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'Sweet Acid' An Interpretative Phenomenological Analysis of Students' Navigating Regenerative Higher Education

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Abstract: Regenerative forms of higher education are emerging, and required, to connect with some of the grand transition challenges of our times. This paper explores the lived experience of 21 students learning to navigate a regenerative form of higher education in the Mission Impact course at The Hague University of Applied Sciences. This semester-length course ran for two iterations with the intention of connecting the students with local transitions towards a more circular society, one where products are lasting and have multiple lives when they are shared, refurbished, or become a source for a new product. At the end of each iteration, the students reflected on their experience using the Living Spiral Framework, which served as basis for an interpretative phenomenological analysis of their journey navigating this transformative course. The results of this study include four themes; (1) Opting in—Choosing RHE, (2) Learning in Regenerative Ways, (3) Navigating Resistance(s), and (4) Transformative Impacts of RHE. These themes can be used by practitioners to design and engage with regenerative forms of higher education, and by scholars to guide further inquiry.

Keywords: regenerative higher education; interpretative phenomenological analysis; lived experience; living spiral framework; regenerative learning; navigating resistances



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1. Introduction

Today humanity faces a wide range of wicked (sustainability) challenges including an enduring global pandemic and dire climate predictions [1]. This type of wickedness in sustainability challenges is expressed through interlinkages between disparate systems that interplay with each other at multiple levels. This is also expressed through the transdisciplinary nature of such challenges. For example, transitioning towards a solar-based energy system for a borough in Amsterdam depends on, among other things, policy at the local, national, and European level, not to mention the impact of fossil fuel prices, the impact of mining rare earth metals for batteries on ecosystems and local peoples [2], or simply the willingness of the inhabitants of Amsterdam to accept solar panels aesthetically on their roofs. This wicked nature of sustainability challenges (which also extends to other challenges such as transitions in how we build, how we feed our societies, or how we dress, amongst many others) is one of the reasons why we are, collectively, transgressing the social and ecological foundations that allow for a healthy planetary existence for humanity [3–5]. The calls for an educational response for these times of interconnected transitions have been growing [6–9]. The state of the world asks from us an educational response that actively connects with these wicked challenges, also known as sustainability transitions (STs), with the intention of bringing back the systemic exceeding of the carrying capacity of the Earth, society, and individuals; or, in other words, an approach to education that aims

to contribute to the regeneration of personal and planetary health within the ‘safe and just equitable space for humanity’. The emerging field of regenerative higher education (RHE) aims to do exactly that by linking strongly to local transition challenges rooted in place as rich contexts for personal and systemic learning-based transformation [10–13]. In this paper, we define RHE as an ecological approach to education that actively connects with local expressions of transition challenges (such as the Amsterdam energy transition example) with the intention of transforming the systems that constitute and maintain degenerative status quos towards more sustainable trajectories.

RHE is founded on a relational perspective to learning in which knowledge, understanding, meaning, and competence are viewed as interrelated and emergent properties of the relations we establish with others and the places of which we are part [14–18]. This implies that the educational task can be seen as facilitating learning through participating in a broader ecology of practice and change [6,15,19]. This invites the critiquing and disrupting of resilient dysfunctional systems [20]. In the words of King: *‘Regeneration unfolds as adaptation to the demands of an apocalyptic present, healing from this effort to establish an ability for further change and evolving in dynamic and sustained ways. In the pursuit of sustainable futures, regeneration acts as both a means and an end’* [21] (p. 42). However, engaging with such RHE requires transformations of worldviews, mental models, and perspectives towards more sustainability-oriented ones. Such transformations are challenging and confrontational, as they require us to expose and interrogate our being and becoming in the present world and to imagine alternative ways of being and becoming in a future world that aspires to be more sustainable [11,22].

In short, there is a pressing need to engage with RHE, and examples of such education are starting to emerge rapidly in innovation niches at universities. Previously, we have created an overview of a selection of such innovations in western Europe with a focus on The Netherlands, see [23]. However, literature about how students experience, navigate, and learn from, during, and through RHE remains lacking. To gain understanding of how such educational courses are experienced will likely provide insights that might (further) unleash the potential of RHE for climate action [3]. Increased understanding of these experiences can generate direct implications for both the designing and teaching of RHE, and the larger systemic changes required to connect university education with societal transitions.

RHE starts from the proposition that this relational engagement with societal change is (existentially) required, and educationally valuable. In doing so, RHE goes beyond incorporating sustainability content into the curricula, or the creation of new courses, and instead engages with challenging and repurposing what university education ought to be for and about in times of socio-ecological crises [24]. There are already signs of more regenerative forms of education, including case-based, lab-based, and challenge-based experimentations emerging in practice [8,25]. However, while these innovations are expressions of the type of engagement (i.e., pedagogically) and hold the potential of a more regenerative approach to education, they are not necessarily committed to a relational and regenerative sustainability. In other words, RHE is an activist answer to what the responsibility of universities in times of climate crises are; to actively participate in the facilitation of the transition towards a safe, just, and equitable space for humanity. In this, RHE also responds to calls surrounding universities to participate and be connected with their local places as facilitators of co-learning for complex or wicked problems [9,26], as well as calls from (youth) activists like Youth for Climate and Extinction Rebellion and from leading educational thinkers like Biesta (2021) [7], Barnett & Jackson (2019) [6], and Orr (2002) [27]. Furthermore, RHE responds to a need for more personal research in the sustainability sciences [11,28,29]. While scholarship of such regenerative approaches to university education is starting to emerge [30]—including studies into why students wish to engage in such processes of learning-based systemic co-design [22]—the educational and personal consequences of such innovations remain unclear [31].

To explore this gap, we zoom in on one experimentation with RHE in The Hague, The Netherlands. In this study, we engage with the lived experience of two international and interdisciplinary cohorts of undergraduate students who participated in the Mission Impact minor course from 2020 to 2022. During this period, the participating students created twenty-one living spiral frameworks (LSFs), which were analysed through interpretative phenomenological analysis (IPA) to answer the central question in this paper: How do students experience navigating RHE? The authors subsequently reflected on what these experiences imply for the design, policies, and teaching of RHE and present this dialogical engagement with the student experience in the results.

2. Research Context, Methodology & Methods

2.1. Research Context—Mission Impact

This study draws on two iterations of the Mission Impact course at The Hague University of Applied Sciences. In this course, which runs full-time for an entire semester in English, students are invited to connect with transition challenges that are regionally relevant. In the first iteration (2019–2020), 17 students from 11 different (international) undergraduate programmes participated in the programme. The first iteration connected with the Binckhorst, a former industrial area in The Hague, The Netherlands, that is being transformed towards a circular living area. In the second iteration (2020–2021), a further 11 students from six (international) different bachelor programmes participated. In this second iteration, the course connected with two regions simultaneously; the Binckhorst and the Greenport West-Holland, roughly the area between The Hague and Rotterdam that is the main agri-food hub of Europe. These regions were chosen for the collaborations with them that arose organically through previous (teaching) engagement of the main author. However, both areas are undergoing government-led sustainability transitions. During both iterations of the course, the participants frequently engaged in creative methods that facilitate reflecting in practice, such as arts-based workshops [28,32], as preparations for the LSFs. Throughout both iterations, the course included working on personal transformations for about 20% of the time and the transition challenge in practice for the remaining 80%. In practice, this meant we designed this full-time course so that, one day per week was dedicated to personal transformative work in the form of a personal expedition guide. There were generally one or two supporting workshops or sessions on a weekly basis that focussed on topics like regenerative design and sustainability [14,27], doing participatory design-oriented research [33], and facilitating personal and collective reflections on the processes of transformation that were (or were not) unfolding, drawing on the transformative arts toolkit by Pearson et al. (2018) [34] to do so. Throughout Mission Impact, the students were invited to participate in contemplative and creative practices including bi-weekly hosted dialogues, and a personal learning journal, which acted as data for their LSFs. Local stakeholders were involved throughout the design and teaching of both iterations by, among other contributions, providing tours and assistance in field explorations and acting as gatekeepers for connecting with the local communities active on the transition challenges in that place. The course was supervised and taught by the main author and two additional teachers. The main author was primarily responsible for the design of the course and the additional teachers for coaching the team-based work within the Binckhorst and Greenport, respectively. Throughout the course, experts from academia and practice were invited to (co-)host content related sessions. Students as well as representatives working in practice on the challenges that were the educational focus later in the course, were involved in the co-design of Mission Impact from the conceptualisation to the final iteration in varying constellations of actors.

