

BACHELOR THESIS

Title:

Self-Experiments:

A Method revealing Potentials for a transformative Education towards
Justice for People and the Planet.

Course of Study:

International Business

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Abstract

Given the increased need for education to approach the so-called ‘Great Transformation’ towards sustainability, this study investigates the format of Self-Experiments, in the specific context of applying climate friendly practices, regarding their potentials to promote Transformative Learning Processes and thereby contribute to transformative Education. Transformative Learning Theory was applied to identify primary answers to the research question. The second part involved the analysis of a pre-existing data set from a Self-Experiment workshop with the help of Grounded Theory to acknowledge the nature of the data. Further, three narrative interviews were conducted and analyzed by means of the same process. Both the theoretical framework and the analysis of two data sets proved that SE, in the given context, foster Transformative Learning Processes in various ways and likewise, contribute to transformative Education through their learner-centered and emancipatory character.

Keywords: Self-Experiments, transformative Education, ESD, Transformative Learning Theory

List of Abbreviations

DE	Diary Entries
DS	Documentary Sheets
EE	Environmental Education
ESD	Education for Sustainable Development
FoR	Frame of Reference
NI	Narrative Interviews
SDGs	Sustainable Development Goals
SE	Self-experiments
STE	Sustainability Transition Experiments
TLP	Transformative Learning Processes
TLT	Transformative Learning Theory
UNESCO	United Nations Educational, Scientific and Cultural Organization
WBGU	Wissenschaftliche Beirat der Bundesregierung Globale Umweltveränderungen
ZAK	Zentrum für Angewandte Kulturwissenschaft und Studium Generale

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1. Introduction

1.1. The Challenge of “The Great Transformation”

Die einzige Konstante im Leben ist die Veränderung. So schrieb es einst der griechische Philosoph Heraklit. Der Wandel ist das verbindende Glied der Fragmente, die sich zu unserem Leben zusammensetzen. Ein dynamischer Prozess, den wir jeder selbst mitgestalten. – Marilena Berends¹

Buddha already said that nothing is permanent. The world constantly changes and so do the people living in it. Yet, the majority of people is afraid of change, since it is invariably associated with uncertainty (Heinze, 2011). This resistance of individuals to change is not only, but highly influenced by the cultural context they live in (Jackson, 1967) and is also reflected in the debate on achieving a sustainable and just world. Despite the fact that political instruments necessary for the so-called "Great Transformation" towards sustainability are all prominent among important actors (WBGU, 2011)² and eco-political measures have been implemented, Western practices of production and consumption remain consistent. According to Blühdorn and Welsh (2008), there is a strong refusal to acknowledge that practices like mass consumption are simply incompatible with the principles of sustainability. They call it a “syndrome that deserves close sociological attention” (Blühdorn & Welsh, 2008, p. 2). However, the gap between the requirements for a societal transformation and reality does not only exist due to political indolence, but also has its origins in individual, organizational, cultural and economic factors (Welzer, 2011). Given the fact that human agency is highly influenced by learning, experience and reflection (Blewitt, 2018), one would seek for solutions in educational settings. Consequently, in order to address the “Great Transformation” with an educational approach, a deep shift in how education is perceived and practiced is inevitable (O’Sullivan, 2002).

¹ <https://sinneswandel.art/podcast/>

² The WBGU is the German Advisory Council on Global Change and their work focuses on the measures needed to achieve a successful transformation towards sustainability (<https://www.wbgu.de/en/the-wbgu/mission>).

1.2. Tackling the Problem at its Roots – ESD Criticism

The significant role accredited to education within the “Great Transformation” (WBGU, 2011) and with that, the importance of Education for Sustainable Development (ESD) also means greater responsibility for the education sector. It is undisputed that the UN Decade of Education for Sustainable Development has gained international attention, not only due to its approximately 2000 nominated projects in Germany (Singer-Brodowski, 2016), but also through its inclusion in the SDG agenda under the goal 4.7 (Getzin & Singer-Brodowski, 2016).³ In that respect, ESD aims at empowering learners to reflect on their actions, considering the social, cultural, economic and environmental impacts those actions have on both a local and a global scale (Rieckmann, 2017).

On the contrary, ESD has been highly contested by scholars, as well as civil society organizations, stressing the need to critically reflect on the development of unsustainable values within conventional education processes and institutions (Singer-Brodowski, 2016). In that matter, the WBGU (2011) emphasizes a transformative approach to education. According to Singer-Brodowski (2016), their aim to “lead the behavior of learners into the necessary direction” instrumentalizes the learners and exposes them to the “service of social transformation” (Singer-Brodowski, 2016, p. 14). If education is used to reach a particular behavior of people, it essentially denies the nature of education (Wals, 2011). Truly, Environmental Education (EE) should not convince learners to change their behavior in a prescribed way. Instead, it may create space for learners to ask questions about social inequalities and environmental ethics, so that they develop their own understanding of global issues, the socio-cultural environment they live in and lastly, what role they play within that context (Jickling & Wals, 2008). Therefore, education should have both a critical and emancipatory character. The goal of such an approach is the development of autonomous decision-making and the learner’s ability to critically reflect (Vare & Scott, 2007). Although it is legitimate to aim for a quick fix, given the urgency of the climate crisis, an instrumentalist approach might prevent the process of “developing a more resilient

³ By 2030, ensure that all learners acquire the knowledge and skills needed to promote sustainable development, including, among others, through education for sustainable development and sustainable lifestyles, human rights, gender equality, promotion of a culture of peace and non-violence, global citizenship and appreciation of cultural diversity and of culture’s contribution to sustainable development (<https://sdgs.un.org/goals/goal4>).

society with a planetary conscience” (Wals, 2011, p. 178). By implanting prescribed knowledge and behavior into learners’ minds (Jickling & Wals, 2008), teaching offers towards sustainability run the risk of overwhelming learners and give away their potential to support learners in the development of a critical thinking (Singer-Brodowski, 2016, p. 14).

