2023). Studying sustainability education and how students and teachers engage with sustainability issues therefore requires a consideration of climate emotions. It has been argued that critical emotional awareness is crucial for sustainability education (Ojala 2012, Ojala 2017, Wals & Jickling 2002). Climate anxiety is the most prominent example of how the climate crisis can affect mental health and is already affecting young people around the world (e.g. Ogunbode 2022). Studying

sustainability can be difficult and can affect mental health. However, my perception as a student was that emotions did not play a big role in sustainability education. For me, the main focus in the class was on critical thinking and learning new perspectives to challenge the common understanding of sustainability. Yet, as Ojala (2016, p. 42) argues, it is not enough to "disrupt unsustainable cognition/thinking, norms, and practices," but that "critical emotional awareness" is also needed to "disrupt unsustainable emotional regulation patterns."

My aim with this research is to investigate higher sustainability education and its engagement with sustainability and emotions, with a focus on how inequalities might be reproduced among students. This aim is exploratory in nature, i.e. the aim is not to formulate a clear question and produce a clear answer as an outcome of the research, but to remain open to new ideas and problems. Nevertheless, the research is set within the clear boundaries of seeking to explore the engagement by teachers and students with understandings of sustainability, competencies for higher sustainability education in practice, and climate emotions. In order to achieve this research goal, the following two research questions are to be answered:

How are climate emotions and sustainability dealt with in teaching and learning about sustainability?

In what ways can differences and inequalities between students be explained, especially in relation to the interdisciplinary nature of sustainability studies?

To answer the research questions, a mixed-methods approach is used in an intersectional framework - using theories of knowledge coloniality (Quijano 2000, 2007), higher sustainability education (e.g., de Haan 2006, Wiek et al. 2011, Rieckman 2012, Lozano et al. 2017), and climate emotions (e.g., Ojala 2012, 2015, 2016, 2017; Pihkala 2020, 2022a, 2022b) - to explore sustainability education and its engagement with sustainability perceptions and emotions.

Intersectionality is understood here as an analytical lens that is not only applied but embedded in thinking throughout the research process (Cho et al. 2017, p.795). Coloniality of knowledge is about how the domination of European - or "Western" - culture led to the European colonization of knowledge (Quijano 2000, 2007). It is used to understand how dominant knowledge is created, but also how colonial inequalities can be embedded in the creation of knowledge. Higher Sustainability Education is concerned with the key competences that are crucial for Education for Sustainability and Sustainable Development (ESD). Since higher sustainability education in practice is at the center of this research, it is necessary to understand what its goals are. Climate emotions describe the affective phenomena related to the climate crisis (Pihkala 2022a) and help to understand the origin of climate emotions in sustainability education.

With intersectionality at its core, the coloniality of knowledge, higher education for sustainability, and climate emotions are used as theoretical frameworks for the methodology and discussion. To collect relevant empirical data, two student surveys (with 47 and 16 respondents respectively) and 15 semi-structured interviews with teachers and students from sustainability programs were conducted. The surveys aimed at capturing a broad common perception of students from different genders, origins, backgrounds and study experiences, as well as at getting a perception of the job situation of recently graduated sustainability students. The aim of the interviews was to provide an open space for teachers and students to share their personal opinions and experiences, and to create a space where new ideas and problems could be brought in.

This research is situated within the broader scholarship of higher sustainability education, but it is distinct from the goal of understanding which key competencies are important for higher sustainability education (e.g., de Haan 2006, Wiek et al. 2011, Rieckman 2012, Lozano et al. 2017). This work adds a new perspective to the field of higher sustainability education, as it adopts a critical decolonial intersectional perspective and examines the multidimensional areas that may lead to inequalities among students. This approach is not common in higher sustainability education: there are currently no studies on potential inequalities that can occur in interdisciplinary student courses on sustainability. This work is therefore also part of intersectional research that seeks to understand the ways in which inequalities persist in our modern society (e.g. Losleben & Musubika 2023, Collins & Bilge 2020).

Furthermore, this work is part of the literature on climate emotions (e.g. Clayton & Karazsia 2020, Pihkala 2020, 2022a). It adds to the list of studies that have investigated students' experiences of climate emotions (e.g. Ojala 2012, 2013, 2017; Ogunbode 2022). It extends research on climate emotions to higher sustainability education, moving away from studies that focus on students in schools (e.g. Ojala 2017), but focusing on students who have consciously chosen to study sustainability at university level. As such, it adds a new dimension to research on climate emotions and sustainability education.

In the following, I will first present the theoretical framework of this thesis, explaining intersectionality and the theories of the coloniality of knowledge, higher sustainability education, and climate emotions; how they are interrelated and how they fit into the overall research framework. I will then introduce the qualitative and quantitative methods used in this thesis and summarize how they were designed, applied, and analyzed. The results are presented in the following section and the key themes identified are discussed. The discussion will bring these findings together, relate them to the theory, and to their place in the literature, leading to the conclusion.

2. Theoretical Framework

In this section, the four main theories of this thesis are presented: intersectionality (e.g. Crenshaw 1989,1991; Losleben & Musubika 2023), coloniality of knowledge (Quijano 2000, 2007), higher sustainability education (e.g. de Haan 2006, Wiek et al. 2011, Rieckman 2012, Lozano et al. 2017) and climate emotions (e.g. Ojala 2017, Pihkala 2022a). Together, they provided the theoretical framework to examine sustainability education and the engagement with emotions and hegemonic understandings of sustainability through an intersectional lens (see Figure 1).

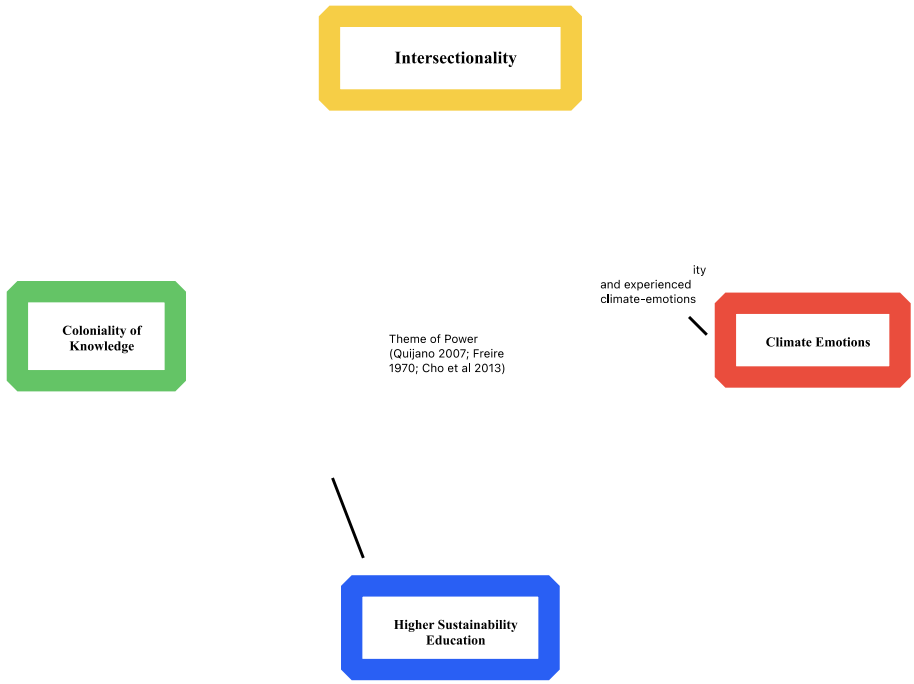

Figure 1 - Theoretical Framework

Education (Freire 1970), intersectionality (Cho et al. 2017), and coloniality (Quijano 2007) all have an underlying theme of power. While education and the coloniality of knowledge are concerned with how knowledge is created (Freire 1970, Quijano 2000, Lozano et al. 2017), intersectionality and coloniality examine the causes and mechanisms behind inequalities (Quijano 2000, Crenshaw 1989, 1991). Combining these theories allows us to make sense of the dynamics in sustainability classes where knowledge is created, and to understand how inequalities might arise during the knowledge creation process.

In diverse classes studying sustainability, education involves not only teacher-student interactions, but also intense peer interactions (e.g., Lozano et al. 2017). Sustainability issues involve multidimensional systems and confront students with the socio-environmental problems, whose learning can affects mental health (Clayton & Karazsia 2020). Climate emotions describe the affective phenomenon associated with the climate crisis (Pihkala 2022a). As sustainability issues often occur in relation to post-colonial structures and legacies (e.g. extractivism, industrial monoculture), coloniality and climate-emotions are combined to understand the extent of emotional affection in people already suffering from these structures. Here, intersectionality allows for the identification of differences in people's emotions and possible inequalities in terms of gender, origin, and background.

In the following, intersectionality will be introduced as the underlying theoretical framework of this thesis. Then, the coloniality of knowledge and the subject-object relationship that produces knowledge (Quijano 2000, 2007) will be explained. This will be followed by a review of the literature on higher sustainability education, focusing on the key competencies of systems thinking, future orientation and interdisciplinarity (e.g. de Haan 2006, Wiek et al. 2011, Rieckman 2012, Lozano et al. 2017). Finally, climate emotions will be introduced with a brief summary of what they are and how they can contribute to sustainability education (e.g. Ojala 2012, 2015, 2016, 2017; Pihkala 2020, 2022a, 2022b).

2.1 Intersectionality

Intersectionality is the study of overlapping - or intersecting - discriminations and how social differences and discriminations occur along the dimensions of race, gender, sexuality, social class, socio-economic status, or nationality (Losleben & Musubika 2023). It draws on Black feminist scholar Kimberlé Crenshaw's work, who showed how discrimination occurs on intersectional/interrelated levels of oppression and privileges (Crenshaw 1989, 1991), for example, how for a woman of color it is often the product of an intersection of racism and sexism, making her experience of domestic violence or rape very different from that of a white woman (Crenshaw 1991). Intersectionality is a framework for understanding these

structures of oppression and working to dismantle them (Losleben & Musubika 2023).

Collins & Bilge (2020) have shown how education in the form of pedagogy is intertwined with intersectionality, referring to Paulo Freire's (1970) 'Pedagogy of the Oppressed'. Freire discusses how education can either disenfranchise or empower, citing intersecting inequalities of class, race, ethnicity, or age (Collins & Bilge 2020, p.190). Because intersectionality is concerned with the overlapping discriminations that result from the oppression or privileges of individuals or groups (e.g., Crenshaw 1989, 1991), connections between intersectionality and education exist. Thus, intersectionality as an analytical lens for understanding the reproduction of inequalities in higher sustainability education is useful for this work.

Because intersectionality addresses systems of power that lead to oppression, it is "inextricably linked to an analysis of power" (Cho et al. 2017, p. 797). The issue of power is utterly intertwined with coloniality and education, as both examine how power dynamics lead to the creation of knowledge (Quijano 2007, Freire 1970). In this case, the focus is on higher education in sustainability in Uppsala, especially the MSD program. Referring to Patricia Collins' framework of power domains (Collins 2000), Losleben & Musubika (2023, p.75) emphasize the importance of considering the situatedness in which intersecting systems of power can be understood - which is particularly helpful for studying power relations within an educational programme that engages with varying circumstances across the globe and that have learners coming from these varying circumstances. As the MSD program is built on a diverse student body, it is important to acknowledge the diverse individual situations in which students find themselves. This can be understood as understanding each individual as a 'complex being' with different 'identity markers' such as age, gender, sexuality, ability, ethnicity, colour, social background, language, religion, class, academic line (ibid., p.72).

In this thesis, intersectionality is placed at the center of the analytical framework and understood as an embedded way of thinking, following the recognition of intersectionality as an analytical disposition (Cho et al. 2017, p.795). I follow the argument that an intersectional analysis is based on "what intersectionality does rather than what intersectionality is" (Cho et al. 2017, p.795; quoted in Collins & Bilge 2020, p.4). This makes intersectionality the lens of analytical thinking in this work - it is not a theory that we use, but an analytical thinking that is embedded in the whole process.

2.2 Coloniality of Knowledge

Coloniality of knowledge is a theoretical concept developed by Aníbal Quijano and is concerned with the colonialization of knowledge that is linked to a post-colonial

Eurocentrism in which European culture has imposed its culture and knowledge as the norm of orientation (Quijano 2007). Quijano (2007) describes how once colonialism was destroyed as a political order, coloniality persisted and created a colonial domination of knowledge between European - or "Western" – culture, and others. Europe saw itself "as a mirror of the future of other societies and cultures" (p.176). European culture was made seductive by presenting it as a gateway to power, an aspiration that eventually became a universal cultural model (ibid., p.169).

In the 17th century, during European colonial domination, the "cultural complex known as European modernity/rationality was constituted" (ibid., p.171). This modernity/rationality was developed from a strictly Eurocentric perspective and is the product of the European version or "mutation" of a dualistic worldview (Quijano 2000, p.221), which implies a dualism between divine reason and nature (Quijano 2007, p.172). It refers to the mind-body dualism of Descartes and his "Cogito, ergo sum", in which the body was put in the role of the object and the mind was the carrier of the soul - the subject, which is the only thing that counts (ibid.).

The idea of objectifying the body made possible the scientific elaboration of "race" in the 19th century, in which the other races were declared inferior because they were "'objects' of study or of domination/exploitation/discrimination, they are not 'subjects' and, above all, they are not rational 'subjects'" (Quijano 2007, p.172.). Inherently unequal, only the European culture was therefore assumed to be rational and to contain subjects, while the others could not be rational and could not contain subjects (ibid., p. 174).

The "European paradigm of rational knowledge" is the product of a subject-object relationship (ibid., 172). It reflects how the relationship between European and non-European culture has maintained a subject-object relationship in which non-European cultures are the object of study (ibid., p.174). In conceptualizing the subject-object relation, the subject is the category that refers to "the isolated individual because it constitutes itself in itself and for itself, in its discourse and in its capacity for reflection" (ibid.). The subject is the bearer of "reason" (ibid., p.173). The category of the object is then defined as the other of the subject, not only different but, as in mind-body dualism, naturally external to the subject (ibid.). The object is identical to the other objects because it is "constituted by 'properties' that give it its identity and define it" (ibid.).

Quijano calls for "liberating the production of knowledge, reflection and communication from the pitfalls of European rationality/modernity" (Quijano 2007, p.177). In order to "liberate intercultural relations from the prison of coloniality", he argues that this implies the freedom of choice for all people, especially the freedom to "produce, criticize, change and exchange culture and society" (ibid., p.178).

Quijano's (2000, 2007) theoretical concept of the coloniality of knowledge, and in particular the subject-object relationship, is used to understand how dominant knowledge is created, but also helps to understand how inequalities can be embedded in the creation of knowledge.

2.3 Higher Sustainability Education

The focus of this thesis is Higher Sustainability Education as it is practiced at Uppsala University (UU) and the Swedish University of Agricultural Science (SLU), mainly the Master's Programmd in Sustainable Development (MSD). In this section I review the existing literature on higher sustainability education and position the MSD programme and its educational goals within it. It is not the aim of this thesis to provide a complete synthesis of the literature on Higher Sustainability Education, but to briefly explain what the concept refers to and what it is based on. The MSD programme describes itself as being built on the three pillars of interdisciplinarity, systems thinking and future orientation (UU 2024). Therefore, these competencies and their place in higher sustainability education will be discussed in more detail. The scope of the analysis will be to understand how sustainability education is understood and implemented in UU, SLU and the MSD program.

The theory of higher sustainability education is concerned with the conceptualization of the key competencies that are crucial for education in sustainability and sustainable development. Most commonly it is defined along the goal to educate students to obtain the “Gestalungskompetenz” – the shaping competence – which enables those who possess it “through their active participation in society, to modify and shape the future of society, and to guide its social, economic, technological and ecological changes along the lines of sustainable development” (de Haan 2006, p.22). This theoretical understanding of ESD is aligned with the description of the MSD programme, which targets students that want to “gain the knowledge and skills required to deal with complex challenges towards sustainable development” (UU 2024).

In this thesis higher sustainability education is understood as education that is concerned with equipping students with the competence to "enact changes in economic, ecological and social behavior without such changes always being merely a reaction to pre-existing problems" (de Haan 2006, p.22). However, it requires not a single competence but the culmination of several key competences that can be described as desired educational outcomes (Bohlinger 2008, Hager & Beckett 1995, Hyland 1993, Mulder et al. 2007, Sturmberg & Hinchy 2010, cited in Lozano et al. 2017, p.3). Critical emotional awareness, including positive emotions such as hope, is called for to be included in higher education for

sustainability (Ojala 2012, Ojala 2017) and generally, critical reflection among teachers is considered crucial (Wals & Jickling 2002, Ojala 2017).