Roughly speaking, the course consisted of four phases of five weeks, where each phase ended with a personal storytelling and public presentation for the larger community involved with the challenges the team of students worked on in the course. An in-depth overview of the course design, including an overview of the weekly schedule and type of workshops, lectures, and other educational activities engaged with, can be found in

the course manual. As part of the course, typically two workshops and one guided reflection session were hosted on a weekly basis. These were initially based on the work on transformative learning by Pearson et al. (2018) [34] to allow students to land in a new learning environment (i.e., acting as scaffolding). As in the first iteration, having unguided reflection sessions, especially in the beginning of the course, seemed to be overwhelming. As the course unfolded, the nature of these sessions and the classes more generally became more one of co-design with the students. This allowed stronger engagement with the materials (e.g., deciding what direction to go collectively as the transition challenge became more untangled) and acted as a safer place for the students to practice hosting sessions before doing so in the regions with external stakeholders. The reflection sessions were mostly based on dialogue to share what challenges we were facing up to that point and were used to make changes to the educational design (e.g., shift deadlines) in a collaborative decision-making process. Full narrative descriptions, including the pedagogical choices and tools that went into the course are available (open access) on Medium [35]. In addition, a podcast episode on the Future Learning Design Podcast explores Mission Impact in more depth [23].

2.2. Participants

The participants represented at least three continents in each of the iterations. The majority of the students were third- or fourth-year undergraduates and in their early twenties. The students selected to participate in this course themselves based on the course manual and other communication materials shared through the universities regular course promotion channels (e.g., newsletters, course markets, and such). The students were also asked to create a short media product to discuss why they wanted to participate in this course. Thus, it is important to acknowledge that the participants were motivated and informed to join this course. In other words, the students engaged with a form of self-based purposive sampling. The communication materials for the course included acknowledgements of the study that was being conducted in the course. The course was designed to be transdisciplinary as transition challenges tend to require solutions that go beyond disciplines. Three participants were notably older (>10 years) and had either already completed previous (undergraduate) university education or returned to study later in life. None of the participants were native English speakers. No data were gathered on other socio-economic or personal details such as gender identity or familial wealth. While the background in terms of cultures of the participants was quite diverse, most of the participants joined the course from the engineering faculty. Within that faculty, however, participants ranged from applied mathematics to spatial design, i.e., within the engineering domain the representation was quite diverse. The participants had little to no previous experience in their education with wicked problems, or other forms of learning that (must) invite uncertainty such as RHE, which represents a major limitation in more common higher educational practice. Similarly, the participants highlighted they had little to no experience with arts-based forms of learning or engaging with subjectification in their previous university education.

2.3. Data-Generation: Living Spiral Frameworks (LSFs)

At the end of each iteration of the Mission Impact course, the participants were asked to create LSFs as an aesthetic and narrative-based reflective method to think through transformative lived experiences [20,36]. A collage of several of these can be seen below in Figure 1. The LSF uses the analogy of a living plant or tree to think through processes of (relational) transformation. While the LSF is flexible, it strongly recommends having between six and twelve pages of personal narratives for the required depth of this approach. However, the decision was made to exclude the LSFs of students that failed the course (mostly because they did not hand one in) and to include LSFs that did not reach the six-page minimum recommendation if they were sufficiently meaningful (i.e., the quality of the LSFs guided the authors in inclusion instead of their length). In each iteration, three

dedicated sessions were hosted for the students to get to know the LSF, including the possibility of discussing their work with the first author. Participation with the LSF was part of the assessment process of the course. However, the students were provided the opportunity to opt-out of having their LSF included in the research, an option that was not exercised. All students were asked if they wanted to participate in the study before the course started, including by being presented with informed consent forms, which were obtained. The two to three sessions focussed roughly on the following elements: (1) Creating a timeline—what were the main moments that impacted me in this course? (2) Structuring—deciding what were the subtitles and keywords representative of the journey in accordance with the metaphor of a living spiral, and (3) Narrativizing—how can this be told in a story form that does justice to their experience. The LSF acted as the final subjectification element of the course [7] and with that the final personal transformation assignment for the participants.

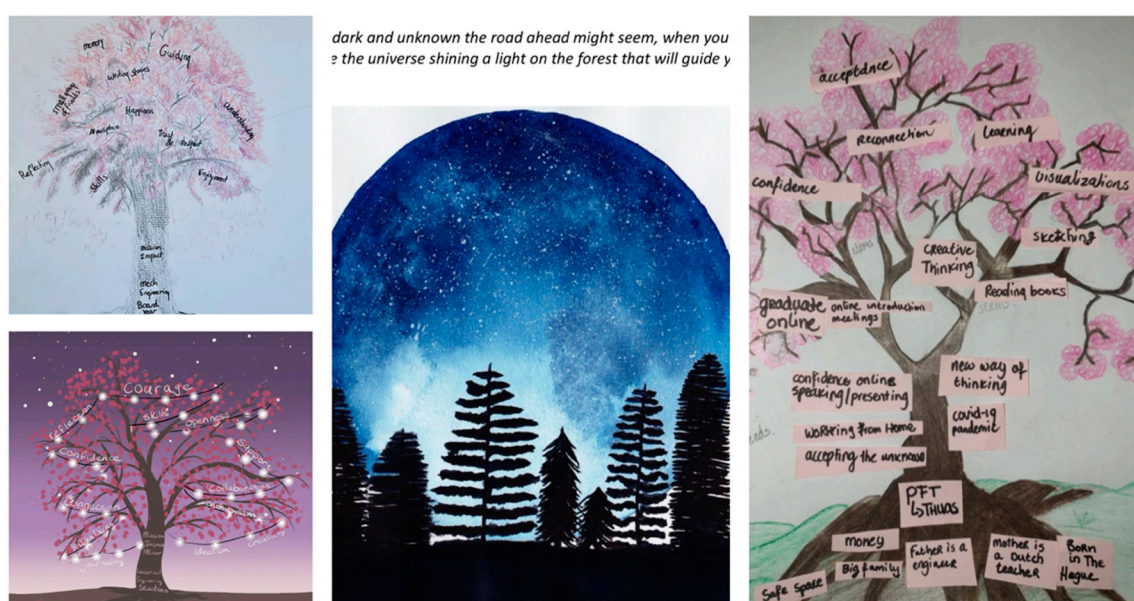


Figure 1. A collage of some of the visuals created in the process of the LSF reflections. Indicative of the type of aesthetic inquiry the students engaged with.