Next to its instrumentalizing character, ESD is criticized for embracing unrestricted economic growth and neglecting deep critical reflection of globalizing ideologies (Selby & Kagawa, 2010). Certainly, for the “Great Transformation” needed, it is not sufficient to modify neo-liberal structures. It is crucial to critically reflect on those structures and introduce sustainable alternatives. Whereas numerous approaches to a Degrowth-Society have been discussed, the debate has not entirely found its place within ESD, which might find its explanation in the fact that the international discourse on ESD is still controlled by a “Western-dominant educational elite” (Getzin & Singer-Brodowski, 2016, p. 38). In fact, this also explains why ESD as a concept is highly accepted by a broad society. With its political eloquence (Getzin & Singer-Brodowski, 2016, p. 39), it can easily coexist with unchanging, unsustainable principles (see also Blühdorn & Welsh, 2008; Jickling & Wals, 2008). Despite the efforts to help learners reflect on global issues, economic forces shaped by neoliberal principles seem to be much stronger. It is surely concerning how globalizing ideologies influence the entire education sector. International Organizations that are supposed to be the supporting players in making ESD a concept that genuinely contributes to tackling global crises, rather look at education as something that prepares “individuals to join the local labor market to nourish the global marketplace and satisfy corporate needs” (Jickling & Wals, 2008, p. 2). It is not surprising that ESD still focusses on the globalization agenda, considering that even the Brundlandt Report “Our Common Future” (1987) treats sustainable development and economic growth as nearly identical concepts. This is highly ironic, given the fact that the economy cannot continue to grow on a planet with finite resources (Selby & Kagawa, 2010).

Ultimately, ESD is debated to be an inappropriate approach considering the challenges and threats the planet and society face through climate change. Subsequently, ESD “will hardly begin to address the transformative agenda” (Selby & Kagawa, 2010, p. 47) that is needed if it continues to approach this crisis with the very principles that caused it.

Towards genuine Transformative Education

Given the need for a deep shift within the education system itself, new approaches like that of transformative Education as posed by the WBGU (2011) require theoretical grounding, as Singer-Brodowski (2016) states. For this reason, she proposes the fundamentals of transformative learning, encompassing reflective, emancipatory and participatory values. Also, it became evident that the authors above advocate for such an approach that is more learner-centered and does not deny the nature of education (see also Wals, 2011).

The theory of transformative learning by Mezirow (1997a; 1997b; 2009) has been further developed by several scholars and eagerly discussed for many decades, looking for ways and methods that bring transformative learning processes (TLP) into educational or organizational settings. This research has been mostly constructivist/interpretative or qualitative, making meaning of the learner's individual experience (Merriam & Kim, 2012). As the idea developed, further research was done on how to foster transformative learning and the complexity of concepts such as reflection or transformation of one's own perspective (Taylor, 2007). It has always been a popular area in the research field of adult education. However, it developed into new areas, such as medical education and environmental assessment (Taylor, 2007, p. 174). Those studies revealed advanced insights regarding the promotion of TLP. One example is Eisen (2001), who identified 'peer dynamics' as a significant aspect for transformative learning, demonstrating seven relational qualities. Among others, he described trust, non-hierarchical status and shared goals as extremely valuable factors. Moreover, Feinstein (2004), King (2004), MacLeod et al. (2003), Mallory (2003) and Pohland and Bova (2000) recognized direct and personal engagement, as well as reflection of experiences as powerful tools for fostering TLP. To give justice to the previous work done on Transformative Learning Theory (TLT), Taylor (2007; 2008) gives a well-established overview of empirical research carried out in the field.

1.3. Scientific Relevance

Whereas TLT is the most researched and discussed theory in adult education (Taylor, 2007), this thesis contributes to the discourse in the EE realm considering a design that focusses on integrating more climate friendly practices into daily

routines. Given that Lange (2004) has already found evidence that transformative and restorative learning are vital for fostering active citizenship, this study will investigate how a specific format in that context can promote TLP, and thus foster climate friendly behavior on the long run.

Given that transformative learning is not a one-size-fits-all approach (Merriam & Kim, 2012), the format of Self-experiments (SE) seems to reveal a promising research, considering its self-effective and personal character allowing for an individual development process. By particularly examining the format of SE in the precise context of climate friendly practices within daily routines, this thesis will contribute to the transformative learning discourse in two ways. First, it will provide insights regarding its practicability both generally and for contributing to a transformative Education agenda. Second, it will introduce a new format that focusses on one's personal intervention regarding a more sustainable way of living and is tailored to the very individual experience, which eventually encompasses a TLP.