There is no consensus on what the key competencies of higher sustainability education should be and which ones should be included (Rieckman 2012), with several proposals from different authors (e.g. de Haan 2006, Wiek et al. 2011, Rieckman 2012, Lambrechts 2013). After reviewing the existing proposals for key competencies, Lozano et al. (2017, p. 4) synthesized them into a set of 12 key competencies: Systems thinking; Interdisciplinary work; Anticipatory thinking; Justice, responsibility, and ethics; Critical thinking and analysis; Interpersonal relations and collaboration; Empathy and change of perspective; Communication and use of media; Strategic action; Personal involvement; Assessment and evaluation; and Tolerance for ambiguity and uncertainty. The first three competencies, systemic thinking, interdisciplinary working, and anticipatory thinking are the ones that the MSD programme promotes as the pillars on which the programme is based (UU 2024). Note that the MSD programme does not define these pillars further, so the following review of their understanding is based entirely on literature outside the MSD programme information.

Anticipatory thinking, interdisciplinarity & systems thinking

The first pillar, *anticipatory thinking* - also referred to in the literature as anticipatory competence, future orientation or foresighted thinking - is the ability to "collectively analyze, evaluate and create 'rich pictures' of the future in relation to sustainability issues and sustainability problem solving" (Wiek et al. 2011, p.207-208). The future is an essential part of sustainability, and de Haan (2006, p.22) points out that it is crucial to understand it as "open and something we can help shape". Educating students in anticipatory thinking should therefore be about creating a sense of being able to shape the future. This includes understanding concepts such as time and uncertainty (Wiek et al 2011, p.208). Dealing with uncertainty, i.e. not knowing what the future will look like, is something that students need to be able to cope with (Wals 2015, Howlett 2016). Anticipatory thinking should therefore also be about being able to imagine a better future amidst the uncertainty of the present (Adomssent 2007, Rieckman 2012, Howlett 2016). In general, helping students to deal with sustainability issues and their "wicked character" is an important part of sustainability education (Barth et al. 2007, de Haan 2006, Rieckman 2012, Lotz-Sistika et al. 2015; cited in Ojala 2017, p.76).

Interdisciplinary - also referred to as interpersonal - competence is the ability to "understand, embrace and facilitate diversity across cultures, social groups, communities and individuals" (Wiek et al 2011, p.211). De Haan (2007, p.23) describes interdisciplinarity as the answer to modern problems of unsustainable development that can no longer be solved by a single discipline. Interdisciplinarity is not only the integration of different disciplines, but also the ability to "understand,

compare and critically evaluate different positions, perspectives and preferences" (Wiek et al. 2011, p.211). Similarly, de Haan (2007, p.23) argues that in addition to different disciplines, the collaboration of different cultural traditions is necessary. However, interdisciplinarity and interpersonal competence are not always merged, as for example Lozano et al. (2017, p.4) distinguish between interdisciplinarity and interpersonal competence in their literature synthesis. They state that a principle of interpersonal competence is learning from other perspectives, while their description of interdisciplinarity remains faithful to understanding it as different disciplines (ibid.). This already shows that there is a blurred line between interpersonal competence and interdisciplinarity, as well as between disciplines and perspectives. With this in mind, one of the aims of this research is to investigate if and how this blurring exists in the case of sustainability education in Uppsala.

Systems thinking, the third and final pillar of the MSD programme (UU 2024), is the competence to "collectively analyze complex systems across different domains (society, environment, economy, etc.) and different scales (local to global)" (Wiek et al 2011, p.207). This competency is also referred to as interconnected or holistic thinking (ibid.) and focuses on understanding the connectivity and cause-and-effect relationships of sustainability issues (Lozano et al. 2017, p.23). Similar to the call for interdisciplinarity, systems thinking is argued to be crucial for sustainability education due to the complexity of sustainability issues (Wiek et al. 2011, p.207).

The three pillars of anticipatory thinking, interdisciplinarity and systems thinking will be the focus of this work, while other competencies of higher sustainability education will also be kept in mind. As higher sustainability education is concerned with equipping students with these design competencies, it is also concerned with knowledge creation. The latter is linked to the theory of the coloniality of knowledge, as well as intersectionality, which is concerned with examining power structures that lead to inequalities. Since education takes place in a learning environment, there are power processes at play. Combining these three theories allows us to explore the dynamics in which sustainability education takes place and the ways in which knowledge is created among students.

2.4 Climate Emotions

Engaging with sustainability in higher sustainability education means engaging with a reality that can affect mental health and affects people emotionally (e.g. Clayton & Karazsia 2020, Ogunbode et al. 2022). Studying sustainability education and how students and teachers engage with sustainability issues therefore requires a consideration of climate emotions. It has been argued that critical emotional awareness is crucial for sustainability education (Ojala 2012, Ojala 2017, Wals & Jickling 2002).

Climate emotions describe the affective phenomena related to the climate crisis (Pihkala 2022a). It is part of an emerging field that explores the complex dynamics between emotions related to the climate crisis (ibid.). Following Pihkala (2022a), climate emotions are understood as the affective dimension of climate change, and are used as a general term for different types of affective phenomena (González-Hidalgo & Zografos, 2019; Landmann, 2020; Neckel & Hasenfratz, 2021), as they have different names in other disciplines, such as feelings, emotions, affects, and moods (Smith and Leiserowitz 2013, Hamilton 2020).

Climate emotions can range from positive emotions such as joy and hope (e.g., Ojala 2017), empowerment and optimism (e.g., Pihkala 2022a), or belonging (Landmann & Rohmann 2020), to grief and fear (e.g., Pihkala 2020, 2022b; Ojala et al. 2021), sadness (e.g., Cunsolo & Ellis, 2018), helplessness (e.g., Conell et al. 1999), or anger (e.g., Antadze, 2020). Since the scope of the analysis is to examine the climate emotions that students are dealing with, I followed Pihkala's (2022a) taxonomy of climate emotions and the Climate Mental Health Network's (CMHN 2024) Climate Emotion Wheel, which was co-created by Pihkala. This wheel is shown in Figure 2. It synthesizes the existing literature on climate emotions into four basic emotions: anger, positivity, sadness, and fear.

Figure 2 - Climate Emotion Wheel (CMHN 2024)

Negative climate emotions are more common than positive ones. A focus on positive climate emotions is a focus of this work, and the importance of these emotions in relation to higher sustainability education has been highlighted by Maria Ojala (2017). Since higher sustainability education includes the capacity for anticipatory thinking, scholars argue that a focus on anticipatory emotions should follow (Ojala 2012, Wals 2015, cited in Ojala 2017, p. 76). Specific goal setting, an aspect of anticipatory competencies (Lozano et al. 2017), is important for the presence of the motivating emotion of hope to occur (Lazarus 1991, Snyder et al. 2001; cited in Ojala 2017, p.82). Enabling students to envision desirable futures and transform them into possible futures is a way to "reach a longstanding openness to the future" (Ojala 2017, p.82). Positive emotions have been found to foster creativity and open-mindedness in people (Fredrickson & Branigan 2005, Fredrickson & Joiner 2002, Fredrickson 2001), helping them to openly anticipate the future and create their own ideas (Ojala 2017, p.82).

Combining climate emotions with intersectionality and coloniality allows us to look at differences in students' lived emotions and understand how inequalities might arise. It also leaves room to explore the possible intersection of emotional inequalities with other forms of inequality. The concept of climate emotions therefore contributes to the dissertation framework as a stand-alone theory and as part of an intervening theoretical framework that seeks to examine sustainability education and engagement with sustainability and emotions from an intersectional lens.

3. Methodology

The mixed method approach used in this thesis combines qualitative and quantitative methods based on an intersectional framework. Following the theoretical framework, intersectionality was always embedded in the analytical thinking, but also as an omnipresent awareness while conducting the interviews. The focus of the methods was on higher education for sustainability in practice, with particular attention to the key competencies of systems thinking, anticipatory thinking and interdisciplinarity (see section 2). The aim of the methods, in line with the research question and the overall framework, is to assess how sustainability education engages with common understandings of sustainability from an intersectional perspective. The survey and interviews followed this research framework and were designed to enable an analysis of higher education sustainability education based on the theoretical framework.

The quantitative method included two student surveys, A & B. Survey A, in which students from different programmes and years participated, focused on engagement with sustainability & emotions in sustainability classes. The second was a short survey about the job situation of recent graduates of the MSD programme. The surveys were designed to provide an empirical basis for an overview of students' general perceptions of sustainability education & their perceptions of emotions. They were designed to allow an intersectional analysis from the perspective of gender, origin, background, and study experience.

The qualitative method included 15 semi-structured interviews with a sample of eight students and seven teachers. Following a similar design to Survey A, the interviews provided the additional opportunity for teachers and students to openly share their opinions, perspectives, and experiences. This method was chosen to corroborate the empirical data from the survey, but also to stay true to the exploratory research framework by being open to new ideas and problems that might arise or that I was not aware of.

Starting with the two student surveys, followed by the interviews, I will now present these methods and explain how they were applied and analyzed, reflecting on the quality and limitations of the data.

3.1 Quantitative Methods

In this thesis, two surveys were conducted with students, while the second was conducted as a follow-up survey to the first round of data analysis, as a theme of job situation emerged. The first and larger survey included 47 students from various sustainability-focused master's programs and focused on engagement with sustainability & emotions. In the second survey on the job situation of sustainability graduates, 16 students who had recently graduated from the MSD programme participated.

3.1.1 Survey A: Engagement with Sustainability & Emotions in Sustainability Education

Survey A is based on a four-part structure, asking questions about demographics, sustainability, classroom engagement with sustainability, and emotions. The non-demographic parts of the survey all followed a 5-point Likert scale questionnaire in which participants had to rate how much they agreed with statements on a scale of *Strongly Disagree - Disagree - Uncertain/Neutral - Agree - Strongly Agree*.

The demographic part was narrowed down to four questions in order to later analyze the results of the other parts from different perspectives, including gender, urban or rural background, origin, and study experience with sustainability.

The second part on sustainability asked a general question on whether sustainability is something that can be achieved, followed by four statements on how sustainability can be achieved. The aim here is to get a brief overview of how participants perceive sustainability and how much they agree with common understandings of sustainability.

The first statement was taken directly from the 1987 Brundtland Report, which described sustainability as "meeting the needs of the present without compromising the ability of future generations to meet their own needs" (Brundtland 1987). Statement B is based on the three-pillar recognition of sustainability, which combines environmental, economic, and social sustainability (Purvis et al. 2017). Building on the three pillars by adding a fourth in the form of cultural sustainability (Nurse 2006), statement C is: "Sustainability can be achieved by combining (1) environmental, (2) economic, (3) social, and (4) cultural sustainability. It was chosen because of the continuity of the commonly known three pillars. Statement D states that sustainability can be achieved "by implementing the 17 UU Sustainable Development Goals", following the UN Agenda 2030 (UN 2024). Participants were then asked to check which statements they had heard before.

In the third part, seven statements were given regarding the engagement with sustainability in the classroom. The first three statements (1-3) focused on the development of one's understanding of sustainability, whether it changed during the course of study, and the extent to which students were influenced by teachers, other

students, literature, class discussions, and personal experiences. The following statements (4-7) concerned the extent to which students felt encouraged to define sustainability in their own words, to challenge common definitions, to engage with non-western literature including indigenous knowledge, and the general perception of the university as a safe space to express their own opinions on sustainability issues.

In the fourth part, six questions were asked about dealing with emotions in sustainability education. Questions 1, 2, 3 & 5 aimed to understand if and how students perceive that emotional awareness is embedded in sustainability education. Do they feel that their teachers show emotional awareness when discussing social or environmental issues? Are discussions of emotions welcome in this context? Do students feel that there is room for them to express negative emotions such as fear or anxiety? Statement 4 asks directly if students talk about climate anxiety in class. Statement 5 is about the future dimensions of sustainability and asks if there is a focus in class on the bad present rather than the possible future.

The last statement contains 10 sub-statements with practical examples of eco-emotions derived from the Climate Emotion Wheel (CMHN 2024) introduced in the theory section. The emotions include the four main sections of the wheel (fear, anger, sadness, and positivity) and exemplary emotions from those sections (frustration, anxiety, powerlessness, hope, empowerment, and inspiration). Asking students about their emotions can be biased by other factors that influence people's emotions at a given moment, such as a general situation in their life at a given moment or in general, their personality, or daily events (Pihkala 2022a). Students were therefore asked specifically about the emotions they experienced when learning about sustainability, but the results could still be influenced by other factors.

To analyze the results, a simple calculation of the average responses was performed. Since all questions were asked on a 5-point Likert scale, each possible response was assigned a value, with "Strongly Disagree" being a "1" and "Strongly Agree" being a "5". This analysis is sufficient to detect differences in responses when analyzing responses from different demographic perspectives. However, it would have been desirable to use more statistically advanced methods to improve the quality of the results. The full survey can be read in Appendix 1.

Visualization of Results

The results are always presented in the same way, i.e. there are either bar graphs or line scatter plots representing the four analytical perspectives: gender (pink), origin (orange), background (green), or study experience (blue). The results are always plotted on a y-scale that represents the average agreement with these answers, based on the 5-point Likert scale types of questions asked of the students. The bar graphs are very simple and show the average student responses across different analysis

groups. There is always a gray line drawn to show the average response of all students to put things in perspective.

The scatter plots require a bit more explanation. In all cases, the visible lines connecting the dots have no meaning and are only there for better visualization and an easy to grasp perception of how the different groups in the analysis perspectives relate to each other (e.g. women/men in gender). So please note that only the value at the points count. However, since these graphs are only used to illustrate question types that asked the same question for multiple possible answers, such as when students were asked to indicate how much they agreed with the definitions of sustainability, this was seen as a way to make the survey results quick and easy to understand without paying too much attention to the values.

3.1.2 Survey B: Job Situation of MSD Graduates

The second survey was conducted because of the upcoming topic of job situation in the interviews with students. The goal was to create a "mini" survey to assess the job situation of recent MSD programme graduates. The 16 participating students all graduated within the last year (i.e. between April 2023 - April 2024).

The students were asked about their origin, i.e. whether they were Swedish, EU or other. The distinction was made because of the different legal status of these groups, as non-European students must pay tuition fees and rely on visas or work permits to work in the EU. The question on students' origin therefore differs from Survey A, where the EU, USA, Japan, Canada, Australia and New Zealand were combined into one category because of their geopolitical connection. Students were also asked whether they had worked before the MSD program and, if so, where they had worked - in Sweden, the EU or elsewhere.

The second part of the survey started with a question about the students' work situation after graduation. They were asked in a yes/no question whether they had found a job in "sustainability" since graduating and, if so, where - in Sweden, the EU or elsewhere. This wording was used to keep the question as open as possible.

The next set of questions focused on students' perceptions of how well they felt prepared to work in the field of sustainability. They had to answer on a 5-point Likert scale if they thought that the Master's Program in Sustainable Development had prepared them well for the job market. This was followed by a series of exemplary jobs that Uppsala University uses on their website to show "specific exemplary jobs that their students acquire" after graduating from the MSD program (UU 2024). Participants could tick the box for each job they felt the Masters in Sustainable Development had prepared them for. The list included the positions of energy and climate advisors, sustainable project managers, environmental coordinators, sustainability analysts, environmental communications officers, and doctoral students. If they did not feel prepared for any of these positions, they could check the box indicating that none of these options applied to them.

3.1.3 Data Collection & Demographics

Survey participants were contacted personally through social media groups. The groups were contacted either by me or by someone in the group that I knew personally.

For Survey B on the job situation of recent MSD graduates, only the MSD Class of 2021 group was contacted, as they are the earliest to graduate from the MSD programme in the summer of 2023.

Survey A had a much broader scope and investigated the engagement with sustainability & emotions in sustainability studies in general. Therefore, several student groups were contacted. Also, since one area of interest was the study experience, groups from different years of study were targeted. However, the focus was still on the MSD programme, which was the only programme for which multiple groups were contacted. In addition to the contacted MSD classes that started in 2019, 2020, 2021, 2022, and 2023, students from a 2022 course in Environmental Communication at SLU and a 2022 course in Governance of Natural Resources were also contacted. Students who participated in Survey A came from the master's programmes in Sustainable Development (UU 2024), Environmental Communication (SLU 2024a), and Rural Development and Natural Resource Management (SLU 2024b). All of these programmes have sustainability at their core. However, students were not asked about the programmes to ensure anonymity. Nevertheless, it is safe to say that the vast majority of respondents are from the MSD programme. And since the MSD class of 2022 is the one I personally belonged to, it is safe to assume that most of the students are from that class.