In total, twenty-one LSFs were included in this study (from a total of twenty-eight participants during the two iterations of the course).

2.4. Interpretative Phenomenological Analysis (IPA)

Interpretative phenomenological analysis (IPA) was used with the LSFs to be able to develop a richer and deeper understanding of students' engagement in the learning process. IPA is an approach to qualitative inquiry that is particularly well suited to the study of lived experience amongst relatively homogenous groups. IPA has roots in (health) psychology but is also frequently used in related fields such as human, social, and health sciences [37]. IPA may be used for example to study the lived experience of a cohort of people in the same hospital undergoing treatment for the same disease. Where the patients may come from different backgrounds (e.g., socio-economically), what ties them together for relative homogeneity is a shared experience of disease X in setting Y. In this sense, the cohort of students come from diverse backgrounds, but each share the experience of Mission Impact, which we argue allows IPA to be used meaningfully in this study. The phenomenological aspect of IPA describes the focus on investigating the individual experience as the central aspect, rather than trying to fit experience in abstract, predefined categories. IPA is based on the concept of phenomenology by the philosopher Edmund Husserl [38] (p. 12) who emphasized the importance of going 'back to the things themselves'. The goal is to break

through the *'hierarchy of experience'* [38] (p. 2), which starts with the most elemental level, the unconscious, the rather passive flow of experience. The real focus of IPA, however, is to engage with moments of conscious experience when everyday events become meaningful forms of living. These more complex types of experience usually occur when something important or impactful happens to us—this can be a negative or positive experience. In other words, IPA zooms in on when experience becomes *'an experience'*. This change in quality usually is accompanied by elevated levels of awareness, consciousness, and, hence, the richness of details. For this analysis, we hypothesized that engaging with RHE-inspired courses like the Mission Impact course constitutes a meaningful *'experience'* for the purposes of IPA.

IPA is done systematically through individual engagement with the data before the identification of relationally occurring thematic patterns. IPA generally uses between two and 20 participants [38], largely depending on the experience under inquiry, and has successfully been used in a variety of fields including educational sciences because it *'gives researchers the best opportunity to understand the innermost deliberation of the 'lived experiences' of research participants'* [39–41]. A relational perspective was used for the IPA in this study to identify and examine the *'lived experience'* of the individual learning ecologies of participating students to highlight implications for designing, teaching, and navigating RHE. According to Barnett & Jackson (2019) [6], an individual's learning ecology encompasses their processes and set of contexts, relationships, and interactions that provide opportunities and resources for learning, development, and achievement. This ecological perspective to learning served as the basis for a systemic abductive inquiry through IPA [42]. This includes abducting from the direct written experience towards implications for students, teachers, and higher education more generally to facilitate RHE (see Section 2.5). In other words, to probe into the multi-level systems that the students were relationally entangled with, through in-depth engagement with the collective experience of individuals. The standard recommendation of a 50% inter-participant occurrence rate was maintained in accordance with established IPA guidelines [38].

2.5. Analysis

The LSFs were analysed in the following steps. (1) Firstly, IPA was conducted by the main author, resulting in six (third order) meta-themes and two sub-themes. This first round of IPA included four rounds of coding: (a) initial coding of each individual, (b) interpretative coding of each individual, (c) identifying emerging themes of each individual, and (d) identifying meta-themes across the dataset. (2) These initial (anonymized) results were then discussed with the remaining authors for intersubjective alignment, which was done through an iterative analysis process where dialogue across the author team led to re-analysis and examining of the data. (3) This dialogical process was repeated twice, once with the second author, and once with all authors. This led to the combination of several of the initially identified (meta/sub) themes as overlapping and resulted in four meta-themes (Opting in–Choosing RHE, Learning in Regenerative Ways, Navigating Resistances, Transformative Impacts of RHE). During this step, the most powerful quotes were also identified by each of the researchers. Next, (4) the separate LSFs were revisited to identify quotations that captured the established meta-themes most strongly, which with the quotes already identified, formed the basis for weaving together thematic narratives. The main author collated the individually selected quotes and prepared these initial narratives (one for each meta-theme). (5) Finally, the resulting narratives for each meta-theme were shared with the co-authors for agreement. It is important to acknowledge that the authors are all from the Netherlands, which situates and limits the way through which the authors were able to interpretate the data. Through this creative inquiry, the authors attempt to find the balance between the iconographic commitment of IPA and broader inquiry into RHE as an emerging educational concept. The results highlight the commonality, or convergences, across the participants' experiences. This also implies that very divergent individual experiences may have been lost due to this methodological choice. Because of the richness

of these narrative results, and in line with standard practice of IPA, the discussions are relatively limited. The narratives are interwoven with a variety of representative participant quotes, which have been anonymized. Additionally, Figures 2–4 showcase some of the LSFs visuals and our interpretations of them in more depth to strengthen the narratives presented. In the results, anonymous indicators are used to highlight which quotes came from different participants.

3. Results

3.1. *Opting in—Choosing RHE*

Throughout the LSFs, strong indicators of why the participants choose to participate with this RHE, compared to the myriad of other choices that were available, were identified (the university offers more than 100 minors and students can also opt for a course at other universities for this free space in their educational curricula). What was clear was that many participants, but not all, as some opted for the course by happenstance, purposively engaged with this course because of its strong focus on regenerative sustainability and ecological justice *‘I desire to work on future-oriented projects that are solving complex environmental, social, ethical problems’* (A1). What connected these motivations was a commitment to living in service to the potentiality of a regenerative sustainable future. This sense of moral obligation was already present in most of the participants before coming into this course, and the difficulty of navigating a neoliberal education system living with this moral obligation was one of the main drivers for the students to pick Mission Impact. This lived sense of moral commitment was (also) fuelled by profound previous experiences with the overwhelming beauty of the natural world and the injustice we inflict upon it as powerfully described by one participant. This perspective was also strongly present in the LSF presented below in Figure 2.

‘I think it kind of started during my time in Australia and New Zealand that I realised how beautiful this world is. In New Zealand, I hiked close to a glacier and on the hike, you could see signs that showed where the end of the glacier has been in past years. This hike really touched me because I realised that what we do really has an impact’ (B2).

What is interesting, is the relative lack of engagement with social dimensions of regenerative sustainability (e.g., inequality, safety, inclusion) as reasons to opt for this course. This is remarkable considering that the university is based in The Hague, the international city of peace and justice and because world citizenship is one of the key strategic pillars of the university. It is unclear from the data why this side of sustainability was underrepresented in this study. Throughout the course, the choice of challenges the students engaged with gradually moved towards more socio-ecological wicked challenges. This markedness was strengthened by the choice of challenges that the students ended up engaging with. One team, for example, focussed on the felt vulnerability of social and circular entrepreneurs and NGOs in the Binckhorst who had to face the prospect of leaving the area because the transition they were partially initiating was increasing the real estate value so much they could not afford to compete with developers. While there is a larger trend of rising real estate prices in The Netherlands, it is possible that student work intended to help a place may actively contribute to a further increase, and through this, a faster exodus of more sustainable organizations. It is likely that other such tensions may exist in other contexts. Another team engaged with the lack of inclusion of youth voices, and the lack of connectivity between inhabitants and growers (of agri-foods) in the Greenport, only to find out that this lack of social relations was representative of the difficulty the students faced in collaborating with the growers in that period and the perceived difficulty the growers experienced themselves in collaborating as a community (according to the students). There were also strong responses to the amount of care work, and unequal distribution of this caring work across genders, in the students’ experience engaging with RHE.