Further, within a rigorous research context, there exists a strict division of the research phenomenon and the researcher (see also Zajak, 2018). Zajak (2018) states that by making this clear separation, science holds on to standardized and hierarchical production of knowledge and thus, draws the line between SE and movement research. By identifying the potentials of SE for transformative Education, this study additionally contributes to the SE discourse and to overcoming standardized ways of knowledge production in the educational realm.

1.4. Practical Relevance

Given the critical global situation, it has been of great concern in the educational realm to find methods and formats that can transform education in a way that it approaches environmental, social and political issues. Both the rigid criticism on ESD (e.g. Jickling & Wals, 2008; Selby & Kagawa, 2010; Wals, 2011) and the lack of political, as well as social action regarding the existential crisis the world is facing (Blewitt, 2018; e.g. Blühdorn & Welsh, 2008; Dresner, 2008) call for a new approach to education, which implies changing the dynamics of learning processes. Singer-Brodowski (2016) has already identified the need for supporting the concept of transformative Education with an adequate theory. Undoubtedly, she

has given an idea of how TLT can contribute to the transformative Education agenda of the WBGU (2011). However, there still exists a lack of formats that foster TLP and could thereby contribute to a transformative Education that is needed (see also Singer-Brodowski, 2016, p. 16). Consequently, by identifying how SE, in which participants integrate more climate friendly practices into their daily lives, can promote TLP, this thesis will demonstrate possible ways for contributing to a shift in education that is inevitable for approaching the “Great Transformation” (WBGU, 2011). Further, it might be an inspiration or incentive for both universities and other educational settings to implement more self-determined, emancipatory and participatory practices that allow learners to think and act autonomously.

1.5. Personal Motivation

The personal motivation for this study specifically has developed through an internship within the curriculum of this degree, which was completed in a real world laboratory in Karlsruhe, particularly working in a climate justice project.⁴ Although the method of SE in the context of climate friendly practices was just introduced to the author during the internship, the dynamics and dimensions of education had always been a major area of interest. Questions about educator and learner dynamics, different concepts of education and how to tackle different global issues through education are of special concern, which is the reason for a rather critical character of this study. This justifiably poses the question of personal biases. However, the researcher is well-aware of those biases and thus, they will be carefully considered throughout this research.

1.6. Aim of Study and Structure

As already mentioned earlier, there has not been a particular format applied to TLT regarding its potentials for a transformative Education agenda necessary to approach the “Great Transformation”. Therefore, the research question addressed in this thesis will be:

⁴ <https://www.klimaschutzgemeinsamwagen.de/>

How can Self-experiments, in the specific context of applying climate friendly practices, foster Transformative Learning Processes and consequently, contribute to transformative Education as a whole?

In order to approach the given research question, this study will firstly provide a theoretical framework that briefly presents the concept of SE, specifies how the term transformation is used in this thesis and lastly, discusses different schools of TLT in order to foster an understanding of what the transformation process shall encompass. Further, the diverse approaches will be discussed in the light of the critics and shortcomings of ESD as a concept and the instrumentalization of education through prescribed outcomes of knowledge and behavior (Jickling & Wals, 2008; Schneidewind & Singer-Brodowski, 2015; Singer-Brodowski, 2016; Wals, 2011; Zajak, 2018). For demonstrating the potentials of SE in the context of more sustainable ways of living and regarding their ability to promote TLP, a pre-existing set of data consisting of 21 documentary sheets (DS) from SE participants will be analyzed with the help of Grounded Theory. In addition, particular attention will be given to three follow-up interviews that were conducted with participants in a narrative fashion during the course of this thesis, approximately one year after the SE had been carried out. Resting upon this analysis, the results of both empirical methods will be displayed and discussed. Subsequently, recommendations will be given regarding the theoretical foundation of transformative Education and consequently, what this implies for the implementation of appropriate formats. Lastly, the shortcomings of this thesis will be reviewed, giving an outlook for further research.

2. Theoretical Framework

2.1. Self-experiments: Experience, Learning & Transformation

“Das Selbstexperiment” or “der Selbstversuch” – a terminology that gained popularity when Sigmund Freud tested the effect of cocaine on himself. In history, this concept was used for sacrificial physicians and pharmacologists, who experimented different contagion effects and healing methods on themselves. Moreover, the term was referred to the process romantic researchers would undergo

in order to analyze the world as a whole (Solhdju, 2011). In a contemporary sustainability context the format of so-called transition experiments is used as they have the ability to contribute to societal transformations towards sustainability and often involve various actors from both society and science, collaboratively approaching a wide range of sustainability solutions (Luederitz et al., 2016).

Within an educational context, SE can be defined as “an experiment applied on one’s personal way of living” and are seen as a “possible tool for a transformation towards sustainability”.⁵ However, in the scientific world the personal involvement of a researcher in the field that is being studied is perceived as dangerous. There exists the risk that “the desired objectivity could be dominated, shaped and falsified by subjective experiences – the so called ‘pygmalion effect’.” (Butler, 2006, p. 105). This is based on the assumption that all scientific knowledge must be preceded by a clear subject-object separation (Solhdju, 2011).