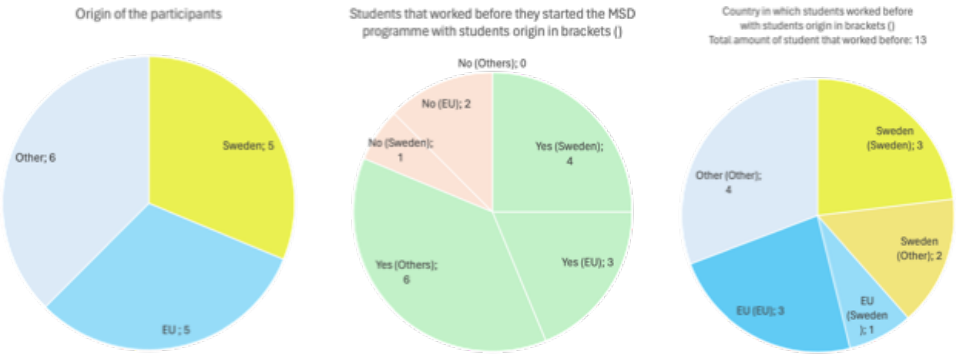

Figure 3 - Survey B: Demographics (Total Participants: 16)

In survey B 16 students participated (Figure 3) - five from Sweden, five from the EU and six from a non-EU country. Only three people reported that they hadn't worked before starting the MSD programme and of the other 13 students, five worked in Sweden, four in the EU and four outside the EU.

Forty-seven students participated in Survey A, representing a wide range of gender identities, backgrounds, and study experiences (Figure 4). The vast majority

of students, 32 in total, identified as female or female, 11 students identified as male or male, one student declined to answer, and three students identified as other. Most participants (34) came from a country within the EU, the USA, Japan, Canada, Australia, and New Zealand; 13 students came from other countries. These countries were chosen because of their geopolitical proximity. For the sake of simplicity, I will refer to these two groups as Western and Non-Western countries, although I acknowledge the controversial nature of this term and the potential criticism of the choice of countries, as it could have been more deliberate to avoid confusion and controversy. Of the 47 participants, 18 grew up in an urban environment, 15 in a rural environment, and 14 in a rural/urban environment. In terms of study experience, most students had studied sustainability for two or three years. The students were divided into four groups: 1st year (3 students), 2nd year (23 students), 3rd year (9 students), and 4th year+ (12 students), which included all students who reported studying for four or more years.

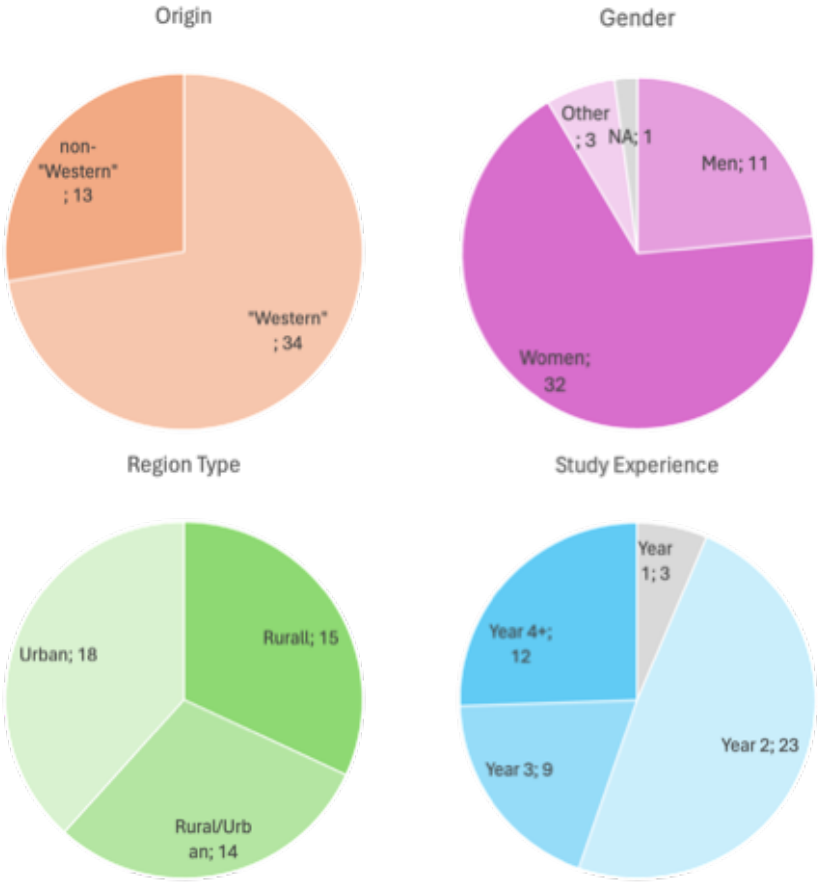

Figure 4 - Survey A: Demographics (Total Participants: 47)

3.1.4 Limitations

There are limitations to this method and its application. First, the data collection could have been done with less personal bias. However, as this is a master's thesis, it was considered appropriate to contact students from different classes through social media groups or through personal contacts with these groups.

Secondly, possible limitations to the quality of the results in general can be observed based on this demographic information. In Survey A, some groups, such as first-year students or students with a gender other than men/women, consisted of only three students each, making the results not useful for comparisons. Second, the distributions within each group could skew some of the results. For example, between Western and Non-Western students, as the gender ratio shows a higher proportion of males among Non-Western students (4/9 to 7/23), and no students who identified as Other were part of this group. Students who grew up in a rural environment had a significantly higher proportion of males (6/8) compared to the urban and rural/urban groups (2/13 and 3/11). Students with 3 years of study experience came exclusively from Western countries and had a significantly higher proportion of males (4/4) than the other groups (Y1: 0/3, Y2: 5/17, Y4+: 2/8).

3.2 Qualitative Methods

The qualitative methods used are semi-structured interviews following different interview guides, one for teachers and one for students. A total of 15 interviews were conducted, eight with students and seven with teachers. At their core, both interview guides followed a three-part structure that explored sustainability education and the use of emotions in sustainability education. The purpose of the interviews was to delve deeper into the themes and topics already discussed in the survey, but also to give teachers and students the space to share their opinions, experiences, and perspectives. Because the research framework in this thesis is more exploratory in nature, the interviews were kept as open as possible to provide a space that could be filled with ideas, perspectives, or critiques that I wasn't aware of. A survey cannot give voice to individuals and is ultimately biased by the questions I ask. Reflecting on my positionality as a white European male student, it was crucial to include open semi-structured interviews for intersectional analysis, as it is not up to me to speak for others in general, but particularly for teachers and students of a different gender, country or background.

3.2.1 Student Interviews

The student interviews followed a two-part structure, first talking about their experience of studying sustainability and how their understanding developed. All student interviews began with the same leading questions:

> ‘Can you share with me your experience of studying sustainability and the development of your understanding of sustainability? Can you take me through your whole process of where you have been before your studies and where you are now?’

In the second half of the interviews, we talked about dealing with emotions, starting with the lead question:

> ’Can you tell me about the role of emotions in your sustainability studies and how they were included in classes?’.

This part was not always introduced by the leading question, because sometimes the topic of emotions came up naturally and it was necessary to shift the discussion to emotions. In the interviews, I always left the discussion open. However, there was a checklist of key talking points to ensure that all interviews had a similar core. The complete list can be found in Appendix 2. This checklist can be summarized in five key points:

(1) students understanding of sustainability,
(2) their experiences from sustainability classes,
their perception on
(3) how future dimensions were engaged with,
(4) how emotions were engaged with in class, and
(5) their general opinion on the connection of sustainability and emotions.

3.2.2 Teacher Interviews

The teacher interviews followed a similar structure to the student interviews, with one part about their approach to teaching sustainability and one part about dealing with emotions in sustainability education. The interview always began with the guiding question of:

> ‘Can you share with me your approach to teaching sustainability?’,

followed by an open conversation with room for the interviewees to share their thoughts and opinions. The second half about emotions usually happened naturally, but if not, it was led in by the question:

> ‘Can you share with me how emotions related to sustainability are included in your classes?’.

As with the student interviews, the goal was to provide an open space for everyone to share their thoughts, but I still followed a checklist (see Appendix 3) that can be summarized in five key checkpoints, the last three of which are the same as for the students:

(1) teaching approach to sustainability,
(2) if and how students' critical thinking is encouraged,
(3) how future dimensions are engaged with,
(4) how emotions are engaged with in class, and
(5) their general opinion on the connection of sustainability and emotions.

3.2.3 Data Collection & Demographics

A total of 15 interviews were conducted, eight with students and seven with faculty. Participants were selected to represent a variety of backgrounds in terms of study experience, background, and gender in order to provide as many different perspectives as possible. An overview of the interview participants can be found in Table 1. Students and teachers are identified in the results by a letter and a number. The latter indicates whether the interviewee was a student (S) or a teacher (T), and the number helps to separate them. All respondents were asked about their gender identity and their country of origin. Table 1 therefore contains information about the participants' gender identity (W = women; M = men) and their origin. The categorization of participants' origin follows the same logic as the surveys, where the EU, the US, Canada, Australia, New Zealand, and Japan were grouped together as "Western" countries. Again, I acknowledge the controversy surrounding this term and use it only for the sake of simplicity. In the case of the interviews, the "Western" category included the EU and the US, while the students and teachers labeled "non-Western" came from Asia, Latin America, and Africa.

Students			Teachers		
#	Gender	Origin	#	Gender	Origin
S1	W	non-Western	T1	M	Western
S2	M	Western	T2	M	Western
S3	W	non-Western	T3	W	Western
S4	M	Western	T4	M	Western
S5	M	Western	T5	W	non-Western
S6	F	non-Western	T6	W	non-Western
S7	F	Western	T7	M	non-Western
S8	M	non-Western			

Table 1 - Interview Participants Overview

The students were contacted based on personal connections, i.e. I first contacted students I knew from my own studies. These four students represented three different classes (2020, 2021 & 2022) and four different countries from two different continents. At the end of these first interviews, I asked the students if they could recommend anyone, and in this way, I selected the next four students. In this way, I tried to counteract the personal bias in the data that a selection based solely

on my personal relationships might have. Nevertheless, I knew all of the students selected by recommendation from my own studies.

The selection and contacting of teachers were done in collaboration with my supervisor. All teachers contacted were from the same department at SLU, the Department of Urban and Rural Development.

3.2.4 Limitations

Finding interviewees could have been done without personal bias, for example by contacting students through program coordinators. However, for a student's thesis, it was considered appropriate to start with students I knew personally. It is also important to keep in mind that only the first four students were intentionally contacted, while the other four students were contacted after being recommended as interviewees by the first four students.

The quality of the data may be limited by the demographics of the interviewees. No students from Sweden were interviewed, even though the analysis focuses on sustainability education in Sweden. Among the teachers, there were fewer women interviewed than men. This was something I wanted to avoid, but in the end, I didn't have much in the selection and interviewed the teachers who were open for an interview. In general, it would have been nice to have more time to interview more students and more teachers to get a better understanding of their perceptions. In general, the interviews should not be generalized or taken as representative of the entire student body or the entire teacher body. The insights and themes that emerge are themes of perception, but it is important to recognize that each student and each teacher is an individual. The results should not be seen as cemented facts, but as themes that emerge.

4. Results

The findings are a synthesis of the empirical data and will present a large number of themes and findings. In order to structure them in a reader-friendly way, the results are presented by theme rather than by method.

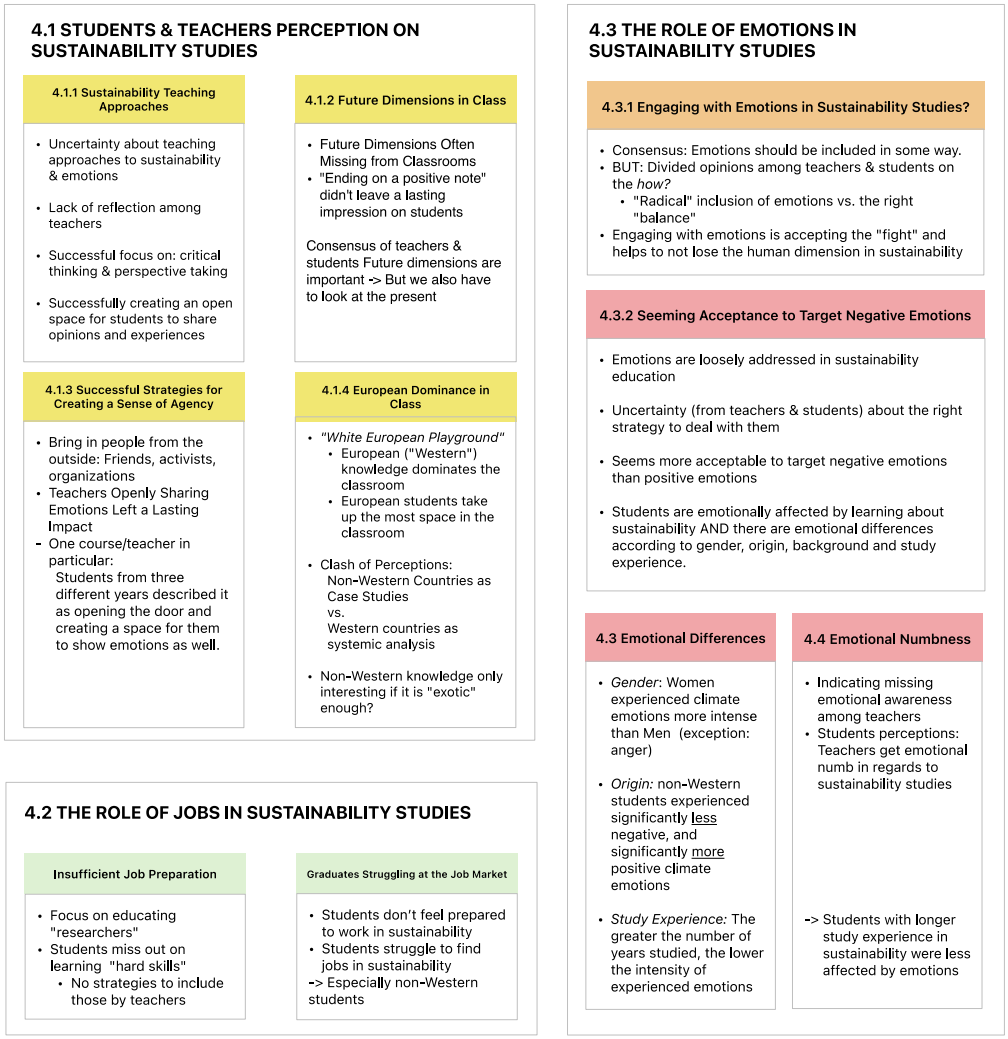

Figure 5 - Results Overview

Figure 5 provides an overview of the findings. It can be used as a summary of the main points and as a guide through the section. There are three main areas of

findings that I will present: (1) students' and teachers' perceptions of sustainability studies, (2) the role of jobs in sustainability studies and (3) the role of emotions in sustainability studies, pondering the question of whether emotions and sustainability studies should be dealt with together.

4.1 Students' & Teachers' Perception on Sustainability Studies

The first and main part of the findings is about students' & teachers' perception on sustainability studies. I will present the findings through four sub-sections: (1) the teaching approaches to sustainability, (2) the role of future orientation/future dimensions in the classroom, (3) identified successful strategies to create a sense of agency among students and (4) a theme of European dominance in the classroom.

4.1.1 Approaches to Teaching Sustainability

When asked about their approach to teaching sustainability, teachers were often reluctant to formulate one directly. Some questioned the phrase "teaching sustainability" (e.g. T5) and related their approach to the level at which they teach (T6), i.e. master's or bachelor's level. Others had clear ideas about their approach (T1,2), treating sustainability as an empty signifier (T1) or as a tool for understanding the world (T1,2). Many teachers needed to take a moment to think and reflect on their approach (T3,4,5,7) and were unsure if they had an approach to teaching sustainability:

> I never really think about teaching sustainability. That's actually the interesting thing. I never think about it as teaching sustainability. I think of it as teaching ways for people to think about human environmental issues. [...] I'm not sure if I have an approach that I haven't really... that I've never really defined. (T4)

In summary, the interviews revealed that in some cases there is uncertainty about how to teach sustainability and that some teachers haven't yet reflected on it.

However, as the interviews progressed, some key aspects of teaching sustainability emerged repeatedly, such as encouraging students to use their personal perspectives, bringing in their personal understandings, engaging students, and getting them interested and excited about sustainability studies. In the following, we will look at how (1) students & faculty prepared for the engagement with common definitions of sustainability in sustainability classes, (2) how faculty successfully focused on educating students in critical thinking and perspective taking, and (3) how to successfully create an open space for students to share their opinions and experiences.

Uncertainty about how to deal with common definitions of sustainability.