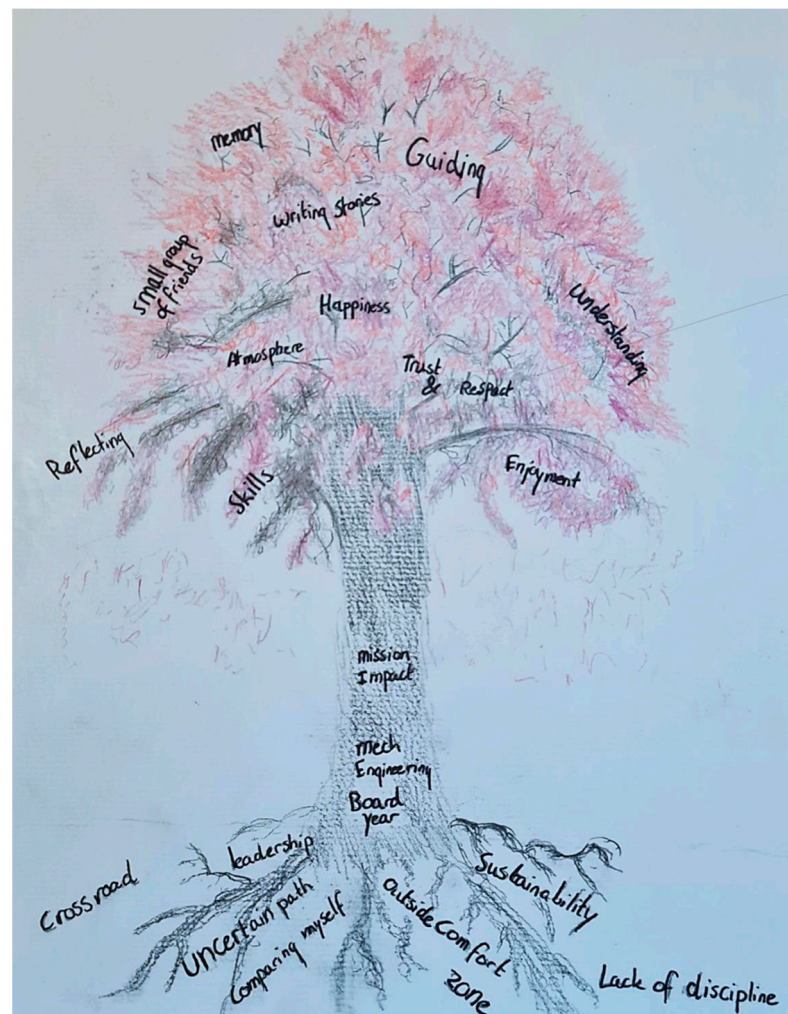


Figure 2. LSF (drawing) of one of the participants. The roots represent a sense of feeling like being on a crossroad and uncertainty but also a commitment and interest in sustainability that was common across the participants. A notable tension existed between their commitment to sustainability and feeling like they do not have (enough) agency to play a role in sustainability transitions.

However, those considerations were seemingly not strongly represented in the decision-making process to join the course, with only three participants mentioning social sustainability elements in their reasons to select the course. Engaging with this form of RHE broadened their perspective of the relationality of sustainability challenges, and their potential roles to play in both the social and ecological aspects of regenerative sustainability. It is likely that courses designed with RHE principles in different contexts, or housed within different departments, could attract people who are primarily interested in the social dimensions of regeneration.

At the same time, there were also strong expressions of transformative shifts before choosing the course that led several of the participants to rethink what they wanted to do with their degrees. This included rethinking why they were becoming a designer which in the regenerative sustainability discourse is seen as anyone who is working like a designer on creating change in the world. This perspective sees design more as a way of engaging with transitions instead of as a discipline [14], and more importantly, led them to question the type of design they wanted to practice later in life.

‘I have discovered that my interest in design does not lay in making smart gadgets, but rather in the meaningful design ... when I understood that the responsibility for the product within the whole life cycle ... lays on the designer’ (D4).

Some students were so disenchanting with the focus of their majors that they were on the brink of quitting university education entirely before seeing that something different, something more regenerative was possible. *'Sometimes I wonder if designing products is really the thing that I want to do for the rest of my life. I started to study design because I wanted to do something where I can use my creativity to protect the environment. However, I started to wonder if adding more products to this world is really the right way to protect it',* and continuing, *'I was convinced I wanted to quit my studies. With all the expectations from assessors, clients of the projects, and established methodologies, I felt that I was unable to uncover and express my own values through my projects, I felt that there was something missing in the way we tackled the problems we were given. It was this feeling that was never much space given to talk about the problems we were tackling at their core. I felt the height of this during the pandemic, when industrious systems fell to a silent halt and gave space for crises after crises to surface. The thought of working for firms and clients whose values claim to 'make things better' yet function by sustaining the consumeristic lifestyle that carry out the very destructive processes that cause these crises simply did not sit with me well . . . struggling with this . . . I had a conviction to return home'* (E5). For others, the main reason they chose to do Mission Impact was to do something completely outside their comfort zone, implying that they saw the course as sufficiently different to 'scratch that itch' like *'I wanted this semester to be different and to prove to myself I can do better. I promised myself to be brave . . . and strive for kindness'* (F6).

3.2. Learning in Regenerative Ways

The participants highlighted how engaging with this course made them feel like *'you as a learner are the main agent of change, but that you touch many around you in your own life'* (G7). The participants highlighted that this was facilitated by some of the pedagogical choices that were enacted in the educational task. As engaging with transition challenges entails working with wicked problems, which are inherently uncertain and unpredictable, working in RHE presents profound (psychological) challenges. The main consideration for learning in regenerative ways was identified in the building of educational scaffolding that was conducive to regeneration, which the students made a point to say was lacking at times. However, the adaptability of this scaffolding is important, as the participants highlighted that at times, the unpredictable movements of the wicked problems they were engaged with caused tensions with the rigidity of the course design. The students highlighted a need to actively maintain, and build on, educational structures that provide enough of a sense of control (as basis for psychological safety), so that the otherwise overwhelming uncertainty of transition challenges can be anchored.

'A huge positive of the minor was the amount of support that was shown. By the tutors, by my teammates, by the other students. I felt very supported when I needed it and tried to support others when they seemed to be in need' (H8).

The participants implied that these scaffoldings create friction for learning if certain balancing acts are not maintained by the educators. The strongest of these identified was the seemingly dichotomous requirement for an ongoing mainbuilding—as a dynamic equilibrium between maintaining and building new educational constellations—that balances psychological safety with openness for emergence to engage with wicked problems in regenerative ways. If there is too much rigidity, the ability of those participating in RHE to adapt to the challenge that is presented in the now is threatened. However, if there is too much adaptability to educational scaffolding, the participating students drown in the uncertainty as captured powerfully by one participant: *'it became hard then, to think about how we were to proceed without a 'hard' problem definition. I think this was our first encounter with the complexities of such a transition and dealing with the ambiguity'* (I9). At times, the participants highlighted how the scale and openness of the problems they were engaged with was overwhelming, asking for additional guidance and structure from the educators involved. A key element of mainbuilding and learning in regenerative ways was identified in a second balancing act of holding space for healing and pushing for transgression where learning has the potential to become regenerative. While it is important to note that there

was marked individual variation in how the participants dealt with the complexity of the challenges they were facing, all stated that this balancing act was something they struggled with at times. They highlighted how they valued (and were unused to) being invited to slow down, reflect, anchor in regenerative ways, i.e., to engage with the transformative personal work that can emerge from tackling wicked problems.