Further notions such as real-life-experiments (Schneidewind & Singer-Brodowski, 2015) are said to be of great value in that context, since the learner develops a sense of self-efficacy regarding the approaching of large societal challenges. In fact, becoming aware of one’s self-efficacy is central to the intrinsic motivation regarding climate-friendly behavior (Hunecke, 2013). Moreover, experiential learning (Kolb, 1984) is deemed to strengthen an emancipatory approach to education (see also Vare & Scott, 2007; Wals, 2011), and thus, has the effect of “dual emancipation”, since the learner leaves the role of a mere recipient (Schneidewind & Singer-Brodowski, 2015, p. 20).

Since the format of SE in the context of climate friendly practices in everyday life is the focal point of this investigation, a more detailed context will be given in the Methodology section (chapter 3).

2.2. Transformative Learning Theory

2.2.1. Great Transformation

First of all, it is important to clarify what the term transformation means and how it is referred to in this thesis. It is worth noting that transformation does not explicitly deal with social change, although it constitutes a critical part of it.

⁵ (unpublished presentation, Trenks, 2020, p. 3), see Appendix 9.7.

Accordingly, the terms society transformation and system transformation are characterized as social change and play a vital role in this study, since they aim to change the overall social order and institutional structure (Kollmorgen, Merkel, & Wagener, 2015, p. 17). The term was firstly associated with a critical research approach in Karl Polanyi's book *The Great Transformation*, in which the collapse of the free market economy constituted the "heart of the Great Transformation" (Polanyi, 1978, as cited in Kollmorgen et al., 2015). Today, the term is brought into context with the report of the WBGU (2011) and overarchingly, finds its place within the sustainability debate, demonstrating the need for a Great Transformation "of Polanyian scale" (Beling et al., 2017, p. 304). Here, it is associated with transforming the wishful thinking still present within the sustainable development discourse, namely that unrestricted economic growth can coexist on a planet with finite resources (Beling et al., 2017; Blühdorn & Welsh, 2008; Getzin & Singer-Brodowski, 2016; Selby & Kagawa, 2010). Given the current discourse and likewise, the existential character of current crises, this thesis covers a holistic approach, referring to transformation on a societal and systemic scale.

2.2.2. Traditional Transformative Learning

Considering the aim of this study to investigate the potentials of SE for transformative Education and how they can foster TLP, an appropriate theory to apply is that of transformative learning (see also Singer-Brodowski, 2016), developed by Jack Mezirow.

Within a learning context, transformation embodies a deep and long-term shift in perspective of individuals or groups. Or, put differently, education itself is the transformation of fundamental perceptions of the relations to the world and the Self (Koller, 2012). However, whether the goal of transformation relates to individual or collective learning, depends on the theoretical framework (Zeuner, 2012).

It is worth mentioning that Mezirow's (2009) theory evolved from a critical stance, investigating the learning process of female adults returning to college in the United States. He states that adults, over time, have acquired an interrelated set of experiences, which determines their interpretation and perception of things, strongly shaping their realities (Mezirow, 1997b). Those meaning perspectives, or FoR restrict perceptions and emotions, which then predefines action and behavior.

Those perceptions are so dominant that the learner is very likely to reject any idea that does not align with his or her own (Mezirow, 2009).

A meaning perspective, serving as a Frame of Reference (FoR), is the accumulation of experiences, including associations, values, emotions and concepts that define the learner's world. Accordingly, those meaning perspectives are perceptual guides for interpreting reality, they serve as an orientation for individual behavior and lastly, they strongly shape the identity of the individual (see also Singer-Brodowski, 2016). To put it into Mezirow's (1997b) terminology, a FoR encompasses habits of mind, which express themselves in a point of view. In return, points of view are an interplay of beliefs, values, attitudes and emotions that determine the interpretation of an experience. In order to transform a habit of mind (e.g. ethnocentrism), the learning content is required to disturb the learner's existing FoR, which is a rather challenging process. On the contrary, points of view are subject to change, since one is more aware of them and they are more available to feedback from others.

Mezirow's theory is strongly grounded in the foundations of Habermas' *Theory of communicative action* (1997), which conveys that learning may be instrumental, impressionistic, normative or communicative. TLT encompasses both instrumental and communicative learning (Mezirow, 2009). While instrumental learning is used to manipulate or control others and a certain environment, communicative learning entails the critical reflection on assumptions, values and beliefs and essentially, the engagement in discourse. Instrumental learning derives from own interest and intends to improve performance, whereas communicative learning generally aims at a collective learning process. Engaging in discourse implies making a best judgement of what is being communicated by critically analyzing different arguments and points of view. The ultimate goal is to arrive at a consensus, or at least, understand the background of assumptions of the people disagreeing (Habermas, 1997). This holds until that very assumption is being challenged again by other arguments or new evidence (see also Mezirow, 1997a; 1997b). In that respect, the learners' FoR are transformed by critically reflecting on their very own assumptions, implying the examination of the origin, nature and consequences of those (Mezirow, 1997b; 2009). The typical process of transformative learning as suggested by Mezirow can be followed in Figure 1 below.