The common definitions of sustainability, i.e. the Brundtlandt definition, the three pillars of sustainability, and the SDGs, were usually not included in the teaching approach, with only one teacher telling me how they actively included the SDGs in a project work in one of their courses (T7). Students had a similar perception that the common definition didn't really appear in their studies, but agreed that they were sometimes encouraged to question it. Nevertheless, some students could not recall any active and critical engagement with the SDGs during their studies:

> I didn't think that it was so critically questioned or that the... Well, I can't remember anyone ever saying, "Look at these 17 Sustainable Development Goals, from your understanding of sustainability, are they actually the 17 most important goals and are they meaningfully defined?" I can't remember anyone ever asking that during my studies. (S4)

Other students mentioned that they felt a general acceptance to critically engage with the definitions:

> I think we had several occasions where, yes, this is the definition of sustainability: so meeting the needs of the present without compromising the needs of the future. It was always mentioned. It was pretty much always mentioned in like every class that we took and like every introductory class that we had for it, but then on several occasions we were allowed and encouraged to actually like critique that definition and problematize it a little bit more to actually think about like what I mean what the definition leaves out and what the definition chooses to leave in. (S2)

Contrary to the general agreement among the teachers that they don't really deal with these definitions, it is interesting to see that the students very well recognized the always presented appearance of the common definitions. One student shared a thought that the Brundtland definition, for example, was somehow condemned, while recognizing it's importance:

> I think the Brundtland definition in particular has always been kind of looked down upon, but it has also been kind of the golden standard of what sustainability has been in practice or in policy for the last 20 or 30 years. (S2)

This dichotomy of concepts that teachers may not incorporate into their teaching, but that are important to the world outside of academia, was reflected upon by some teachers who acknowledged the importance of engaging with common understandings of sustainability to prepare students for this reality:

> Because everybody uses this concept you know all over and they justify their policies or the way the business is going or whatever in the name of sustainability. So it's there every day… (T2)

One teacher who said in the same interview that he didn't "care too much" about the Brundtland definition, the 2030 Agenda, or the political side of things,

nevertheless reflected on the importance of engaging with them when asked how his teaching style had changed:

> Maybe my first year of teaching I thought it was kind of a useless concept to think about, but then I realized that we need to think about it because it makes things happen, it's something that a whole range of actors are used to for funding projects for political projects for economic projects and that's why we need to understand it and not and in and of itself but the kind of work it does in the world, so I started to treat it a little bit more seriously after a while. (T1)

This statement also shows how teachers reflected on their teaching (e.g. T1,2) and changed their approaches over time. When asked if they felt their teaching had changed over time, not all teachers showed the same amount of reflection and some were reluctant to answer, saying they didn't think it had (e.g. T3).

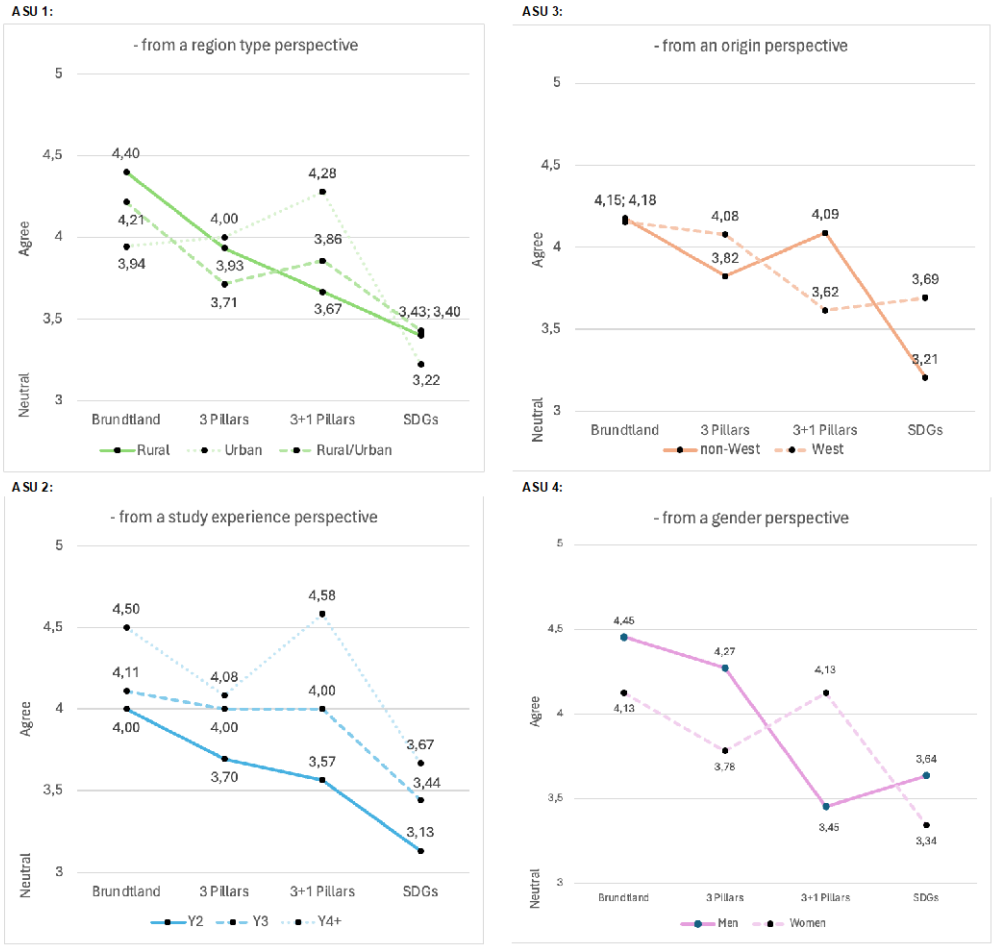

Figure 6 - Survey A: Students' Approval with Common Sustainability Understandings

Even though the interviews showed that the common definitions are often not included in teaching approaches, the results of Survey A (Figure 6) showed that students still showed agreement with them, but with some notable differences according to gender, origin, background and study experience (ASU1-4). Looking

at agreement with the common definitions based on study experience, the results show that the higher the study experience, the greater the agreement with the common definitions (ASU 2). In general, students agreed the least with the SDGs, and the statement adding a cultural pillar to the three pillars of sustainability divided the groups the most (ASU1-4). From a gender perspective, for example, men agreed more with the Brundtland definition, the three pillars, and the SDGs than women, but significantly less with the three-plus-one (ASU4).

Succesful Focus on Critical Thinking & Perspectivization

Figure 7 shows the results of questions asking students about their understanding of sustainability and how it has developed. In SSU1 there is a general agreement which shows that the students feel that their understanding has changed significantly through their studies. In addition, SSU2 shows that there are some differences between students when it comes to their understanding of sustainability before they started studying. Although there are differences - for example, that students from Western countries had a significantly less clear understanding of sustainability than non-Western students - students' understanding has generally changed significantly.

Figure 7 - Survey A: Students' Sustainability Understandings

The factors that contributed to this development can be explained by the results of the interviews. Looking more closely at their teaching approach, all of the teachers

at some point emphasized the importance of critical thinking, with one teacher, for example, placing it at the center of his approach to teaching sustainability:

> To me, it's very much … it all comes down to the concept of sustainability itself and to me it's very much … how can one promote the critical thinking among students and ourselves as teachers. That, I think, is the key in order to get a a good critical understanding of sustainability dilemmas out there. (T2)

When asked if they encourage students to critically engage with common definitions of sustainability or concepts from sustainability studies, all teachers made it clear that this was important to them. In the same breath, " perspectivization" was often mentioned. Teachers stressed the importance of looking at sustainability issues from different perspectives in order to broaden students' understanding and teach them to take different points of view.

Both aspects of sustainability education are supported by the results of the student interviews. When talking to students about their understanding of sustainability and how it has changed over the course of their studies, students explained how it has changed from a narrow understanding, mostly related to the environment and climate change, to a broad and holistic understanding. This is supported, as I have already shown, by the results of Survey A (see Figure 7 - SSU1).

When discussing critical thinking with the students in the interviews, the importance of critical thinking in sustainability education was clear. No student denied that they were encouraged to think critically about sustainability concepts. On the contrary, some students jokingly referred to critical thinking as the main purpose of the program:

> I always tell people that […] they just taught us how to write and how to think critically, and that was the purpose of the program, to teach us how to think critically. Yeah, ok, yes, I agree that we are critical thinkers now. If that was the purpose of the university, then yes, they produced the critical thinkers, because I'm always criticizing. (S8)

A possible overload of critical thinking was also reflected by one teacher who stated that she was "not worried that we're not sending a critical message to our students" because she thought "we're being too critical. The teachers in all departments, I would say it's just ... it's all about being critical" (T5).

The circumstance of being "too critical" is related to the next section of results, the future aspects of sustainability education and where the temporal focus of sustainability education lies.

Create an open space for students to share opinions and experiences

The results show that sustainability education is very successful in creating an open and safe space for students to share their opinions and experiences. This is

positively related to the focus on critical thinking and perspectivization. It shows how sustainability education focuses not only on educating students to take on new perspectives, but also to find themselves in a safe space to share their own.

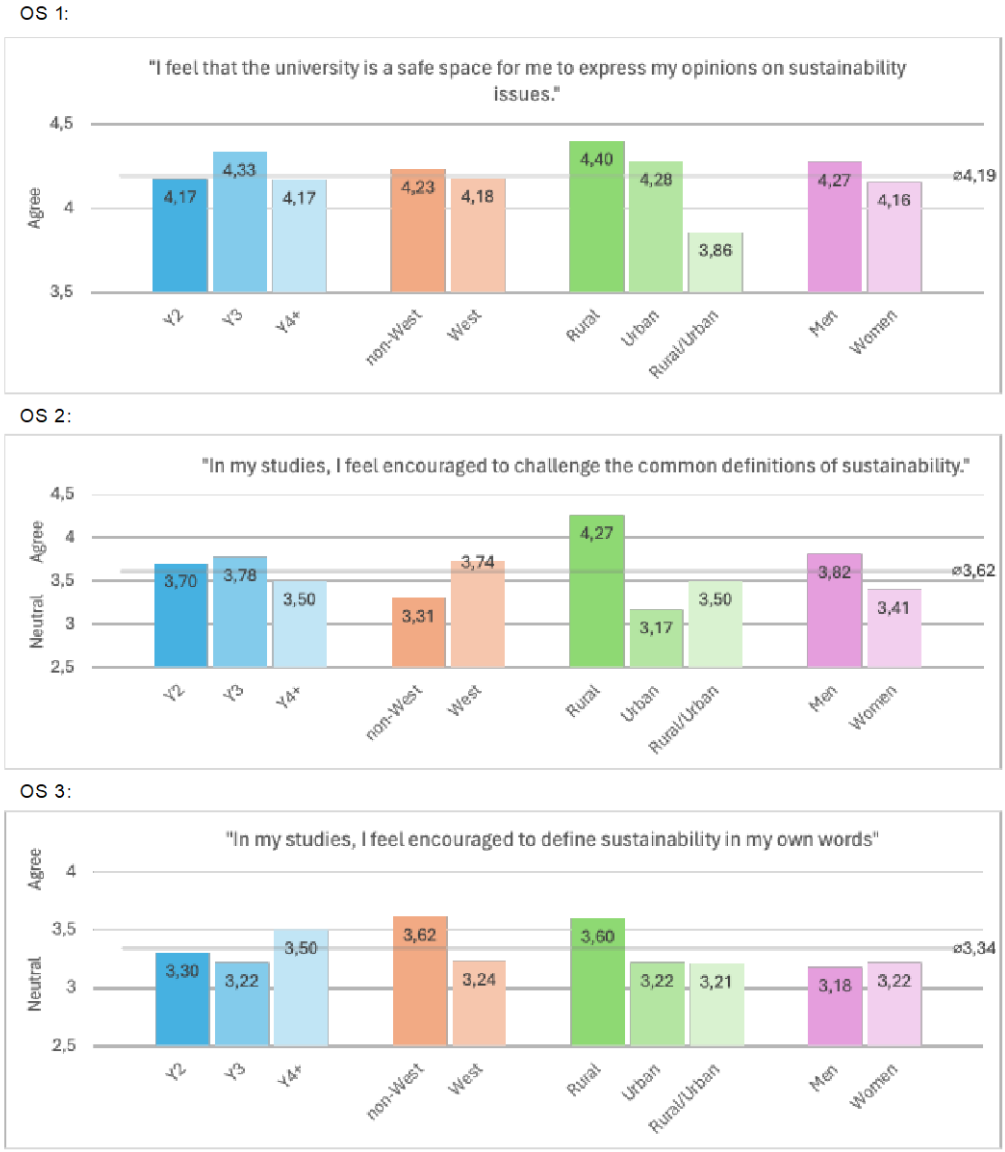

Figure 8 - Survey A: Student's Perceptions on the University & Sustainability Classes as an Open and Safe Space

Figure 8 shows the results of Survey A, which asked students about their perceptions. The results show that students felt very strongly that the university was a safe place for them to express their opinions on sustainability issues (OS1). In a less strong but still significant agreement, students also felt encouraged to challenge common definitions of sustainability (OS2) and encouraged to define sustainability in their own words (OS3).

It is most notable that there are some differences in students' perceptions when we look at students' origins. Students from Western countries felt significantly more

encouraged to define sustainability in their own words (OS3), while they felt less encouraged to challenge common definitions of sustainability (OS2). There is also a clear gap between the perceptions of rural and urban students, with rural students feeling more encouraged to share their own opinions.

Talking to the students in the interviews revealed a similar picture. When asked very directly if they felt that university was or is a safe place for them to share their experiences and opinions, all of the students said that they felt that way. None of the students in the interviews felt that their perspectives weren't taken seriously or that they felt unsafe sharing their opinions.

Influences on students' understanding of sustainability: Indicating that Western students are more influenced by their peers than non-Western students.

Figure 9 shows what students perceived as the most influential factors in their understanding of sustainability.

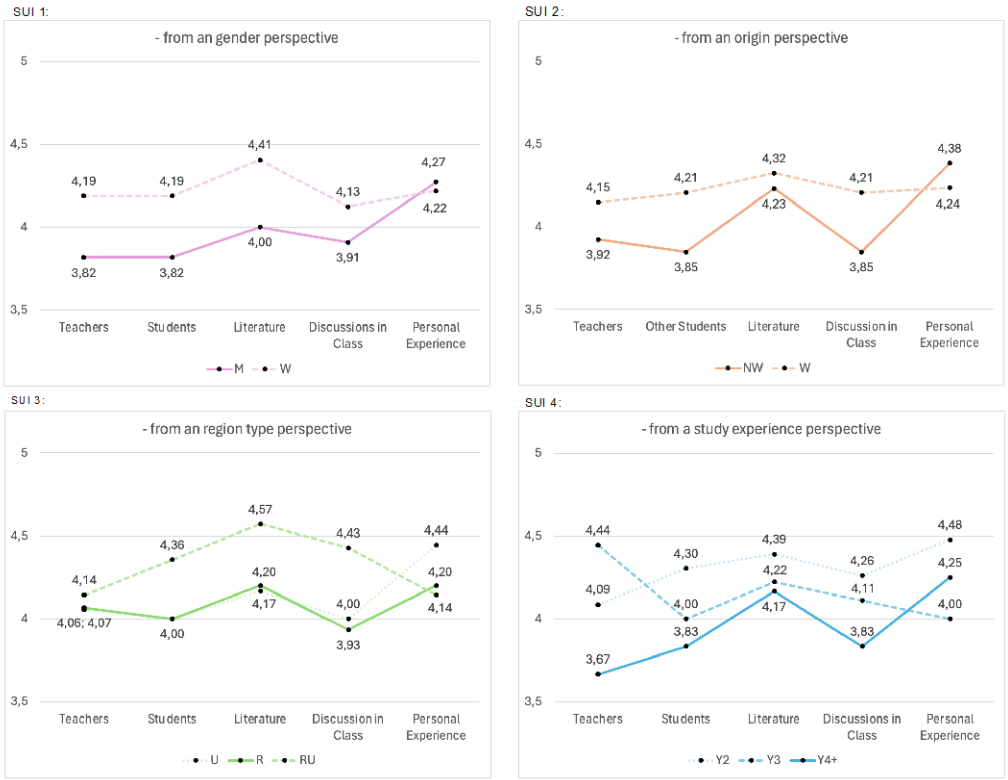

Figure 9 - Survey A: Influences on Students' Understanding of Sustainability

In general, students felt significantly influenced by all five factors: teachers, students, literature, class discussions, and personal experiences. Nevertheless, some differences can be observed. Most interestingly, there is a visible difference between non-Western and Western students. Students from non-Western countries felt less influenced by all factors except personal experience. This includes factors

such as interaction with other students and class discussions. Two factors that could be interpreted as reflecting the influence that students have on each other. A very similar trend can be observed when comparing men and women. Women felt more influenced by all factors except personal experience. It is also interesting to see that the more experienced students agree slightly less with the influences in general.