The students also actively contributed to the co-creation of a regenerative learning cultures within the course: *'another fond experience is the way we arranged catering for each lesson. An initiative from the students themselves, we came with the idea that every week a different person would bring food with them from their own culture'* (J10), which simultaneously contributed to a sense of community, and a way to invite cultural diversity and dialogue about those cultural differences into the pedagogical setting.

'The first lecture of the minor in week 2 was interesting. I liked the idea that everyone writes their questions on the white board, and we would discuss these questions together' (B2). The collaborative ethos that underpins RHE was highlighted as impactful for learning in regenerative ways: *'it is beautiful to think that the results we had would be impossible without everyone's collaboration'* (K11).

The students highlighted several pedagogical choices included in the course that facilitated their experience, including nature-based approaches: *'the first day of the minor, one action happened that I want to emphasise that I think set the tone for every positive change that has happened in this time. This action to me wonderfully explains the old and new me. The moment I'm talking about is when our teacher gave us a wooden disk and a pen and told us to write down one thing that we would like to learn in this time. The energy he created led me to the thought that I could make a change for myself . . . and it felt liberating'* (L12) as well as *'The forest and also the axe throwing walk were a good start and helped me to get into the group. I think the atmosphere in the forest contributed to that a lot as it did not feel like a university event'* (B2). The active inclusion of aesthetics and arts-based learning *'surprised me, and it was to my benefit that the minor was very artistic oriented, I consider this another very strong point of my experience here'* (M13). The participants also stated that the inclusion of contemplative approaches to deal with the uncertainty *'the meditation sessions were very relaxing and made me feel peaceful'* (O15) was helpful, as well as dedicated time for personal and collective reflection in action: *'I really enjoyed the Thursday morning sessions, they were a nice moment to reflect on yourself, others, and the minor. It made me less anxious to talk about problems that normally would ache me, it made me more open and made me realize that if I am struggling that there is a chance that someone else has that problem too.'* (N14).

However, several of the participants also noted that while there were many options within the course for collective reflection, inquiry, and learning, a gap emerged around the need or desire for private moments: *'nevertheless, I think that it might have been more valuable if we had had separate coaching sessions. Personally, I find it hard to communicate about team problems in front of the whole class'* (G7). This is likely related to a feeling of safety, which may be easier for some to cultivate with privacy.

The students mentioned the difficulty of adapting to a more emergent form of education like that found within RHE: *'for teachers it is easy to say 'just do what you think is right for the project'. For me it is not always that easy. In the back of my mind, I keep thinking about grades and passing competencies. It feels risky . . . maybe even wrong or disrespectful to ignore that and just do something else'* (B2). The same student later continued that *'he actually said that the assessment letter was a bad idea but didn't consider to change it for us'*. However, openness to co-designing RHE does not exclude the educator's tasks, including when the less popular choice may hold more regenerative sustainability potential. For that, teachers sometimes must step out of their co-designer or co-learning role, into a more directive role, for example to ensure the educational considerations highlighted above.

3.3. Navigating Resistances

Of course, engaging with RHE is easier said than done, and several resistances were identified. For clarity, these have been split in internal (Section 3.3.1), educational

(Section 3.3.2), and external resistances (Section 3.3.3), where the first relates to the subjective, including personal biographical traumas and difficulties, the second refers to educational systems and cultures that may clash with RHE, and the latter is related to larger society forces that may restrict or present a resistance for students experiencing RHE. It is important to highlight that from a relational reading, these categorisations are difficult (e.g., if a resistance is meaningfully connecting with local stakeholders that causes the emotion of frustration that is clearly both external and internal). For the purposes of this paper, these resistances have been placed where the impact was most commonly categorised by the participants in their LSFs. The authors would like to stress that it is more about acknowledging these resistances than placing them categorically.

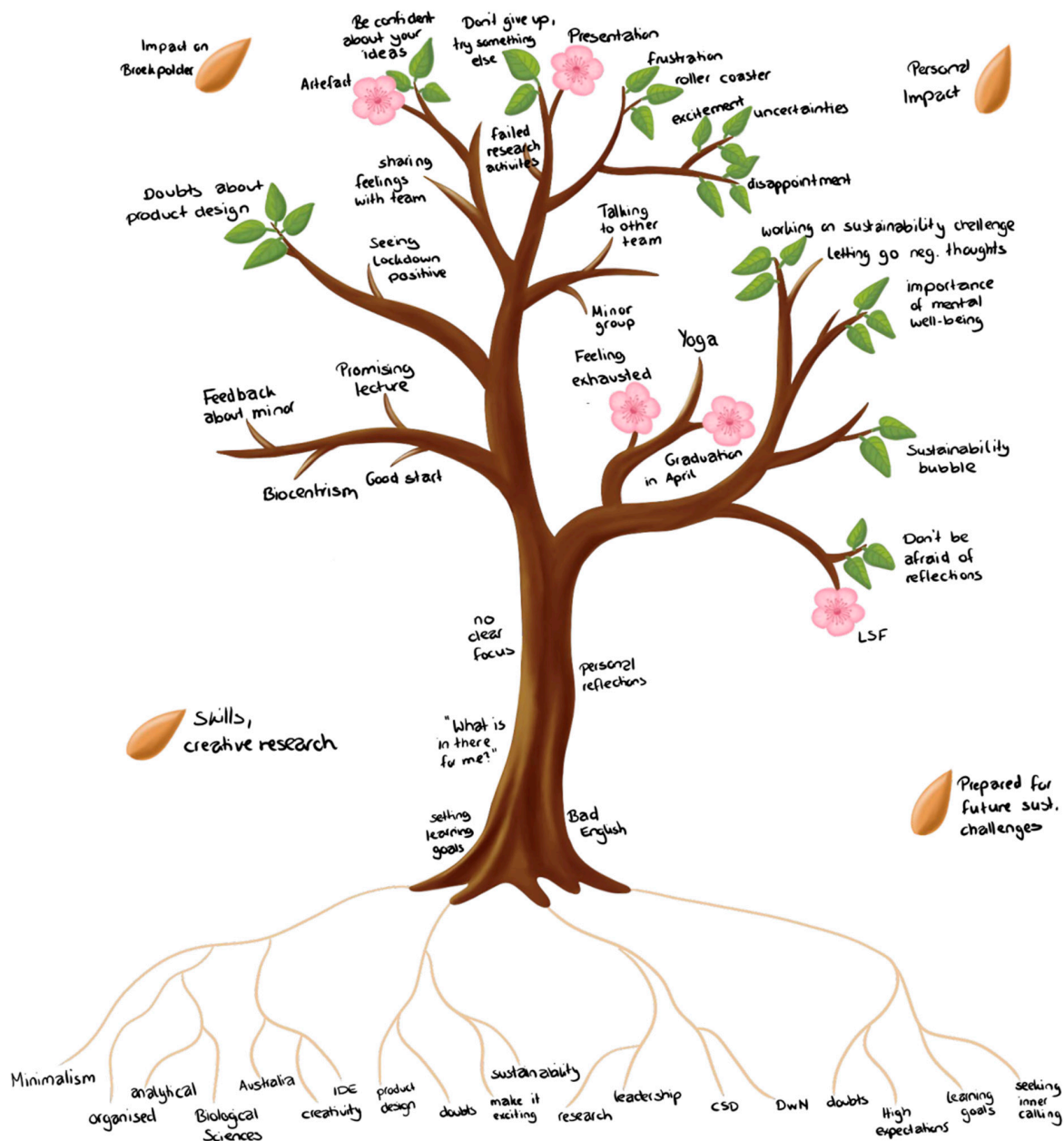


Figure 3. The LSF of one of the participants. This LSF highlights a balance between drivers and resistances including 'feeling exhausted', 'disappointment', 'roller coaster', 'no clear focus', and the difficulty of 'sharing feelings'. Simultaneously, they highlight their increased confidence in working with the messiness of both internal and external resistances that come with entangling transition challenges.