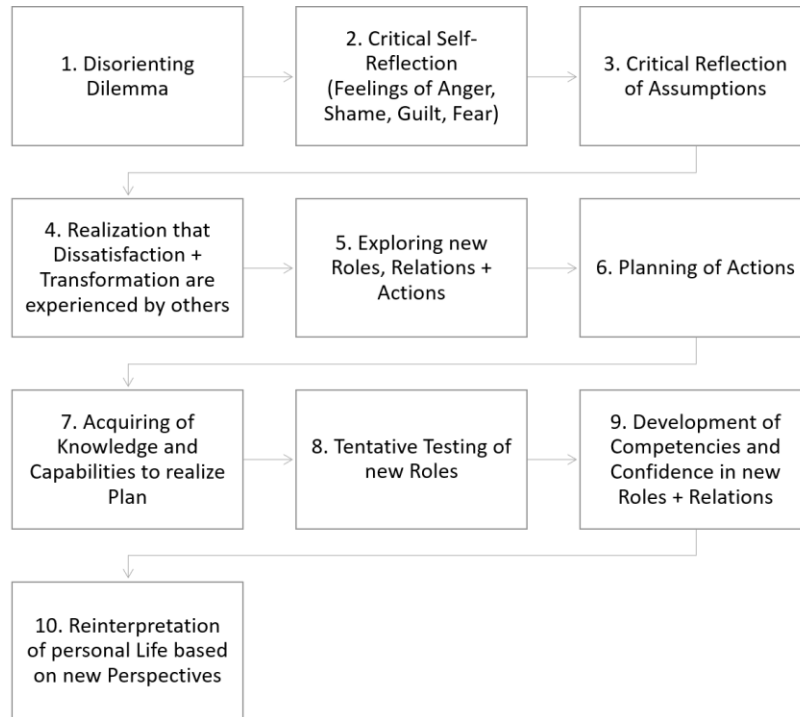


Figure 1: Transformative Learning Process, adapted from Mezirow, 2000, p. 20, as cited in Zeuner, 2012, p. 97

According to Mezirow (1997b), this process, leading to autonomous and responsible thinking, is fundamental for being able to fully participate in democracy and make moral decisions in a continuously transforming society. Indeed, education that intends to promote critical reflection and the engagement in discourse is “learner-centered, participatory, and interactive, and it involves group deliberation and group problem solving” (Mezirow, 1997b, p. 10). Consequently, this poses the need for educators to take on the role of facilitators instead of functioning as an authority. Their task should be to create an environment in which the individual learns to assert his or her norms and beliefs instead of imprudently accepting and acting upon those of others. Lastly, methods such as journal writing, action learning and collaborative learning have been appointed to be supportive of enhancing critical self-reflection and discourse (Mezirow, 2009).

There are those who argue that Mezirow’s theory lacks on contextualization, meaning the consideration of differences in race, culture, ideology and gender or asymmetric power relationships (see Brookfield, 2012). Given that power relationships do play a significant role in traditional education, the following section discusses TLT from a Critical Theory stance.

2.2.3. Transformative Learning and Critical Theory

In Canada, scholars are prone to view transformative learning in connection with Critical Theory, discussing concepts such as citizenship education, participatory democracy, ecological education and so forth (Zeuner, 2012). This implies that individual TLP are consolidated with political and social changes that are shaped and brought about by all entities of society through collective effort (see also Freire, 1971; Zeuner, 2012).

Whereas transformation theory in adult education holds that all relevant ideologies should be critically assessed (Mezirow, 2009), Brookfield (2012) clearly supposes that critical reflection of ideologies inheres the assisting of people in recognizing how capitalism influences those ideologies that uphold societal inequities. However, it is crucial to note that learning or education should not be “servants to these masters” (Mezirow, 2009, p. 96), since this could run the risk of instrumentalizing learners to have a particular point of view towards those matters (see also Jickling & Wals, 2008; Wals, 2011). Accordingly, the educator must not lead the learner towards a prescribed direction, since this would result in “graduates of surrender” (Freire, 1971, p. 27; see also Jickling & Wals, 2008; Wals, 2011).

Correspondingly, Freire’s (1971) Critical Pedagogy carries that the ‘critical learner’ does not only become aware of systemic injustice but, upon this realization, should also get involved in the political or social process necessary to change it. Therefore, it is fundamental that the learner perceives this situation as an impermanent condition and understands how he or she can take on the role to change such oppression mechanisms within the course of a collective emancipation process. This is a critical realization, which empowers the learner. Hence, adult learning from a Critical Theory perspective involves the fostering and expanding of a participatory democracy and thus, equal opportunities to enjoying basic rights, such as education and health care (Brookfield, 2012). According to Burbules and Berk (1999), this theory compromises the grey area between “teaching critically and indoctrinating”. However, Freire’s approach is derived from a context of exploitation and oppression through political and societal structures. Therefore, the ultimate goal of his appeal is freedom of the people. Yet, the fundamental condition for liberation is the “faith in the people and their ability for full, unrestricted self-determination, for a constructive transformation of circumstances” (Freire, 1971,

p. 23). Thus, a revolutionary process cannot be influenced or manipulated by any hegemonic mechanism, as this constrains the freedom and possibilities of the people. He states: “Wer versucht, die Unterdrückten ohne ihre denkende Teilnahme am Akt der Befreiung zu befreien, behandelt sie als Objekte, die man aus einem brennenden Gebäude retten muß“ (Freire, 1971, pp. 66–67). This accurately demonstrates and justifies the criticism towards ESD regarding power relationships within learning settings and instrumentalizing learners. Following this, Freire’s approach intends a self-determined and autonomous stance, refuting Burbules & Berk’s (1999) argument.