With the survey results in mind, I looked back at the interviews and found that students from non-Western countries did not emphasize learning from other students as a major influence on them (S1,3,8), with one exception. One student from a non-Western country talked about how she really enjoyed the interdisciplinary nature of the program:

> I think the program was very they love the word interdisciplinary I hear that word a lot but it's very interdisciplinary so it was just amazing to see that in is that it's coming from like engineering backgrounds, mathematics backgrounds, a business gastronomy even so, being in an environment with such like diverse people really helped me learn not only like technically speaking but dealing with different kinds of people, you know, seeing the words through different lenses. (S6)

Furthermore, none of the non-Western students mentioned the diversity of the class or the engagement with other students as something influential. In contrast, students from Western countries emphasized this characteristic in their interviews (S2, 3, 5, 7). When asked what influenced him the most, this student replied:

> So, I think the most open discussions were actually in the classroom. I think it was precisely because of the different backgrounds we had. So that's another thing, this Western way of thinking, automatically okay: this is right now and even if you talk internationally, then you talk to other Europeans and then we all kind of have roughly the same opinion and I think that came out in a few discussions with people outside of Europe, that there are completely different understandings. (S3)

In contrast to the student who highlighted different disciplines, this student talked specifically about the origin of students.

In summary, the results revealed a difference between non-Western and Western students and indicated that Western students are more influenced by their peers in their understanding of sustainability than non-Western students.

4.1.2 Future Dimensions in Class

Learning and teaching about sustainability and sustainable development naturally includes future dimensions. As one student put it: The future is part of the DNA of sustainability (S5). The student survey revealed that most students felt that there was more focus on the bad present than on the possible future (Figure 10).

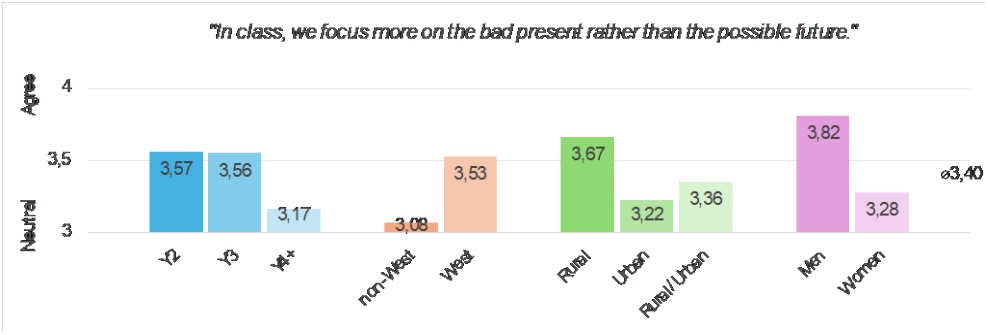

Figure 10 - Survey A: Focuing on the bad present rather than the possible future?

Looking at this question from different angles, we see that there is significantly more agreement with this statement among men, students with less study experience in sustainability, students from rural areas, and Western students.

The interviews confirm this tendency, as most of the students had a similar feeling. Nevertheless, on many occasions the students acknowledged that they were dealing with visions and imaginaries of the future and were actively encouraged by the teachers to do so. However, these dimensions always dealt with a distant future that was difficult to grasp, as one student pointed out, calling these examples "that went in the direction of the future, they were all a bit like 'crazy ideas'" (S4). Another student linked this to the lack of providing practical knowledge to address sustainability issues in the near future:

> For most of the classes they were presenting data, the numbers and how we are destroying the planet in different ways. But one thing that I probably missed in the program was talking about the solutions. Like I can't really remember a class where we talked about like solutions. How do we actually tackle this? It was mostly an explanatory approach. So they were really explaining, describing the situation […] but I can't really remember solutions to these problems. (S6)

When confronted with the survey results from Figure 10 and the general perception of students, all teachers acknowledged that there is a focus on the bad present, with some teachers reflecting that it is not ideal:

> That's something that I've been thinking about as well and it's of course… it's much easier to criticize something than actually thinking about alternative futures. And I guess I have… I definitely spend more time on the critique as well, but also realized that we need to do more so. (T1)

Most teachers emphasized the importance of understanding the problems of the present in order to imagine a better future. A view shared by the students:

> So we talk about the future, yes, but we have so much to say about the present. So I would say theoretically, yes, we talk about the future because it's a synonym for sustainability because it's a long-term process. But in reality, in the courses, we talked about the present situation because

> we already have so many problems to build sustainability and to change the mindset, that why going into the future was actually the present is already. (S5)

In general, I observed a consensus among teachers and students that future orientation is important, but that we also have to look at the present situation. However, the overall observation was that students and teachers acknowledged a strong focus on the present and acknowledged that future orientation, especially a focus on the near future, was often missing.

This pattern of focusing on the bad present in sustainability education may be related to the strong emphasis on critical thinking in teaching approaches. The question of whether to focus on the present or the future is also related to how negative and positive emotions are dealt with in the classroom.

One strategy that one teacher shared with me was trying to end lectures on a positive note by including one or two slides with "positive" news (T5). It is noteworthy that no students talked about lectures where teachers included positive endnotes. It was acknowledged that teachers sometimes tried to counteract the negativity (e.g. S4,5,7), but students couldn't remember any of these positive examples or how exactly teachers counteracted. This shows that 'ending on a positive note' didn't really leave a lasting impact on the students.

4.1.3 Succesful Strategies for Creating a Sense of Agency

A major theme that emerged from the interviews with students and teachers was the importance of creating a sense of agency. Many teachers tried to bring personal experiences into the classroom through sharing or showing. One teacher brought in people from outside the classroom, such as activists or friends, to share their opinions and personal experiences on sustainability issues. According to the teacher, this approach was highly appreciated by the students and led to a deeper understanding and interest in sustainability issues. In another case, the same teacher invited a neighbor and friend to share the personal story of a hilltop restoration project in which the teacher is involved:

> I think when you bring it in concretely in you know a place showing a picture of a place just outside of Uppsala Ultuna and they can see how things have changed... you know. It used to be forest, now it's pasture and there's a lot of biodiversity. Biodiversity is coming back. It gives a positive feeling that we as humans can do things, not just bad things. We can do a lot of good things, yes, and have some fun along the way. And they see an inspiring, you know, example of a concrete thing - you can even do it with your hands. If you are just a few people who get together and start doing things, yeah. And now [...] they will come even though the course is over, we will have a thing on this hill. They are going to come to my house and then we are going to continue to do outdoor classroom exercises and have fun together. So, this is kind of a positive example that they want to learn more about. (T2)

It's worth noting that except for this teacher from the restoration project, no other teacher told me a similar story about bringing people from the outside into their classes.

The impact of sharing personal stories and personal emotions was evident in the student interviews. Interestingly, a specific course at SLU was always mentioned when students shared a positive example of dealing with emotions. Students from three different years all shared stories about this one course and how it influenced them (S2-8). More specifically, three students from two different years shared a story about teachers crying in class (S2,3,7), a situation that was completely new to them and opened up a space for them to show emotions as well:

> I remember after a certain point the teacher actually started crying a little bit or like crying a little bit where he had to excuse himself and sit down for a moment and come to his emotions which, you know, it was a safe space [...] I was actually very surprised to see that he felt safe to show his emotions as well, but like that he was so invested in the topic that you know it actually just overcame him after talking to us academically for a little bit. Like it wasn't necessarily a session where we were complaining about you know the future or about you know big oil or whatever but... I think that was the point where I kind of realized like, oh yeah, it's okay to actually have one or like show that you have these emotions. [...] That was a bit of an eye-opener, that someone you kind of look up to and, you know, who's a white, I guess, heterosexual male to open up like that, like it sets a good precedent for you to actually show up as well. (S2)

The other examples involved more teachers and a class in which people from an organization were invited to share their story:

> But I remember that also one time that we all very we all feel very surprised. There's a course talking about indigenous people and the teacher invited an organization [...] and the lady from the organization she read a poem [...] about how the indigenous group get connected with the land. [...] I guess none of the students but three of the teachers on stage they all cried. It's a very emotional moment when I tell ... I still feel very emotional. (S3)

Another student from the same class shared the same example:

> The three lecturers ended up crying […] It felt very comforting, you know, like the that they were so vulnerable. And that we were also allowed to be. I don't think anyone was as emotional as they were. I think they were much older than us and it was their reflecting on what they've witnessed in their decades of teaching, but. Yeah, I think that was like one of the biggest instances of like engaging with climate emotion was that course. (S7)

The first two students explain how surprised they were by this explicit display of emotion by the teachers, and two of them immediately reflected on how this opened up an emotional space for the students as well.

The fact that this particular course and the teachers involved came up in nearly every student interview without me asking about it also shows how much of an impact a single course can have on a student's emotional development. For example,

one student described the experience "where the professors were wonderful and cried" as something that was "very positive" (S7).

In summary, the findings in this section show how important 'role modeling' and creating a sense of agency can be for students and their development, but they also highlight that it is currently only a small part of teaching approaches to sustainability.

4.1.4 European Class Dominance

The majority of students in the sustainability courses in Uppsala are from European countries. It is not surprising that this is reflected in both surveys, in which significantly more European students participated. When talking about class dynamics in some interviews, students shared with me their feeling that it was primarily European students who were the most active in class, but all acknowledged that this was also due to the fact that the studies took place in Sweden (e.g. S1-4,7):

> But as well, I guess it must be quite difficult if like you know half of your classes Swedish and I actually that's not true half of your class is German and then a few people were Swedish and maybe someone Mediterranean and then you have like you know 5% that are not from I don't know that region or like from that section of earth or section of philosophy, I guess. But then again, I don't see that as a bad point as well because like you know we were in Sweden, so it makes sense […] you know it's the dominant philosophy that you get out from ways of thinking that are either consciously or unconsciously brought into the programme, which is arguably a weakness. (S2)

One non-Western student was particularly frustrated with the situation surrounding the class and the program, calling it the "white European playground" when asked about her perception of the MSD programme's purpose:

> “I think the focus is for white European bachelor's graduates playing around with the concept after they studied business, or I don't know, environment. I don't think it's a serious program to be honest.” (S1)

Later in the interview, she came back to this phrase when we talked about addressing sustainability in the classroom:

> “I said, this is the playground of the European white students after they finish their bachelor in business environment or whatever. I can clearly see the division, the huge division between these two groups of students. The non-tuition European students, half of them don't really care about the programme. And the international students, most of them come here with a high tuition fee and I think the expectations of this program for these two different groups of people are different maybe for Europeans.” (S1)

This student had a very strong opinion about the classroom situation and no other student put it in such drastic terms, but it is still noteworthy that other students (S2-4,7) also talked about the dominant European presence in the classroom.

A theme of European dominance could also be observed in terms of the knowledge that was engaged with in the classroom. In the interviews with teachers and students, we talked about the engagement with non-Western knowledge, especially indigenous knowledge. The results of the survey (see Figure 11) show that there was a broad consensus that students felt encouraged to engage with non-Western literature. The most notable difference is that students from non-Western countries felt significantly more encouraged than Western students.

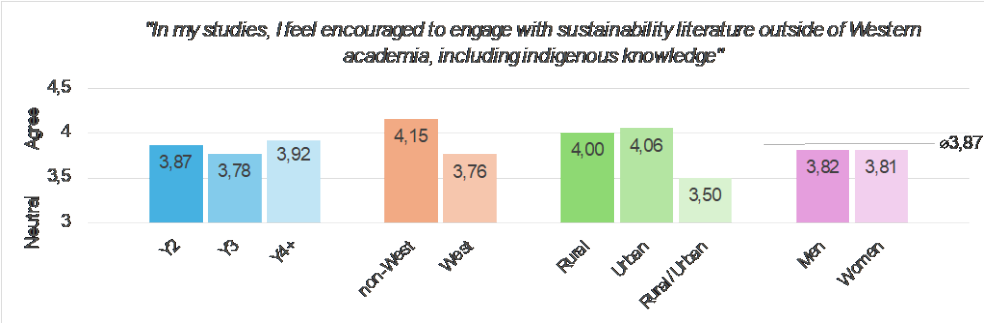

Figure 11 - Survey A: Engagement with literature outside Western academia

The general sense of being encouraged to engage with literature outside of Western academia, including indigenous knowledge, was supported by the findings from the teacher interviews. All teachers shared with me that they try to encourage students to engage with non-Western literature, but also acknowledged that it is sometimes difficult to do so because of the smaller amount of literature available. This was echoed by many students, who also emphasized that they not only want to be encouraged to go outside of Western academia, but they also want the literature to be relevant (S2,5,6,8).

Conversations with students revealed a somewhat less positive picture than the survey results suggest, as only two students were generally satisfied with the situation (S5,8). The other students felt encouraged, but not in a comprehensive way (S2,4,6), or could not remember if they were ever really encouraged to engage with non-Western literature (e.g. S3,7):

> I'm really trying to think if there is other literature outside of the US or EU, but I don't think so. […] There are some teachers from Latin America and … I don't think any of them from Asia unfortunately … So, I think it's also very related to what kind of background that the teachers had. So now we're in Sweden so I understand most of them learning based on the western literature. Yeah and some few of them like yeah recommend some like Spanish but I don't speak Spanish. So no, I don't think they are very encouraging to be honest, but I understand why. (S3)

What is scratched here is the question of what knowledge we are dealing with when we look at non-Western literature, with some non-Western parts being represented more than others. Specifically, two respondents (S1,4) mentioned one country in particular. Both students in these interviews shared the perception that knowledge from this country is not really taken seriously. One of these two students came from this non-western country and was particularly frustrated by this situation:

> I feel like they talk a lot about indigenous knowledge or local knowledge, or I don't know traditional ways, but they acknowledge it when that group of people is not that large and when they don't have a significant social or economic impact, I think it's like their toy kind of thing. […] Because how do you define indigenous and modern knowledge? It has to be exotic enough to be recognized indigenous, that's my take. (S1)

In general, there seemed to be a theme of clashing perceptions when dealing with Western or non-Western cases or literature. The criticism expressed by some students concerns the focus of the lectures or literature, in which they (S1,4) expected the focus on non-Western cases to be very specific, while the systematic analysis was done on the European countries. Furthermore, the students' perception is that there are parts of non-Western science that dominate, such as Latin America (e.g. S2-4). It is noteworthy that the two students from Asian countries criticized the lack of Asian representation in their sustainability education.

To summarize the theme of European class dominance: The overall perception of the students was that the class is dominated by European students, which is not seen as ideal, but as inevitable because the studies are located in Sweden. Engaging with literature outside of Western academia is part of the teaching approach, and although students overall felt encouraged to do so, there is criticism of the focus on some non-Western parts of the world.

4.2 The Role of Jobs in Sustainability Studies

This dichotomy of concepts that teachers may not incorporate into their teaching, but that are important to the world outside of academia, is also evident in the way students talked about the Masters in Sustainable Development in general. Many students, especially the recent graduates who are now looking for jobs, perceived it as too broad and too theoretical, not focused on giving students practical skills and not preparing them for jobs. One student from a non-Western country became particularly emotional when explaining her perception:

> I said the lack of hard skills and the lack of intention from the program to build students with hard skills that help them land in a job. I think jobs are really important. It's not like I'm paranoid because I'm looking for a job. If you want to create sustainability, of course you need to get these students into jobs, that's how they can make a difference, but often there may not be many

> in enough jobs in the job market. But I think this gap from education to the job market, it really needs to be seriously considered and studied and reorganized, redesigned. (S1)

She later called the programme "not serious" (S1). Another student, also from a non-Western country, who claimed to have applied for over a hundred jobs, stated:

> Ecosystem assessment, life cycle assessment. You know, this concept of carbon footprinting, these are the skills that are really needed today. But you know, we graduated from this program and none of us are really able to do carbon footprinting, to do life cycle assessment. I applied for a Ph.D. position in life cycle assessment. I was rejected. You know, after really navigating the job market, I realized I know nothing. (S8)

This raises questions about the purpose of the program and what the goal of sustainability education is, as students express a desire for more career-oriented structures (S1,4,5,8). The lack of focus on hard skills was also evident in the teacher interviews, where no teacher talked about these things at all. As already discussed in section 4.1, the findings showed that approaches to sustainability education are highly focused on critical thinking and perspective taking, while anticipatory thinking and future orientation are often missing. This could be interpreted as meaning that the focus of sustainability education is on educating students to become researchers and not on educating them for the rest of the labour market.