3.3.1. Internal Resistances

The most challenging resistance that was experienced was an internal one, namely fear of and inability to embrace uncertainty *'after finding a large set of wicked problems in the area, there was a case to be made for every single one. Most wicked problems had underlying relations to one another . . . we were lost in the scale'*. These internal challenges were present in the text and visuals (e.g., Figure 3). This sense of 'lostness' as subjective experience and the frustrations this summoned within the participants was mentioned frequently. Several of the participants described a sense of fragility in their ability to trust themselves: *'trust in yourself is a fragile thing, going just the slightest bit under the surface will show you how much doubt and fear most humans carry inside of them'* (J10), to trust others: *'I rather silently fight my battles because I never want to allow someone to see me vulnerable'* (P16), and a fear of introspection more generally: *'I think I am afraid of the reflections, of the thoughts that will come out. Maybe there are things in my head that want to come out, but I don't want those thoughts to be spoken out loud because they are frightening or making me sad'* (B2). The participants noted how including reflective sessions and arts-based introspective methods in the course allowed some of these difficulties they experienced to 'bubble to the surface'.

There are also signs that many of the participants have been dealing with some of these fears throughout their life, and several highlighted such strong self-doubt that they did not expect to be able to be 'good enough' for the minor: *'the self-doubt, insecurity and fear that almost stopped me from participating in the minor at all . . .'* (L12). This perspective also emerged during the course, with the same participant continuing: *' . . . kept returning throughout the semester. I encountered it over and over. This constant feeling of not being good enough has been a huge obstruction'*. Throughout the course, a tendency to perceive resistances purely as negative to the learning experience instead of as moments of potential (transformative) learning was highlighted.

3.3.2. Educational Resistances

As previously mentioned in introducing the participants, the students had little experience with complexity in their university learning up to this course. The complexity of the challenges they were tackling in Mission Impact was highlighted strongly. This complexity acted, in a way as a barrier to overcome as *'it feels like when I'm working, I can move mountains. But starting to work feels like I have to climb a mountain first'* (O15). This also caused some difficulties in the student teams, as some participations were more able and willing to take an integral perspective than others: *'my personal standpoint at the time had always been to include the social aspect . . . effect on community . . . I know that opening this door would have broadened the research, and that we as a group might have had some fears about getting lost in such a big topic (including myself)'* (I9).

Many of the participants contrasted their experience in this course with their educational experiences more generally; it was mentioned that, *'I was oftentimes made to believe I wasn't valid. I was afraid to ask questions because people make me feel stupid for doing so. I am a very curious person and I shut down that part of me for many years for that reason'* (F6), which are, from an RHE reading, signs of degeneration within the university culture. Both the presence of these doubts, and the way resistances are perceived raises potential places for regenerative educational interventions. Namely, how do you ensure that people feel welcome and capable, and how do you help in a reframing from resistances as negative to potential moments of personal transformations?

3.3.3. External Resistances

The slowness of systemic transformations was raised by all participants, particularly in the difficulty they experienced in 'simple' tasks like bringing together different stakeholders and aligning their worldviews. It is important to note that these frustrations are only examined in this paper from the perspective of the student participants. It is very possible that similar frustrations exist in practice partners who were involved in this RHE. Repeated attempts to connect with the stakeholders actively and/or wielding power of the places

of inquiry even risked nurturing a disillusioned sense of apathy towards the possibility of regenerative sustainable futures, as one participant noted: *'getting rejected by a lot of stakeholders was a pain. This happened multiple times and this had us sent back to the beginning very often. After we first sent out our invitations and we received no positive answers, we felt terrible. It felt as if all the work we do is not really necessary'* (Q17). For these students, this represented the first time they experienced not only the complexity of wicked problems, but also its messiness, and at times even active resistance from members of the community they were engaged with, i.e., those who could not see the need for systemic change. One of the participants noted: *'a roller coaster is a good way to describe my experience in the project. We started with excitement and were very motivated to have an impact on the area. But then step by step our frustrations and disappointment grew because a lot of things that we planned to do, didn't happen . . . It was very hard and stressful for us to get in touch with the people in the place. It always felt like running against closed doors and we do not how to open them.'* (B2).

A hopefully unique resistance was presented by COVID-19 as *'a very big barrier we had to deal with, was the fact that we were able to meet with each other only online because of the pandemic. To work in a team with people you've never seen in real life is a difficult task.'* (G7). The pandemic also played a part in the difficulty of connecting with the places of inquiry as many were themselves also overcome by the severity of the lockdowns. A liberation from some of these resistances occurred when the students realised that conflict is part of engaging with RHE, as not everyone will be happy with the transgressive nature of regeneratively engaging with STs (especially those who stand to lose power, prestige, or money for example), and it was not the students' responsibility to make particular people happy, but to work in service of a regenerative future. This realisation allowed teams to *'broke out from the thought that we have to meet other people's expectations. It was painful and honest but it cleared a lot of things'* (I9).

The participants highlighted that the focus on dialogue, arts-based methods, and vulnerable reflection in the formal RHE had a potential not only to help them navigate the complexity of wicked problems, but act as a space to engage with the feelings that emerged from these resistances—going as far as being experienced as therapeutic for some of the participants. One participant went through a particularly tough time (losing a brother to cancer) and described his experience of participating in the course as follows:

'when we were reading about regeneration, I immediately related the term regeneration with healing, I don't know why. I found something during the creation of my artefact that has been surprisingly, a bit of help in a healing way. Even if it's a really tiny bit... I found it a bit therapeutic.' (R18).

3.4. Transformative Power of RHE

Overall, the experience in Mission Impact has been described as transformative, in the sense of causing a shift the students' understandings of themselves and relational roles and potential that followed from these changes. It was also highlighted that the students felt that most of this transformation was still being nurtured within them, and within their further engagement with the world.

'I am not even sure if I can already reflect on the seeds of this journey, did I even reach that stage yet? I still feel in the middle of the whole thing to be honest. What I can say with certainty is that I know it will influence me, at least as much as my last job influenced my time in this minor' (C3).

In part, this is also the responsibility of an educator engaged with RHE to stay in touch and continue to nurture those planted seeds as much as possible. However, some of the transformations that were already described include increased sense of self-confidence like *'I am now much more confident in who I am and what I am capable of . . . I think this is a life lesson that will be valuable forever'* (O15), as well as a shift in the perspective of the relationship between self and the world towards a more ecologically entangled worldview: *'I start to realise that what I am doing now is not enough. Humankind is developing rapidly at the cost of the*

Earth. If it want to create a safe future, not only for myself, but for those that I care about now or in the future, sitting idly by is not an option' (J10). This combined into a sense of no longer being caught in systems to being able to, at least in part, disrupt or transgress existing systems: 'most of all, I'm taking with me the experience that I got from working on a complex sustainability challenge. I think for future projects, I will be better prepared because I know that it can be very frustrating. It gives me strengths to not lose the motivation to keep trying other things if ideas do not work out as planned. During the feedback talk with the teachers, I realised that those feelings will not disappear when you are graduated. It sometimes makes me doubt if it is the right direction for me, as I noticed how stressed I was during the minor. Is it really good for myself to work in a field that causes me to feel frustrated and stressed all the time? I think my will to have an impact on the world is too big that I would choose the easy way out. I really want to achieve something and make sustainability more accessible. Too often, I have chosen the easy way out' (B2). Moreover, it combined into reduced fears of engaging with the unknown in working towards regenerative futures: 'the understanding of vulnerability as a strength is also something I will carry on with me to the future' (M13).