According to Brookfield (2012), Critical Theory has a transformative impulse, which is why he connects it to TLT. Essentially, Critical Theory tries to explain how current capitalist systems can be transformed into democratic socialist ones. It claims that the Self is both politically and socially created, which implies that “commonsense” choices and actions are ideologically shaped. Consequently, the main statement is that dominant ideology manipulates society in a way that they think of it as not only an acceptable, but desirable system. Given Critical Theory’s perspective that this system instrumentalizes education to make learners believe that how society is shaped is of collective interest, justifies the investigation of such dynamics.

In Critical Theory, people interpret their experiences based on commonly accepted beliefs and practices that are shaped by this dominant ideology (Brookfield, 2012). Accordingly, “a critical adult is one, who can discern how the ethic of capitalism and the logic of bureaucratic rationality push people into ways of living that perpetuate economic, racial, and gender oppression” (Brookfield, 2012, p. 134). Therefore, a crucial concern regarding TLT in the context of Critical Theory is to discern how people learn, in order to recognize how dominant ideology oppresses them and hence, are able to challenge those forces (see Brookfield, 2012; Freire, 1971). In the words of Brookfield (2012, p. 135), “[s]uch a theory must recognize its explicitly political character.” Critical Theory with respect to TLT concentrates on the understanding of power relationships on the one hand, and on comprehending how adults learn fundamental elements of the capitalist system, but fail to realize how it shapes their choices and actions, on the other hand. Indeed, it is the absolute condition to become critically aware of this state of oppression, in order to contribute to and participate in this pedagogical process (Freire, 1971).

From this perspective, transformative learning encompasses both the recognition and confrontation of these dominant ideological structures. In this respect, the focus should be on learning how formal learning settings are structured and how asymmetric power relationships constrain individual learning in that matter (see also Singer-Brodowski, 2016). Furthermore, it is vital to understand that dominant ideology constrains the options for TLP and that citizens as learners are not aware of that circumstance. In fact, in order to transform capitalism to a more social and democratic society, it is fundamental for learners to be aware of, or at least, have the opportunity to inform themselves about alternative models (see Brookfield, 2012; Getzin & Singer-Brodowski, 2016; Jickling & Wals, 2008; Selby & Kagawa, 2010).

According to Freire (1971), such learning processes rest on the continuous interplay between action and reflection (see also Kolb, 1984). Indeed, giving meaning to a certain experience through reflecting on it, fosters self-determination while simultaneously lowering established structures of authority (Habermas, 2006). However, those learning processes are not exclusively tied to individual transformations of attitude, but indeed focus on political instances that promote participatory democracy. In conclusion, TLT from a Critical Theory perspective, intends to identify how people can learn to actively participate in developing new models of society (Brookfield, 2012).

The three dimensions of transformative learning encompass the transformation of the individual consciousness (see Mezirow, 1997a; 1997b; 2009) – which in fact is a prerequisite for societal transformation (Freire, 1971) – that of individual behavior, and lastly, social transformation. Since the first dimension does not inevitably provoke a change in behavior or result in social change (Schugurensky, 2002), there is a need to find ways that approach all three dimensions. Such an approach has been developed by O’Sullivan et al. (2002) and will be introduced in the section below.

2.2.4. ‘Integral Transformative Learning’

Given that the aim for educational change has been of restricted nature itself, focusing on certain areas of change or applying prescribed methods to enhance change (Selby, 2002), O’Sullivan et al. (2002) expanded the original theory to what they call ‘Integral Transformative Learning’, which is defined as followed:

“Transformative learning involves experiencing a deep structural shift in the basic premises of thought, feeling and action. It is a shift of consciousness that dramatically and permanently alters our being in the world. Such a shift involves our understanding of ourselves and our self-locations; our relationships with other humans and the natural world; our understanding of the relations of power in interlocking structures of class, race and gender; our body awareness; our visions of alternative approaches to living; and our sense of the possibilities for social justice and peace and personal joy.” (O’Sullivan et al., 2002, p. 11)

Given this definition, it becomes clear that this suggests a radically new approach to education, considering not only the transformation of individual consciousness regarding the way learners view themselves and the world, but also such aspects that are concerned with alternative ways of living, personal well-being and overall, spirituality. Therefore, it is crucial to come to understand that transformative Education, in its essence, challenges every aspect the current education system encompasses (O’Sullivan, 2002). Hence, he regards it as important that human lives are viewed within a much greater cosmological context and that people become aware of the possibilities there are to transform the present situation and further, what role they can play in doing so (see also Freire, 1971).

In O’Sullivan’s (2002; 2012) conception of transformative learning, there are three divergent, but interdependent dimensions, namely survival, critique and creativity. The survival aspect is concerned with becoming aware that environmental destruction, human rights violations and the like are inherent to the ecological crisis. Indeed, other scholars have criticized how general EE does not deal sufficiently with social injustice issues recognizing the fact that people of different gender and/or ethnicity are more severely affected by the consequences of the climate crisis (Getzin & Singer-Brodowski, 2016; Selby, 2002; Selby & Kagawa, 2010; Wals, 2011). O’Sullivan’s view represents that ‘Survival Education’ deals with denial as a defense mechanism and how to break free from it. However, as soon as awareness is cultivated, one falls into despair, which is a rather challenging state of mind and can only be overcome if the learner develops

critical thinking and a creative vision. The last vital part of ‘Survival Education’ encompasses the process of grieving, considering losses at a personal, communal and environmental level. Consequently, transformative learning within this dimension requires the learner to deal with those three states of mind.