The findings of the interviews are strongly corroborated by the results of Survey B. This survey (see Figure 12 – next page) focused only on recent graduates of the MSD programme and how these students felt about their job situation. The broad consensus was that students didn't feel well prepared for the job market by the MSD programme (JS1). In particular, non-EU students, with one exception, did not feel prepared for the job situation. They are also the group with the least success in the labour market (JS2). Again with the exception of the non-EU student who felt very well prepared for the job market, none of the non-EU students who participated in this survey has found a job in sustainability since graduating. In contrast, the proportion of Swedish and EU students who have found a job is 60%.

JS3 presents the jobs promoted by the MSD programme on it's website as specific exemplary jobs that students can find themselves in after graduating from the programme. The results here show that students feel by far the most prepared for a Ph.D., i.e. an academic career. For the other job descriptions, there were only five or six students who felt that they were prepared for them. The job as Energy & Climate Advisor had no approval at all, although it was the first job mentioned in the list on the MSD website. Again, non-EU students showed less overall agreement with these job descriptions, and four out of six didn't feel prepared for any of them. In contrast, only one out of ten Swedish and EU students felt the same way. If you take out the one non-EU student who felt very prepared for the job market, the results are even clearer. Of the other five non-EU students, none felt prepared for the job market, none found a job in sustainability since graduating, and only one

felt prepared for one of the specific jobs listed in JS3, namely doctoral student and sustainability analyst.

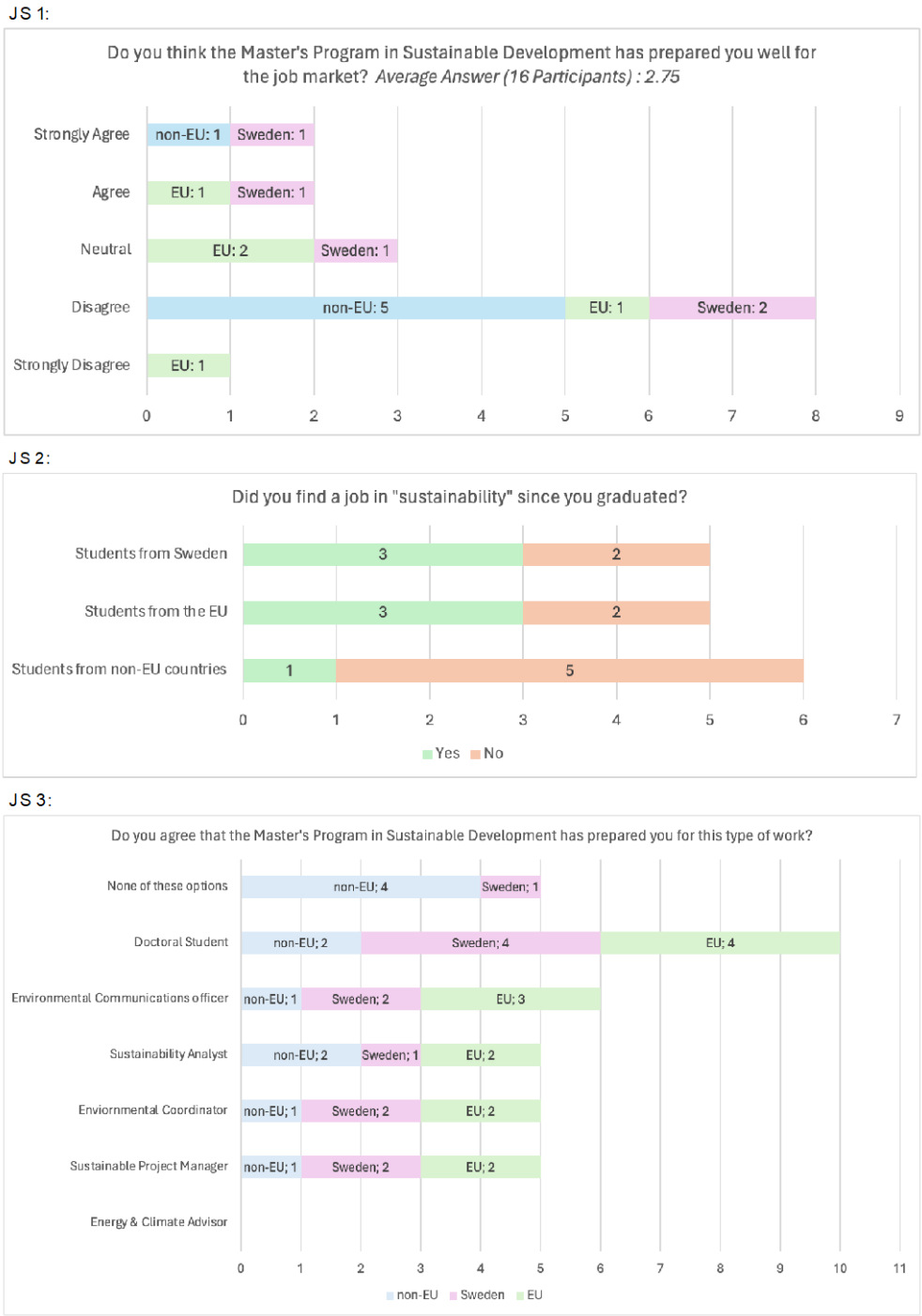

Figure 12 - Survey B: Job Situation of Recently Graduated Sustainability Students (Total Participants: 16)

4.3 The Role of Emotions in Sustainability Studies

An important part of the surveys and interviews was to explore the role of emotions in sustainability studies. In the following, I will present the findings in three key areas: (1) the coexistence of sustainability and emotions, (2) the apparent acceptance of targeting negative rather than positive emotions, (3) differences among students in terms of emotions experienced when learning about sustainability, and (4) a lack of emotional awareness and a theme of emotional numbness among teachers and students with longer experience in sustainability studies.

4.3.1 Mixed Opinions on the Coexistence of Sustainability and Emotions: Loosely Embedding Emotions in the Classroom?

The handling of emotions was positively perceived by the students, as shown in the survey and interviews. In Figure 13 & 14, the results show that students perceived the university as a safe space to express emotions, that discussions were usually welcome, and that they felt they could always express them to a teacher (EIS1,2).

Figure 13 - Survey A:The Role of Emotions in Class – Part 1

However, in the interviews some students stated that although they felt that emotions were acknowledged, further exploration of them was lacking (S,6,7). This is supported by the overall negative response from students when asked if they felt that climate anxiety was discussed in class (Figure 14).

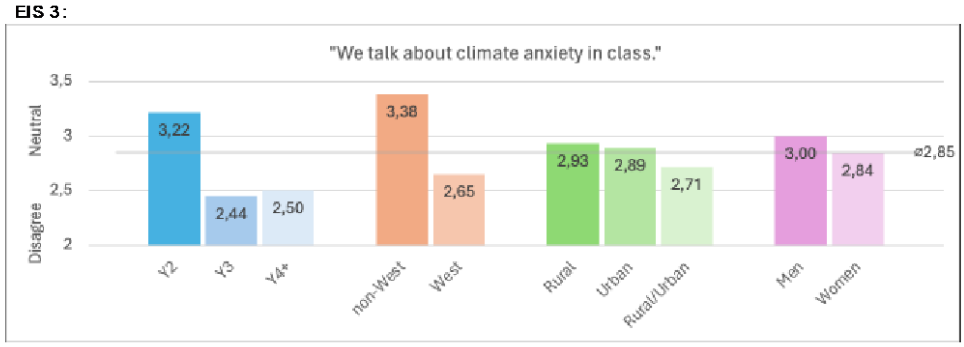

Figure 14 - Survey A: The Role of Emotions in Class - Part 2

In general, the results in Figure 13 show an overall perception by students that emotions have a place in their studies. This is probably also related to students' strong perception that the university is a safe place to share experiences and opinions (see section 4.1).

When teachers were asked how they dealt with emotions in the classroom and whether they had an approach to doing so, the responses showed a mixed picture that contrasted with the results just presented from Survey A. Some teachers hadn't really thought about how they dealt with emotions, but said that they felt they probably did:

> I haven't thought about that, actually. But I guess, somehow, I do, and I try. I try to get them to find things interesting and to be curious about things. (T7)

Others pondered the question and concluded that dealing with emotions is not something they do on purpose:

> I'm not sure. I don't think it's something that I explicitly do. I don't think it's something I explicitly do. (T4)

In general, it was not possible to identify a clear red line when it came to approaches to teaching about emotions. The question of whether teachers have an approach to dealing with emotions in the classroom is closely related to the general question of whether it is even desirable to do so. It divides students and teachers into those who clearly think so and those who ask for a proper balance. This call for balance is reflected in one teacher's description of engaging with emotions, as she expresses hesitation and a need for balance:

> I can't tailor my talk to avoid people's emotions or even if I have to be sensitive maybe or just talk about emotions because I think my job is to convey some form of academic knowledge […] and whether you like it or not, it makes you angry or not, it doesn't really change the core message, that's sort of my opinion. But it doesn't mean that we have to hide and forget about emotions, but I want to I try to also separate a little bit […] so I tried to stay a little bit neutral.

> I know some people are a little bit more engaged and sort of preaching about their opinions, but I don't think that's my role. (T3)

Teachers refer to their role in providing academic knowledge, which is in the middle of the different opinions on a general combination of sustainability and emotions. Students, to the same extent as teachers, talked about how emotions shouldn't play a big role in "research":

> I think it shouldn't be an emotional space if you want to get emotional, of course we're allowed to be emotional, but I don't think class is the place for that, you can have after school meetings, therapy, whatever, but class should be kind of neutral and cool because after all it's a Master of Science not Master of Arts. (S1)

It's a big question that opened up about what role emotions should play in a sustainability class. "Neutrality" was mentioned in a number of interviews along with the need for "balance". This refers back to the future dimensions where teachers asked for a balance between focusing on the present and imagining the future. It seems that the future dimensions and the engagement with emotions go hand in hand, especially when it comes to "research" studies and "neutrality". On the other hand, most teachers and students clearly ask for a strong connection between emotions and sustainability studies:

> I guess what I would say is that […] emotions are a fundamental part of what it means to be human and we should have that freedom and separation, you know, to feel and express that and if we separate sustainability issues as a purely cognitive or intellectual endeavor and then we actually lose a lot of what they mean to us in our lives or the reasons why we do the things that we do. (T4)

A similar connection to why sustainability and emotions are ultimately intertwined and must coexist was made by a student:

> Engaging in sustainability, is like engaging in a battle in a fight. So, someone who is ready to engage in sustainability and who is not ready to talk about emotions related to sustainability, is not ready to engage in sustainability. Because you can't talk about sustainability there... you can't talk about climate change issues without talking about biodiversity, those kinds of issues. So, people should be ready enough to talk about these issues and they should be aware of what could, how they could affect their emotions. (S8)

Both students and teachers emphasize the importance of taking emotions seriously and how it can help improve sustainability learning and teaching and create "a more well-rounded sustainability education" (T4). In addition, students make an important point that using emotions in the classroom is also a way of preparing students to deal with emotions. The fact that sustainability education can be very emotional was acknowledged by all interviewees and is also clearly shown in the student survey. However, as we will explore further, there is sometimes a lack of awareness on the part of teachers.

4.3.2 A Seeming Acceptance Among Teachers to Target Negative Emotions Rather Than Positive Emotions

Further exploration of the use of emotions in the interviews revealed that targeting negative emotions is more common than targeting positive emotions, and also seems to be more accepted.

As they continued to explore their approaches, many teachers continued to share examples of how they try to deal with emotions, even if it does not follow an explicit line. Various strategies emerged, including class discussions, incorporating emotions into seminars or assignments, emphasizing the importance of reflecting on emotional experiences, or ending with a positive story. How this strategy did not leave a lasting impression on the students was shown in section 4.1.

When teachers thought about what kind of emotions they were targeting or expecting students to feel, negative emotions stood out. For example, many teachers pointed to the need to show difficult realities, such as the "brutality" and "violence of the colonial system" (T6), or examples from their own experience and research:

> And it could be that maybe I want them to be shocked by things that are happening in the world or in my country for example. So I want them to have that. And then they can start to find out more. I mean, if you feel shocked and frustrated and feel bad about things. But it's not that easy. (T7)

Both examples show teachers targeting students' feelings of shock or frustration. In the case of the teacher who talked about the colonial system, however, the teacher did not want to call it deliberately targeting emotions, but "deliberately showing a part of this story that is sometimes hidden, that is not told" (T6). When this teacher was asked if he also tried to focus on positive emotions, he replied:

> Not something like I consciously think, okay now I am targeting positive emotions. But something that I want to see is how students understand the struggles of people who are really trying to change the world, right? And that that can be connected in some way to positive emotions. But at the same time maybe some students will not care, right? I am not going to force them to show their emotions. (T6)

He goes on to emphasize that there is "no way I can imagine forcing students to show any emotions". An interesting contrast to the way he described using pictures and examples to show the brutality of the colonial system, something that is very likely to have an impact on students and which this teacher showed he was aware of.

Talking specifically about positive emotions with teachers made it clear that they were often clearly missing. In general, dealing with emotions was something that many teachers hadn't really thought about (T1,3-6), and when I did bring up emotions, the discussion usually revolved around negative emotions:

> I guess I'm trying to sort of encourage students to or allow themselves to be frustrated and angry and about what is going on in the world just recognize that that's we should be upset because the world is fucked up. And also that could be a starting point for both research and activism and everything in between research or cross fertilization between research and activism. (T1)

The topic of positive emotions was rarely brought up on its own. However, when I mentioned positive emotions, their role was very much acknowledged and the focus on negative emotions was seen as something less than ideal:

> Even now I wouldn't say there are a lot of positive emotions associated with sustainability the way I approach it in teaching because even those seminars and lectures we engage with alternative pathways and there's always an idea that this is this is an alternative future and we're not there and there's also that's also associated with our current frustration that we have so long way to go and there's so many obstacles in the way so even though futures can be associated with hope and joy. They are always associated with some kind of underlying disappointment that they're in the future, the alternatives, they're not something they might be prominent in in this classroom here and now but if we go out in the real world again, they are marginal. (T1)

When asked about the inclusion of positive emotions, one student shared that he would have liked to have had more positive experiences and linked this to future direction:

> I didn't think it was enough. I think the focus should have been there, because that is ultimately our role, so we are now somehow trained here in the direction of sustainable future development and so on. We have to be the ones who say, despite perhaps difficult circumstances, ok, we have a vision of the future, we somehow have the tools in our hands and we are somehow moving forward positively and trying to drive this forward. (S4)

In summary, the results show that it seems to be more acceptable to target negative emotions than positive emotions. Furthermore, positive emotions seem to have less place than negative emotions in sustainability studies. This finding is supported by the emotions experienced by students, which will be presented in the following section.

4.3.3 Gender and Origin Differences in Experienced Emotions

The results of the survey showed that students are generally emotionally affected by sustainability studies and that negative emotions outweigh positive emotions (see Figure 15).

Figure 15 - Survey A: Experienced emotions when dealing with sustainability in class from a gender and origin perspective

A large part of Survey A was to explore the emotions students experienced when dealing with sustainability in the classroom. With regard to the students' gender and origin, significant differences were found. First of all, the results of the survey showed that students are generally emotionally affected by sustainability studies and that the negative emotions outweigh the positive ones. Figure 15 shows the emotions experienced when dealing with sustainability from the perspective of gender and origin. Comparing men and women, the results show that women experience negative and positive emotions more intensely than men, with one exception: anger (EE1).

One of the most striking observations from the entire survey occurs when the experienced emotions are analyzed from an origin perspective. There is a

significant difference between Western and non-Western students for each emotion, with a non-Western student experiencing negative emotions less intensely and positive emotions more intensely than a student from a Western country (EE2). This result is the only time in the entire survey that a coherent and clear distinction of values runs through an entire segment of questions, making it of great interest and requiring further exploration in the discussion.

When exploring experienced emotions in class, one non-Western student shared his perception that this is related to the personal experiences that students bring from, for example, war zones:

> A student can feel a negative emotion, yes. I didn't think that teacher could feel that because even from, you know, we come from war zone countries, so we've gone with so many problems. That's why we developed this capacity, this resilience capacity. I can understand if a Swede is affected when talking about sustainability issues. […] So, for me the situation is completely different. So, yes, that's really the situation. I couldn't think that teachers could think that students would have negative emotions because of sustainability issues.

In the last sentence, he described that he couldn't imagine that teachers would think that students would have negative emotions. This is part of a theme of lack of emotional awareness that emerged in the interviews - given the finding in the previous section that it is apparently more acceptable to target negative emotions.

4.3.4 Lack of Emotional Awareness Among Teachers - Emotional Numbness Among Teachers and Students with More Study Experience

The survey found that students feel that teachers are aware of the emotional attachment that engaging with sustainability issues can have on students (Figure 16).