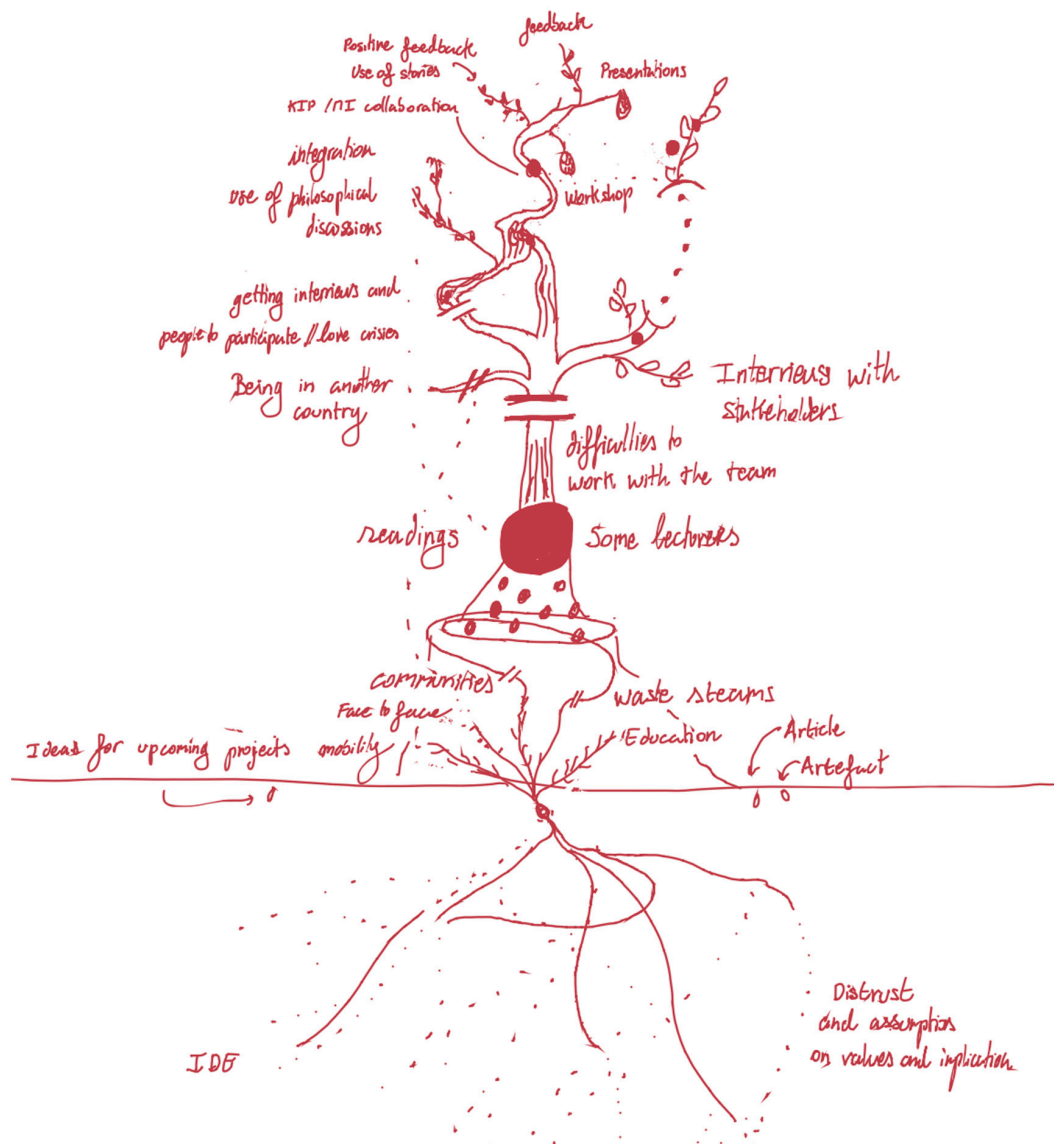


Figure 4. LSF of a participation highlighting different elements of the experience that played a part in facilitating transformations; including translating their research findings into artefacts in service of the communities they were working with.

There were some mentions about content specific learning as well, such as: *'I did not even know before like regeneration and biocentrism. The whole concept of biocentrism was really an eye-opener for me to change my mindset'* (B2). However, most of the reflections focussed more on the elements described above. Based on brief follow-up contacts, several of the participants made life-changing choices, which they (in)directly attributed to their participation in the course, including shifting fields towards sustainability-oriented master programmes, quitting their bachelor to restart a sustainability-oriented one, and quitting their education entirely to start working in sustainability-oriented non-profits. One participant, for example (Figure 4) was so encapsulated by the potential of integrating regenerative insights into material objects they pursued further training to do so more effectively. While mentions of content specific sustainability learnings were sparse, the elements of personal transformations did play a part in shifting (at least some) of their futures towards working on more regenerative sustainability futures. The strong inclusion of the inner dimension of sustainability in relation to working on a transition challenge was highlighted as the major component for these transformations.

'With all its ups and downs, I am happy I chose Mission Impact. It's chaotic and unclear in many moments but it taught me a lot. It is incredibly time-consuming if you want to do it right. It is nerve-wrecking and makes you want to drop or yell', and the same participant later continued: 'I saw an ad from NASA about dealing with the waste on international space station in a sustainable way—they give a prize to any noteworthy idea, I am actually thinking about entering! It's something I would not dare to consider half a year ago' (D4).

4. Limitations and Discussions

4.1. Methodological Limitations

Noon (2018) [43] investigated the appropriateness of IPA as a method for educational research and concluded that 'it has the potential to be a powerful tool in helping researchers to understand the lived experiences of those within the education system' and that 'findings of IPA studies can contribute to assisting educationalists in shaping future policy and practice around the needs and expectations of both students and educators' [43] (p. 82). However, they also mentioned a few limitations and challenges that apply to our research. (1) A 'language barrier' refers to the fact that IPA assumes that 'language provides participants with the necessary tools to capture their experiences' (idem; p. 81). The richness of responses determines to which degree it is possible to access the participants' experiential worlds. While some of the students engaged with educational programmes in English before this course, the quality of the LSFs in terms of English was quite diverse. In addition, the more general ability of the participants to write or reflect varied strongly. This could mean that some students were not as comfortable in expressing their lived experience through text (in English) or at all. It is important to note, here, that none of the participants (or the researchers) were native English speakers. It, therefore, might be possible that language limited our insight into participants' experiences. However, all participants were able to complete a third-year undergraduate minor taught in English, indicating a good level of proficiency and it provides some grounds for the assumption that the quality of the data was sufficient for IPA. (2) The LSFs were integrated into the formal course design, in other words, it is possible that some of the participants felt 'forced' to create an LSF based on their perceived expectations of the teaching team, instead of what they wanted to share. Based on a reading of the LSFs and the myriad of critical comments about the course, and the main author's role at times, this risk seems minimal. It is, however, possible, that an exercise to gather data for the IPA outside the formal assessment structure may have allowed for more freedom in the participation and a closer look at the 'real' lived experience of the students. (3) The participants also noted that many of the seeds of change were still unfolding; follow-up inquiry could allow for a longer-term perspective on the impact of their engagement with this form of RHE, and it would be our recommendation that similar studies are conducted to explore that longitudinal avenue. (4) Smith et al.