The second dimension, ‘Critical Resistance Education’, involves the investigating of circumstances that have led to this critical global state. Accordingly, such learning processes entail aspects of both resistance and Critical Pedagogy (see Freire, 1971). A crucial factor to consider here, is how the forces of the modern world shape the way humans view the natural world. This approach represents chief aspects of Critical Theory, affiliating significant meaning to the critical examination of hierarchical power structures. However, they put a strong focus on how those structures shape humans’ relations to the natural world, which is a significant aspect considering this thesis’ ecological context.

The last and most outstanding dimension is what O’Sullivan calls ‘Visionary Transformative Education’, which constitutes the idea of fostering planetary consciousness, integral development of the learner, quality of life and spiritual ways of thinking (O’Sullivan, 2002, p. 6; O’Sullivan, 2012, p. 168). In such a context, learning needs to embody a planetary context, in which integral development can take place. In spite of the term’s controversy, O’Sullivan invites to go beyond the Western conceptions of development and in fact, consider processes that take place in the universe, on the planet, within both the earth and human community and lastly, the Self. He calls the end state of this process “ecological selfhood” (O’Sullivan, 2002, p. 8; O’Sullivan, 2012, p. 170). Again, this learning process involves going back to understanding the cause of the present situation, reflecting on it and thus, enhancing a different state of mind, an expanded consciousness.

2.3. Discussion of Theory

First, it is worth noting that apart from other theories that could possibly be applied here, TLT was explicitly chosen due to the numerous approaches from ESD critics (e.g. Jickling & Wals, 2008; Singer-Brodowski, 2016), which rest heavily on fundamental aspects of TLT. Those include for example critical-emancipatory concepts, which put emphasis on self-determined and autonomous learning (e.g.

Vare & Scott, 2007; Wals, 2011). Since this thesis looks for ways to foster TLP and transformative Education, this theory seemed to be most appropriate (see also Singer-Brodowski, 2016).

Although the outcomes of an SE are highly subjective, the focus in this context should be on the process, which is not only at the center of transformative Education, but also leads to an increase of awareness, since the participants intensively get involved with certain sustainability issues within the given period. Thus, it can be regarded as a valuable way of developing the capacity to think critically, despite the subjectivity of experience.

Since the name ‘Self-experiment’ already implies trying out something new, it naturally challenges the previous way of thinking and acting. Given that at the beginning of the SE, participants are supposed to become aware of their present behavior, for example their consumption habits and then implement the altered practices they chose to experiment with, the continuous reflection of actions is required in the process. Consequently, if this interplay of reflection and action result in the transformation of the learner’s assumptions and his or her behavior accordingly (see Freire, 1971), SE are inherently transformative (see also Schneidewind & Singer-Brodowski, 2015; Zajak, 2018). Moreover, SE in the given context are carried out in tandems, which requires the participants to exchange with their partners, and thus become acquainted with different perspectives. Such mutual exchange with peers during the process plays a pivotal role, since engaging in discourse allows the learner to critically reflect on both the assumptions of the tandem partner and his or her own.

Since both critical reflection and participating in discourse constitute the fundamentals of TLT (Mezirow, 1997b; 2009), one could assume that SE promote TLP. However, Mezirow’s theory also implies that learners go through ten particular phases within this learning process (see Fig. 1), which is not necessarily given in an SE, in view of the academic context of the participants. Although this context provides a certain structure, the interventions are self-initiated, considering that participants choose what type of SE they want to engage in and thus, are able to decide about the internal structure of the experiment. Following this, the learners determine how this process should look like and what it should entail for them. Hence, the format of SE breaks free from formal learning settings and therefore, has the potential for self-determined and autonomous learning, which is an integral

part in both Brookfield's (2012) and O'Sullivan's et al. (2002) approach to transformative learning (see also Freire, 1971).

Another crucial aspect is the need for the learners to be aware of alternative ways of living, in order to transform the present circumstances (Brookfield, 2012; Getzin & Singer-Brodowski, 2016). Likewise, participating in an SE means to intensively get involved with climate friendly practices, which allows them to explore alternative ways of living and judge based on that experience. Therefore, SE provide a learner-friendly way of learning about and delving into different ways of thinking, acting and ultimately, living.

Lastly, O'Sullivan et al. (2002) have brought together various practices dealing with ecological consciousness. The inherent principle used is that of "equifinality; that is, the principle that there are many paths to a destination." (O'Sullivan, 2012, p. 172). Here, it is critical to understand that every learner, every human being is individual and hence, there cannot be a generalized approach to how people learn to gain a planetary consciousness or an appointed sustainable behavior. Therefore, it can be argued that SE, given their individualistic character, constitute a well-suited approach for learners to find their own ways to contributing to a more climate friendly society and through this process, also to develop on a personal level.