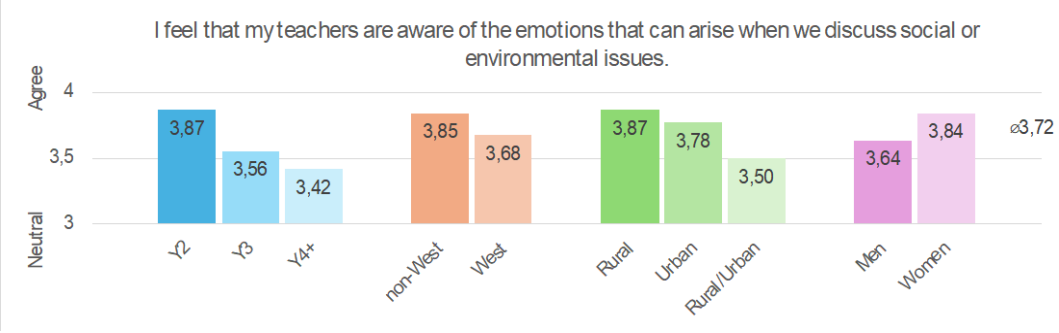

Figure 16 - Survey A: Emotional awareness of teachers

In contrast to this finding, the interviews revealed a lack of emotional awareness among teachers. When asked if they are aware of the emotions that can be evoked in students when learning about sustainability, some teachers clearly stated that they

were not aware (T4,5), while others stated that they understand that students can feel bad when learning about sustainability (T2,3,6,8). Reflecting on my personal perception during the interviews, I felt that teachers showed awareness, but only when directly asked about it.

When students were asked if they felt that teachers are mostly aware of the negative emotions that students can experience, many had a rather negative perception (S1,2,3,6). One student linked the lack of emotional awareness to the intensity with which teachers regularly deal with sustainability issues:

> Probably not. I don't think they were very sensitive, probably because most of these speakers, they, I mean, they've been working on this for years. It's what they dedicate their lives to. So maybe, and this is just a guess. They are more used to talking about things like that without feeling like that, without feeling depressed and sad. But when you talk about like the situation in the Congo, let's say for the first time to a student, of course it's going to affect them emotionally, but I don't think that was really what was taught during the lectures, no. They were there to teach us, to tell us the situation, not to address any potential mental concern that we might have. (S6)

This finding is corroborated by the results of Survey A (see Figure 17).

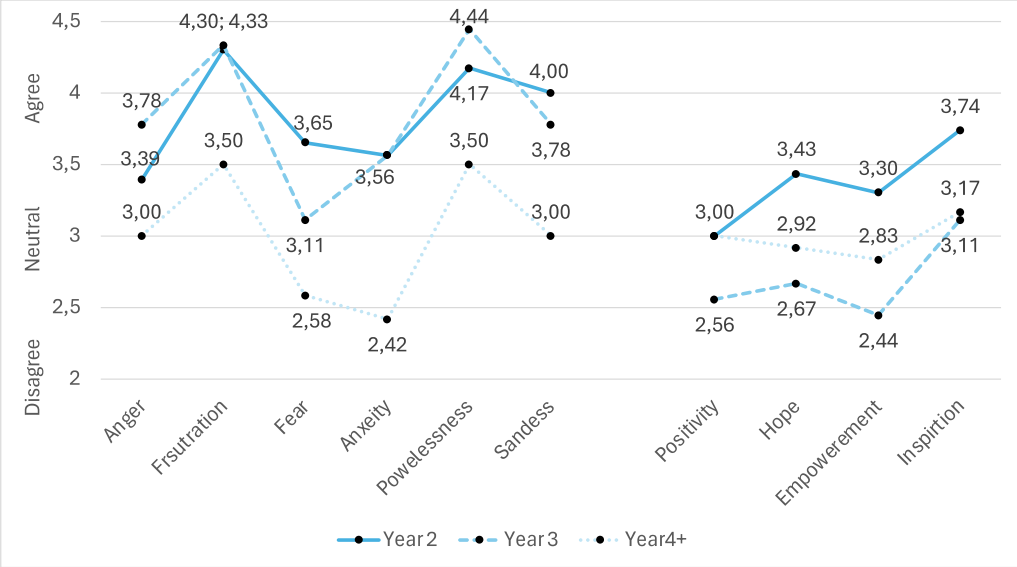

Figure 17 - Survey A: Experienced emotions when dealing with sustainability in class from a study experience perspective

This figure shows that students with more study experience have significantly less experience with negative emotions. This theme of emotional numbness is repeated here and could explain the lack of emotional awareness among teachers, as brought up by a student:

> We all agree that most of the teachers are very focused on where they are studying but less emotional in a way. I think even they have emotions when they study but probably it's in the

> beginning of their career. I think after they teach it again and again they lose their true feeling about the connection like what's the sad parts a lot of very sad stories that they are doing. (S3)

While no teacher explicitly stated that they experience emotional numbness, a lack of emotional awareness is evident among teachers. Given the lack of an approach to dealing with emotions, the mixed opinions on how and whether to deal with emotions at all, the seemingly more accepted practice of targeting negative emotions, the lack of inclusion of positive emotions, and the focus on the bad present, a lack of emotional awareness and numbness among teachers could be explained.

5. Discussion

Grounded in the theoretical concepts of coloniality of knowledge (e.g. Quijano 2000, 2007), intersectionality (e.g. Crenshaw 1989, 1991), higher sustainability education (e.g. Wiek et al. 2011) and climate emotions (e.g. Pihkala 2022a), the discussion will engage with the empirical findings in two main parts. First, I will argue that the empirical findings and the literature show how sustainability education is at risk of manifesting racial injustices. Then I will discuss the importance of positive anticipatory thinking and the role of emotions in sustainability education.

To answer the research questions, a mixed-method approach is applied, set in an intersectional framework - using theories of coloniality of knowledge (Quijano 2000, 2007), higher sustainability education (e.g. de Haan 2006, Wiek et al. 2011, Rieckman 2012, Lozano et al. 2017) and climate emotions (e.g. Ojala 2012, 2015, 2016, 2017; Pihkala 2020, 2022a, 2022b) - to investigate sustainability education and the engagement with sustainability perceptions and emotions.

5.1 (Re-)Producing Racial Injustices in the Way Sustainability is Taught and Sustainability Programs are Constructed.

In this section, I argue that sustainability classes, as practiced at Uppsala University (UU) and SLU, risk reinforcing racialized injustices by creating a space where the subject, the European student, learns from the "exotic" object, the non-European student.

By blurring the line between diversity and interdisciplinarity, the construction of a diverse interdisciplinary class runs the risk of creating unequal spaces for international students. Students from outside the EU, and the perspectives and stories they bring, risk being used to create a practical "non-European" learning experience. Sustainability classes could establish a form of coloniality of knowledge in which the non-Western student is intellectually exploited for the benefit of the European student.

To structure this argument, I will first discuss how the line between diversity and interdisciplinarity is blurred, how sustainability courses artificially construct

diversity, and how this places non-European students in a vulnerable position. The theory of the coloniality of knowledge will be used to understand how these points can lead to the objectification of non-European students. I will then discuss the unequal terms through which sustainability education educates students. Using the results of the employment situation of sustainability graduates, I will show how sustainability courses do not adequately equip students with the necessary skills for sustainability jobs and how this leads to unequal prospects and disadvantages for non-European sustainability graduates.

Awareness of the current unequal situation needs to be raised and further researched. The literature on interdisciplinarity and higher sustainability education has not addressed the possible risks of (re)producing racial inequalities by creating an interdisciplinary class. In general, there is a lack of research on student inequalities in terms of gender and background, leaving a serious research gap.

5.1.1 Blurring the Lines: How Sustainability Classes Construct Diversity/Interdisciplinarity in Ways That Risk Objectifying Non-Western Students as a Study Experience.

In consideration of the findings, the literature on sustainability education, and the theory of coloniality of knowledge, particularly Quijano's (2007) subject-object relationship, this section discusses how the construction of sustainability education risks objectifying non-Western students as a study experience.

The Blurred Line between Diversity and Interdisciplinarity

It is not a result of this work, but an acknowledged fact, highlighted and praised by students and teachers of the programme, that sustainability education, especially the Master's Programme in Sustainable Development (MSD) at UU and SLU, consists of a rich diversity of students from different countries, continents and disciplines. Interdisciplinarity is a key competence in higher sustainability education (Howlett 2016, Rieckman 2013, Wiek et al. 2012) and is clearly presented as a strength of the programme and sustainability classes (UU 2014).

My results show that teachers aim to and successfully guide students to look at socio-environmental issues from different perspectives, enable them to use these perspectives and foster their critical thinking. While these are key components of sustainability education itself (Howlett 2016, Rieckman 2013, Wiek et al. 2012), they are also part of interdisciplinarity. Although interdisciplinarity refers to the integration of diverse disciplines, understanding other perspectives from different angles is a key component of it. For Wiek et al. (2012), interdisciplinarity is another term for what they call interpersonal competencies, the ability "to understand, embrace and facilitate diversity across cultures, social groups, communities and individuals" and the ability "to understand, compare and critically evaluate different positions, perspectives and preferences" (ibid., p.211).

Constructed Diversity in Sustainability Classes.

Diversity and interdisciplinarity go hand in hand in the MSD programme. Students are provided with a space to learn from and engage with other countries, cultures, and disciplines. My results show that education as practiced in these courses is deeply concerned by and successful in creating a safe space for all. The vast majority of student respondents indicated that they felt welcome to express personal opinions and share personal experiences. Students explained how they were educated to broaden their perceptions of sustainability and socio-environmental issues.

However, my results also show how students describe their classroom as dominated by Europeans. As the programme is set in Sweden, it is understandable that this is the case, as many of the interviewees acknowledged. However, it is important to remember that in a diverse and international classroom, some countries are more represented than others, leaving those that are underrepresented in minority. Students from non-European countries will always be in a different position from European students in this classroom, not only in terms of numbers, but also in terms of origin and culture. This makes them more vulnerable to being questioned about their country and more encouraged to share and represent their personal experiences. Integrating a variety of perspectives enhances the "interdisciplinarity" of sustainability education - a key competency for students in higher sustainability education (Howlett 2016, Rieckman 2013, Wiek et al. 2012) - but whose knowledge is being scrutinized? While the line between diversity and interdisciplinarity is already blurred, the line between who is the subject and who is the object in this learning environment is now also blurred. This problem will be discussed in the following segment.

The European subject learns from the non-European object.

To speak of learning is to speak of knowledge that is created and engaged with - knowledge is, as Quijano (2007, p.172) puts it, "a product of subject-object relation". Here, the object is defined as significantly different from the subject and constitutes "properties" that give it identity and define it (ibid.). While all students in sustainability classes are subjects of learning, entering an interdisciplinary space where individual perspectives are important, clear distinctions occur. The European student is in a position where the perspective they bring to the table is culturally not very different from other European students. A student from Germany (like me) may come from a different country than, say, Sweden or the Netherlands, but these countries still share a similar culture, language, and political system. In contrast, the perspective of a non-European student is likely to be utterly different. Quijano (2007, p.173) describes knowledge as an intersubjective relationship "for the purpose of something" - knowledge can thus be seen in the same way as property. The perspective that a European student brings is similar to that of other European

students. But the perspective of non-European students is ultimately different, diverse, and therefore contributes more to the "interdisciplinarity" of a class.

Quijano defines the "object" in this relationship as an entity that can only be an "object" of knowledge (2007, p.174). One cannot say that the non-European students are completely objectified as such. All students are subjects of learning in this relationship, but some see themselves more in this position than others. This does not mean that European knowledge or culture is considered superior and others not rational, as Quijano suggests (2007). However, the results showed instances where students perceived European knowledge to dominate the programme. Moreover, it is important to emphasize the way in which non-European students are exposed to the role of being the "object" of knowledge. When a student finds him/herself as one of the only representatives of a country, a region or even a continent other than Europe, efforts at perspectivation and interdisciplinarity ultimately pushes this student into the role of an object, into the role of the one who is asked to share different perspectives, experiences and, ultimately, personality.

To the contrary, in this same, familiar environment, the European student can choose to share or not - they have a choice. The non-European student is at risk of being deprived of the same choice. The results show that the university strives to be a safe space for everyone, and all students felt that they were free to express their opinions. But no matter how you put it, the setting for a non-European student will never be the same as for a European. They will find themselves as a subject learning from their peers, while the non-European student will have to navigate between the blurred lines between subject and object.

Although these risks are formulated in a very theoretical way, the tendency is already observable in the results. There is evidence that European students express that they are more influenced by their peers and classroom conversation, factors that describe how students learn from each other. It is therefore necessary to study this further, but also to make universities, coordinators, and teachers aware of this issue. The pursuit of interdisciplinarity must take place in an equal space for all.

5.1.2 Insufficiently Delivering on the Promise: How Students Are Being Trained to Become Professionals Under Unequal Conditions.

While the previous part argued how the design of the programme and the classes runs the risk of reducing non-European students to the role of an object to the prosperity of European students' learning experience, I will now explore how these inequalities are reinforced by the way sustainability education is designed and the prospects for students on the labor market.

From Promise to Practice: Lack of Career Preparation and Future Orientation.

The results showed that students don't feel prepared for jobs in sustainability and that teachers insufficiently target job preparation in their teaching. As a reminder, the results showed how students felt rarely prepared for the sample jobs promoted by the MSD program on its website as "specific examples of job positions that our students acquire" (UU 2024). This shows a discrepancy between promise and practice, which is also evident when looking at the future orientation - one of the three pillars on which the MSD program is built (UU 2024). The case of future orientation is discussed in detail in Section 6.2.

The results showed an insufficient engagements with future dimensions in sustainability education. In addition, positive emotions were weakly engaged with by students, while negative emotions stood out. Future orientation or anticipatory competencies (Wiek et al. 2012) are a focal point in sustainability education (Wiek et al. 2012, de Haan 2006, Howlett 2016, Rieckman 2013). This importance is confirmed by the programme description (UU 2024) and the interviews. The challenge is therefore not only to raise awareness of its importance, but also to ensure that it is actually implemented in the classroom.

Wiek et al. (2011, p.212) questioned whether the key competences "enable successful real-world sustainability research and problem solving", arguing that the literature "fails to demonstrate that graduates are sufficiently skilled to tackle sustainability problems". The results stand in an ambiguous position regarding this issue because (a) it has just been shown how the MSD program fails to implement professional preparation in their sustainability higher education; and (b) it has also just been shown how the MSD program fails to implement key competencies required in sustainability higher education.

Job market inequality.

While the struggle to find a job in "sustainability" is evident among all students, non-European students clearly stand out. The amount of non-European students who found a job in sustainability was almost zero, which is problematic enough on its own, but in light of what has just been discussed - how sustainability courses run the risk of objectifying non-Western students as learning experiences - this may highlight an even more serious matter.

European students are privileged in that they don't have to pay tuition, they don't have to pay back the debt from those tuition fees, and they have a natural advantage in finding jobs because of their migration situation, family support closeby, and their nationality. Non-European students can't afford not to be prepared for jobs in the same way that European students can. By moving to another continent, many of these students are taking on greater risks, such as the financial burden of attending the program. This is an inequality that is not created by the MSD program

or sustainability education in general, but as the results show, it deepens the existing inequalities that can be (re)produced by the program.

Ultimately, non-European students suffer more from a program design that doesn't deliver on its promises and doesn't train students for the jobs it promotes. The way in which sustainability is taught can thus not only become misleading and based on false promises, but also runs the risk of training students to become professionals on unequal terms - to the detriment of students who cannot afford not to receive proper job preparation, i.e. non-European students. Obviously, the goal of any program should be to train students to be equally successful in the job market. For a program that invests heavily in attracting a diverse student body, this is an even greater necessity.

5.2 The Importance of Developing Positive Anticipatory Thinking: Discussing the Role of Emotions in Higher Sustainability Education

In this section I will discuss the importance of developing positive anticipatory thinking. Reflecting on the findings, I will discuss the role that emotions might play as well as the need to embed future orientations in sustainability education, focusing on creating a sense of agency and presenting alternative pathways.

To Recapitulate the Findings: Emotions are loosely engaged with in the classroom, while there are large emotional differences among students depending on their gender, background, and study experience.

The results showed that emotions are loosely engaged with in teaching of sustainable development. Interviewed teachers showed uncertainty about their own emotional awareness and their approaches to engaging with emotions in the classroom. The question of how big a role emotions should play in the teaching divided students and teachers, although there was clear agreement that emotions should play a role.

The results showed that students are emotionally affected by the study of sustainability challenges, mostly in a negative way. Analysis from a gender perspective revealed that women were more emotionally affected than men in every aspect - only anger was more prevalent among men. Positive emotions were generally much less common, although it was surprising to see that students from non-Western countries were significantly more positive than Western students. There were also significant differences when looking at students' backgrounds and whether they grew up in a rural or urban environment. Emotional awareness therefore includes awareness of gender and racial differences.