(2009) [38] highlight the tensions between idiographic and relational commitments of IPA. It can become difficult to represent individual experiences sufficiently, while still generating common themes. This limitation is worsened by word counts, which is also the case for this research. (5) Finally, IPA is based on relatively small sample sizes; in our case, the experiences of twenty-one individuals. It is important to highlight here that the methodological goal of IPA is building general insights of practical relevance through the slow accumulation of studies in similar contexts. Indeed, IPA does not provide grounds for sweeping generalizations about the 'lived experience' of all learners in RHE everywhere. Instead, these results may help guide others in similar educational contexts. It is for these reasons we consider these results indicative only and recommend that others see and use this perspective.

4.2. Drivers and Resistances for Navigating RHE

4.2.1. Drivers

The results indicate that the students were primarily driven by three elements (excluding happenstance) towards taking this course: (1) by a commitment to ecological justice, which was often inspired by previous engagement with sustainability (in education), highlighting the importance of incorporating different forms of sustainability education into formal educational processes; (2) because of existential needs to engage purposeful with the world [7]; and (3) a desire to learn more about regenerative sustainability. While there was marked individual variation in how strongly these drivers influenced individual decision-making, a combination was present across the LSFs. These drivers subsequently raise questions about how educational designers can tap into these motivational forces to participate in RHE. The presence of these drivers indicates that the majority of participants were already interested in, or involved with, sustainability. Raising the concern and question to which extent RHE could have worked (differently) with a cohort of students for whom for example sustainability is not a primary concern, or who do not actively choose themselves to step into a 'different' educational space. Furthermore, these drivers raise a serious educational consideration, namely, how can educational systems be (re)designed to ensure that the types of learning experiences that facilitate these drivers are incorporated more strongly throughout the educational system. Furthermore, if this (re)design is possible, will RHE be meaningful and fitting for all students, or does it only work for specific types of persons? The appropriateness of RHE beyond optional courses where students choose remains unclear.

4.2.2. Resistances

A number of resistances were identified in the study, including personal, interpersonal, educational, and systemic in nature. The largest personal resistances related to a sincere self-doubt and inability or fear of engaging with the complexity of transitions [22]. Interpersonally, aligning different cultures, or learning to speak a transdisciplinary language was identified as a major difficulty to action [44]. the neoliberal culture through which the students are educated represents a significant challenge to overcome [6,15] and systemically engaging with stakeholders in ways that are conducive to regeneration, and the transgression this often involves, presents a major source of (personal) frustration. These resistances are like those identified by [9] for educational change for sustainability more generally. How these different resistances can be navigated, especially through the work of educators in RHE, remains largely unknown. What the identified resistances do indicate, however, is that considerations for teachers for RHE go beyond providing the content and space for engaging with sustainability transitions to also engage with the intra- and interpersonal difficulties of learning in RHE. For example, how can one acknowledge the frustrations that are part of working on transition challenges and multi-stakeholder engagement? How can they ensure that the students feel educationally safe enough to take the type of risks required for such engagement? Both raise questions of educational design

and pedagogy that also acknowledge the complexities of RHE (e.g., creating assessment formats that assess the process of such engagement and not pre-defined outcomes).

4.3. Implications for RHE Practitioners

The results show glimpses of a pedagogy for RHE. While presenting such a pedagogy is outside the scope of this paper, what seems to be important is a triple-balancing act that must be engaged with as a regenerative educator. It is important to stress that the pedagogical choices engaged with during Mission Impact were done so as constellations of choices, instead of rigid dedications towards specific pedagogies, which connects strongly to the regenerative perspective of King (2021) [21]. These outlines include a deep commitment to a dialogical, democratic, and co-creative approach to educating that was highlighted as markedly different than what the students normally experienced [30]. This may link strongly to the work of pedagogue and philosopher Koen Wessels (2022) [17] on pedagogies of entanglement that focusses on how teachers can respond to societal transition challenges in the here and now.

The main challenge for RHE practitioners may be getting an intuitive sense of when to lean in which directions in the multiplicity of RHE balancing acts required in engaging with wicked problems educationally. In this, we contrast the perspective of Blewitt (2010) [45], who calls for a radical de-schooling for regeneration and argue that the role(s) of teachers within that triple-balancing act are deeply educational and can have a place within formal institutions of education, and that identifying ways, tools, and guides for this work is at the frontier of (regenerative) education science. Instead, the authors propose that a shift towards RHE broadens and sharpens the role of educators for the complexity of helping students engage with RHE. How such a shift impacts the roles and responsibilities for educators is a rich place for further inquiry.

5. Conclusions

Our research on the lived experience of students from experimenting with RHE in The Netherlands provides an entry point to further investigate the ways students navigate RHE, as well as how RHE can be designed in ways that make these transitions navigable. In doing so, this research responds directly to a growing need in theory and practice, to rethink how higher education can connect with, and actively participate in, tackling STs and/or how universities can become more regenerative. The results of this paper add to the emerging discourse and practice of RHE by presenting the first in depth study of student experience of RHE. By zooming in on the lived experience of how students navigate RHE, including the inter- and intrapersonal challenges they face when doing so, several considerations for RHE have been identified. This research shines a light on (1) considerations for educating regeneratively, (2) the resistances that are faced by students when engaging with RHE, and (3) the personal transformational impacts that these engagements have had. The results of this study indicate that forms of RHE have the potential to be transformative and could play a role in life-changing decisions related to sustainability. However, engaging with RHE is also (existentially and personally) challenging as a learner and it remains unclear what the long-term impact on both the learners involved with such RHE and the larger sustainability challenges are. What has become clear is that engaging with the subjective in such complex and confronting learning experiences (which may even be transgressive of existing systems) is not an easy journey.

The implications for educators and educational systems more generally in the facilitation of RHE and in ensuring that these forms of learning are meaningful and navigable for students is twofold: (1) there is a need to create spaces within formal curricula to engage with RHE, including the messy and difficult subjective dimensions of learning, and (2) to provide support, both through pedagogical choices, and professionally, to engage with the inter- and intrapersonal complexity of regeneration for wicked problems. However, much remains unknown about how to go about these two different tasks. The study highlighted several avenues of potentiality for further empirical work for both routes including

contemplative, nature-, and arts-based approaches towards collaborative inquiry that may be fruitful. In addition, it is likely that other fields such as ecopsychology may provide (pedagogical) insight to help learners navigate RHE. More forms of RHE will likely emerge and flourish and the authors applaud these efforts. Through the examination of more settings, it may be possible to build a better picture of both the potential and the implications of RHE on students learning and life. We acknowledge that much about the (long-term) impacts of RHE on students remains unknown. A particularly interesting avenue for study is in-depth longitudinal studies to see if these engagements truly have been transformative and to gauge the ripples of (systemic) transformative change they may cause. We hope that the presented insights can help other scholar-practitioners in (re)designing their own RHE, and we warmly invite more research into the designing, teaching, and experiencing of regenerative higher education.

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Informed Consent Statement: Informed consent was obtained from all subjects involved in the study.

Data Availability Statement: Because of the highly personal nature of the dataset, the LSFs are not publicly available in repositories.

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