Interviews and surveys showed indication of emotional numbness among teachers and students who have been involved in sustainability for a long time. In relation to this, a theme was identified that describes how it is more acceptable to target negative emotions than positive ones.

In summary, the results showed great differences among students when it comes to emotions. In contrast to the uncertain approaches in the classroom, the students' experiences were unequal. However, there is agreement on the importance of dealing with emotions.

Shifting Teachers' Responsibility Back to them: Reminding Teachers of Their Influential Role.

A key aspect of the findings was to identify and highlight problems in higher sustainability education. Students expressed they felt an emotional numbness after having studied sustainability for a longer period of time and it was similar for teachers in general. This emotional numbness among teachers can related to the practice of engaging more with negative emotions rather than positive ones. The positive emotions were found to be significantly underrepresented, even though there was broad agreement on the important role they play.

Whose role it is to include emotions in the classroom in general was a debate that followed a theme of shifting responsibility that recurred in several aspects. Is it the program, the coordinator, or the (guest) lecturer who should implement emotional engagement, and who should shift the students' perspective toward the future? The teachers who were primarily guest lecturers described their position as a "snapshot" of a larger picture. From the students' perspective, these snapshots make up the big picture. Therefore, not only is it necessary to remind each guest lecturer of the importance of each "snapshot," but it is also necessary for coordinators to make sure that each piece fits into the wholeness of the picture.

In relation to hope, Ojala (2017, p. 81) argues that teachers should critically reflect on their own hope, as their way of looking at the future can influence students' perspectives. In general, teaching sustainability is associated with the need for teachers to reflect on their own teaching (Wals & Jickling 2002). The results showed that reflection among teachers, whether on sustainability in general or on dealing with emotions, was insufficient. It is therefore crucial to remind teachers of the importance of reflexivity, not only as a learning outcome for students, but also for themselves.

The Importance of Positive Anticipatory Thinking and How it is Insufficiently Implemented in Sustainability Education.

The emotional numbness revealed by the results is most likely explained by the fact that those who deal with sustainability issues on a daily basis develop an emotional distance to protect themselves. However, students are often at the beginning of their

engagement with the true dimension of sustainability issues and show greater emotional affection at the beginning of their studies. It is part of education that students learn to deal with the sustainability problems, uncertainty, conflict and ill-defined situations (Howlett 2016). However, as Wals (2016, p.6) notes, there is no longer any real doubt about the seriousness of the global socio-ecological challenges facing our planet. Rather than continually focusing on the present, sustainability education needs to raise its sights to the future. This reinforces the role of future orientation and anticipatory thinking a key competence of higher sustainability education (de Haan 2006, Wiek et al. 2011, Rieckman 2012, Howlett 2016).

Positive emotions can broaden people's perception of reality, making them more creative and open-minded (Fredrickson & Branigan 2005, Fredrickson & Joiner 2002, Fredrickson 2001). Positive emotions can evoke new ideas and help to anticipate the future in an open way (Ojala 2017, p.81). They can help students to face the harsh reality of socio-ecological problems (Folkman 2010). Therefore, positive emotions can play an important role in helping students to anticipate the future. However, the results showed that it was apparently more acceptable to target negative emotions in sustainability education, while positive emotions were often missing altogether.

Positive emotions are not necessarily associated with future orientation, but positive emotions can help students feel less negative about the future and encourage them to feel confident about becoming agents of change. Shifting the focus from the negative present to the possible future is a way to challenge common practice and educate students in the crucial skill of anticipatory thinking. The results and discussion in this thesis show that future orientation and anticipatory emotions are insufficient in sustainability education. Yet the MSD program describes itself as being built on the pillar of "future orientation".

Finding the right strategy: Sense of Agency and the Importance of Actively Creating Space for Positive Anticipatory Thinking.

Targeting positive anticipatory thinking through future orientation and positive emotions is a difficult task. I will argue that finding the right strategy is key and that the focus should be on deliberately creating space for it in the classroom. This work thus adds to the literature calling for a more specific focus on anticipatory emotions, such as hope, in higher education for sustainability (Hicks 2014, Ojala 2012, Stevenson & Peterson 2015, Wals, 2015, Ojala 2017). To be more "specific," then, is not only to promote and encourage students to do so, but also to design teaching strategies to develop more positive anticipatory thinking in students. This is a difficult task and requires further research. However, there are already strategies identified in the findings that were able to successfully influence students' anticipatory thinking and create positivity among students.

The results showed how teachers successfully created a sense of agency, interest, and inspiration in students by sharing personal stories and demonstrating alternative pathways. Most influential seemed to be cases where teachers invited people from outside the classroom, organizations, or even friends, to share their stories. This is consistent with the findings that students felt significantly influenced by other students and classroom discussions. Another surprising finding from the interviews was how students from three different years shared stories about the same particular teacher and course in which the teacher openly showed emotion. It was described as opening the door and creating a space for students to show emotions as well.

These examples show how influential teachers can be for students and support the findings of Ojala (2017, p.81), who argues that "by showing that other ways of being are possible, a sense of agency and hope is evoked". It also shows that negative and positive emotions don't necessarily have to be separated, as one student described the experience of dealing with negative emotions in class, where teachers openly cried and shared their emotions, as a very positive experience.

What these examples all have in common is that they were a stand-alone lesson that actively created a space for alternative pathways and emotions. The results showed that strategies that tried to implement them at the end of the lecture - ending on a positive note - did not leave a lasting impression on the students. Therefore, it is important to truly embed future orientation and positivity in education, not just have it as an appendage. As Lozano et al. (2017, p. 11) argued, students must be provided with a complete set of sustainability competencies in order to better develop the actions of future generations. The results have shown how teaching successfully implements critical thinking, perspectivization or interpersonal competences, now it is also up to take future orientation seriously.

Emotions help not to lose sight of the human dimension of sustainability.

Returning to emotional numbness, developing strategies that focus on positive anticipatory thinking could be a way for teachers to reflect on themselves and engage with emotions to counteract their own emotional numbness. To quote a student:

> “Engaging in sustainability, is like engaging in a battle in a fight. Someone who is ready to engage in sustainability, who is not ready to talk about emotions related to sustainability, is not ready to engage in sustainability" (S8).

In this sense, to engage with sustainability is to engage with emotions, because one cannot detach from the social dimension that sustainability issues involve - one cannot ignore the dilemmas, struggles and catastrophes that sustainability issues cause.

Engaging with emotions is therefore necessary to ensure that sustainability and sustainable development do not lose their human dimension:

> "If we separate sustainability issues as a purely cognitive or intellectual endeavor, we actually lose a lot of what they mean to us in our lives" (T4).

As the results showed, teaching is about ensuring that sustainability is seen not just as a pure concept, but as a broad term that can mean a lot. Engaging with emotions can help us to manifest this perception that sustainability should be preserved from being reduced to a sole concept that fails to include human aspects. Therefore, it can be beneficial for both students and teachers to engage with emotions in the classroom.

6. Conclusion

Within an intersectional framework and using theories of the coloniality of knowledge, climate emotions, and higher sustainability education, I analyzed how sustainability and emotions are addressed in sustainability courses at the university level. I showed:

- How the push for interdisciplinarity runs the risk of (re)producing racial injustices and objectifying non-European students;
- How positive anticipatory thinking is being neglected and needs to be taken more seriously especially in relation to positive emotions, and;
- How sustainability programmes/courses successfully teach students systems thinking and train them to become critical thinkers.

In exploring the ways in which differences and inequalities among students can be observed and explained, the study revealed a risk of (re)producing racial injustices by attempting to create interdisciplinary study programs/classes on sustainability. Creating an interdisciplinary educational space where the exchange of experiences and opinions is highly valued in sustainability education, puts students with very different experiences and perspectives, especially non-European students, in a vulnerable position. Thus, sustainability education that involves students from different backgrounds, cultures and disciplines runs the risk of objectifying the non-European student as an object to be learned from by the European subject who is educating themselves as experts in sustainability. While all students end up with the same degree, I argue that the creation of knowledge based on this interdisciplinary setting is not mutual: the European student benefiting more. What makes this risk even more ominous is the finding that sustainability education does not adequately prepare students for the job market: non-European students have significantly more difficulties than Europeans to find a job in sustainability after having finished their degree.

This finding is the most important result of this thesis and touches on an unrecognized problem in the field of higher education for sustainability. Yet, it requires further scrutiny. In an intersectional framework, it would have been useful to explore further the intersection of inequalities. The discussion focused a lot on the students' backgrounds, but it could be fruitful to take more into account the

social situation in which the students find themselves. Also, this investigation is based on a limited amount of data and only reflects the perceptions of a small number of students. This work's limitation is a future research opportunity, especially in a context in which academia (including UU and SLU) increasingly thrives to decolonize higher education. As sustainability education seeks to prepare students to make a difference, it cannot be that the education itself risks (re)producing racial inequities.

Another strength of this work is the identification of possible ideas for improving and developing higher education for sustainability - for example, the findings on how important it can be to develop positive anticipatory thinking in students. Focusing more on the future and creating a sense of agency in students should be a goal for educators. The results showed how powerful it can be for students when teachers present alternative pathways and show emotions related to climate issues. I argue that linking emotions and sustainability is important because it helps to keep the human dimension of sustainability in mind. It is important to take positive emotions seriously, as these are the emotions that move students to take an active role.

Finally, the findings revealed a rich set of perspectives and perceptions of students and teachers. They are based on a rich set of data, the results of two surveys with 47 and 16 participants respectively, and over 70,000 words of interviews with 15 participants. The results, as a synthesis of these data, are based on an explorative framework and consist of about 20 identified themes that show interesting representations of students' and teachers' perceptions. A strength of this dissertation is the rich synthesis that these data have allowed to produce. I was able to uncover interesting themes of emotional differences in relation to students' gender identity or origin/background. Furthermore, the theme of a European dominance in the classroom can be a seed of thought to pay more attention to the power dynamics in sustainability classes. In conclusion, the results are key for anyone involved in sustainability education, be it a researcher, teacher, coordinator or student.

The aim of this thesis was to explore higher sustainability education and its engagement with sustainability and emotions from an intersectional lens, with a focus on whether and how potential inequalities might occur among students. The findings successfully followed this aim, and I was able to identify differences between students and explain how interdisciplinary sustainability studies programmes are at risk of (re)producing racial inequalities. It is a sad thought to reflect on this issue in a programme that I myself was a part of, and I want to emphasize that this is not necessarily a cemented fact. However, as someone who has been a part of this program and has experienced how the diverse student body has influenced me, I see that the risks that have been discussed need to be taken seriously. It must be in everyone's best interest to design sustainability studies in a way that benefits every student, no matter who they are.

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Popular science summary

My thesis examines higher sustainability education at Uppsala University and the Swedish University of Agricultural Sciences from an intersectional perspective, analyzing how the intersectional domains of e.g. gender or race can lead to oppression and privilege in sustainability education. Focusing on sustainability and emotions, and considering theories of higher sustainability education, climate emotions, and the coloniality of knowledge, I explored how sustainability and emotions are addressed in sustainability courses at the university level. Using a mixed methods approach, I conducted two student surveys (with 47 and 16 respondents, respectively) and 15 semi-structured interviews with faculty and students from sustainability programmes. These methods allowed me to capture (1) understandings from students of different genders, origins, backgrounds, and study experiences, (2) a perception of the job situation of recent sustainability graduates, and (3) personal insights into teaching and learning about sustainability from the interviews with faculty and students.

I found that emotions are only loosely embedded in sustainability education and that there are mixed opinions about whether they should be embedded at all. I identified a lack of emotional awareness among teachers and a certain emotional numbness among teachers and experienced students. I also found a seeming acceptance of targeting negative rather than positive emotions, as well as significant differences among students in the way they experience emotions when dealing with sustainability in the classroom. In light of the priorities of higher sustainability education, which calls for increasing capacities for anticipatory thinking, I argue that sustainability education needs to take positive emotions seriously as a way of opening up to anticipatory thinking.

The findings revealed diverse and sometimes uncertain approaches to teaching sustainability in an education system that focuses primarily on critical thinking. Students feel that they are being trained primarily to be 'researchers' but feel inadequately prepared for other work in 'sustainability'. The results showed that this was particularly true for non-EU students, who felt less prepared for work in sustainability and were less successful in the job market. However, I also found that the programmes I studied were successful in creating an open and safe space for students to share their opinions and experiences. Sharing experiences is an essential part of interdisciplinary studies, it is a characteristic that is seen as a great strength

of sustainability education. By designing diverse and interdisciplinary classes, I argue that higher sustainability education is at risk of (re)producing racial inequities. By blurring the lines between diversity and intersectionality, and by placing non-European students in a vulnerable position where their different experiences add more value to the interdisciplinary nature of the course, non-European students risk being objectified as a learning experience for European students.

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Thesis #2: Check.

Appendix 1: Survey A Layout

Part 1: Demographics

- Did you grow up in Europe, USA, Canada, Australia, New Zealand, or Japan?
- How would you describe your gender identity?
- Did you grow up in a rural or urban area?
- For how long have you studied sustainability issues at a university?

Part 2: Sustainability

- Sustainability is in general something that can be achieved.
- A: Sustainability can be described as meeting the needs of the present without compromising the ability of future generations to meet their own needs.
- B: Sustainability can be achieved by combining (1) environmental, (2) economic and (3) social sustainability.
- C: Sustainability can be achieved by combining (1) environmental, (2) economic, (3) social and (4) cultural sustainability.
- D: Sustainability can be achieved by implementing the 17 UN Sustainable Development Goals.
- From the 4 statements above, which did you know before?

Part 3: Engagement with Sustainability

- Before I studied sustainability, I had a clear idea of what "sustainability“ stood for.
- Through my studies, my understanding of sustainability has changed significantly.
- My understanding of sustainability is influenced by…
    a. teachers.

b. other students.

c. literature.

d. discussions in class.

e. personal experience.

- In my studies, I feel encouraged to define sustainability in my own words.
- In my studies, I feel encouraged to challenge the common definitions of sustainability,
- In my studies, I feel encouraged to engage with sustainability literature outside of Western academia, including indigenous knowledge.
- I feel that the university is a safe space for me to express my opinions on sustainability issues.

Part 4: Engagement with Emotions

- I feel that my teachers are aware of the emotions that can arise when we discuss social or environmental issues.
- Discussion of emotions about social or environmental issues is always a welcome topic for my teachers.
- There is room in the classroom for me to express negative emotions such as fear or anxiety about social or environmental problems.
- In class, we focus more on the bad present rather than the possible future.
- We talk about climate anxiety in class.
- When I deal with sustainability in my studies, it awakens in me emotions such as…

a. anger.

b. frustration.

c. fear.

d. anxiety.

e. powerlessness.

f. sadness.

g. positivity.

h. hope.

i. empowerment.

j. inspiration.

Appendix 2: Interview Guide Teachers

Part 1 – Approach to teaching Sustainability

Lead Question: Can you share with me your approach to teaching sustainability?

Checklist

- What is the aim? Why?
- Role as a teacher?
- Encouraging student to challenge/criticize/question? How? Why?
- Hegemonic knowledge challenged? How? Why?
- Types of understandings are tried to teach? How? Why?
- Literature selection? How? Why?
- Future Dimensions:
- Focus on bad present rather than the possible future?
- How do they deal with the future? Why?
- Teaching change over time? How?

Part 2 – Role of Emotions in Class

Lead Question: Can you share with me how emotions related to sustainability are included in your classes?

Checklist

- What is the approach? Why?
- Including emotions in class? How? Why?
- Expected emotions among students?

  Negative vs. Positive?
- Sustainability & Emotions in general something we should do?

Appendix 3: Interview Guide Students

Part 1 – Experience of studying sustainability & Development of understanding

Lead Question: Can you share with me your experience of studying sustainability and the development of your understanding of sustainability? Can you take me through your whole process of where you have been before your studies and where you are now?

Checklist:

- Understanding Changed? How?
- Influences?
    a. Moment/Event? E.g. Lecture, Reading, Discussion in Class
- Hegemonic Assumptions? Challenged? How?
- Literature
    a. Focus on Western?
    b. Indigenous knowledge?
    c. Encouraged to go outside the box?
- Personal knowledge counts? Space for it?
- Opinion counts? Space for it?
- Future Dimensions
    a. Role of the future?
    b. How did they engage with the "future"?
    c. Role of the bad present

Part 2 – Engagement with Emotions

Lead Question: Can you tell me about the role of emotions in your sustainability studies and how they were included in classes?

Checklist:

- How were emotions dealt with?
- Emotional Awareness of teachers?
- Place for emotions in the university?
    a. in class?
    b. in discussions?
- Ever felt judged/not taken serious or uncomfortable?

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