In conclusion, it can be argued that various aspects from all the approaches to TLT introduced above seem to be enhanced through SE and thus, those findings will be endorsed in the empirical part in chapter 4. However, in order to do justice to all possible interpretations of the data, Grounded Theory will be applied in this study for both the given data set as well as for the self-collected data. Therefore, all three approaches to TLT will be considered in the discussion in chapter 5, in order to make further contributions to the TLT discourse based on the findings in the empirical process.

3. Methodology

3.1. Epistemological Viewpoint

Given the aim of this thesis (see section 1.6.), the research process in this study follows a constructivist point of view, from which “[r]esearch is a meaning-making activity in that the researcher constructs an understanding of the phenomenon of interest from the perspectives of those who experience it.” (Merriam & Kim, 2012, p. 58). An according research design will be demonstrated in the following section.

3.2. Research Design

After having introduced and discussed the theory in section 2, this chapter will explain the empirical process applied in this research, while the results from two different empirical methods will be demonstrated in chapter 4, in order to complement the previous findings and persuade the given research question in a saturated manner. Since this thesis aspires to identify how SE in the specific context of applying climate friendly practices can foster TLP, a given set of data provided by a real-life-laboratory will be examined, particularly analyzing the different learning processes of the participants. Given the experiential and individual character of SE, Grounded Theory according to Strauss (1991) seems to be most applicable, since it acknowledges an interpretation of the data without pre-determined foci of analysis. Grounded Theory leaves endless options for coding and comparing, whereby the criterion of theoretical saturation depends on the researcher him- or herself (Flick, 2014, p. 401). Consequently, the derived categories and end results are highly subjective. On the contrary, this method goes beyond paraphrasing and summarizing and instead, allows a deeper understanding of the data through the identification of certain relationships between phenomena (Flick, 2014, p. 400). Hence, it can offer valuable insights about why the participants experienced this learning process in a particular way. To triangulate this study and support the findings from the DS, examples from the related diary entries will be demonstrated.

As this study aims at investigating a particular format regarding its potentials to promote TLP, three follow-up interviews in a narrative manner were

conducted, in order to gain additional insights into the long-term effects of the SE. Here, a significant aspect to consider is that the interviewee's memory of a certain experience is influenced by the context in which he or she narrates about it (Flick, 2014). Nevertheless, a narrative method according to Schütze (1983) was chosen because it allows people to express how they experienced this particular learning process and is therefore frequently used in TLT research. Likewise, it allows the researcher to ideally, observe a shift in narrative during the storytelling. Using this method will help to understand the participants' contexts and make sense of their individual experiences (Merriam & Kim, 2012).

The data collection process, as well as the procedures for analyzing the data will be explained in the following sections.

3.2.1 Documentation SE – Grounded Theory

Given the circumstance that a pre-existing set of data will be used in this study, the context in which it was generated will have to be explained. The data set in the form of twenty DS was created within the frame of a workshop at the “*Karlsruher Frühlingstage der Nachhaltigkeit*”, which is an event series organized by the “*Zentrum für Angewandte Kulturwissenschaft und Studium Generale*” (ZAK) that addresses sustainability within science, studies and everyday life. It encompasses an array of workshops, lectures and excursions tailored to learning about the various challenges of sustainable development.⁶ The workshop “*Nachhaltigkeit im Selbstexperiment*” was carried out by three lecturers of the ZAK and ultimately 32 people participated in a SE. A more detailed procedure of the workshop can be found in the Appendix (9.7.). The independent experiment period was two weeks, of which approximately one week involved the introspection of the participants (unpublished presentation, Trenks, 2020, p. 13).⁷ In order to support the experimental process and simultaneously collect qualitative data, the participants filled out a DS, which will be analyzed in this thesis. Here, it is crucial to mention that certain structural limitations exist within this research, such as the orderly manner of the DS, which will be elaborated upon in the limitations section (see chapter 7).

⁶ <http://www.zak.kit.edu/fruehlingstage.php>

⁷ See Appendix 9.7.

Another point worth noting is that although all SE took place within an academic setting, the framework of the experiments, namely what they encompassed, differed. An overview of the various SE can be found in Appendix 9.2. and should be taken in mind when reading this study. However, those differences in experiment foci cannot be considered here, since Grounded Theory follows an abstract analysis (Strauss & Corbin, 2008, p. 77).

3.2.2 Narrative Interviews

As mentioned before, narrative interviews with SE participants were used, in order to gain insight into the long-term effects of their experience with the SE and to analyze their subjective perspectives (see also Flick, 2014). A crucial aspect here is that the beginning of the interview constitutes an invitation to narrate (Schütze, 1983). Hence, the interviewees were invited to ‘tell a story’ about how their daily lives had looked like since the experiment. Given the lack of narrative flow in some cases, responsive questions were asked based on the interviewee’s prior told story. After conducting the interviews, they were transcribed verbatim (see Appendix 9.6.) and segmented into formal paragraphs for analysis (Schütze, 1983). However, Schütze’s (1983) procedure for analyzing narrative interviews was not strictly followed here, since the aim is to develop categories and compare them with the results from the pre-existing data set. In contrast, Schütze (1983) aims at identifying certain types through his approach of biography research. Instead, the interviews were analyzed applying Grounded Theory, consisting of open, axial and selective coding (Strauss, 1991; Strauss & Corbin, 1996), as demonstrated in the following chapter.

4. Data Analysis

4.1. Open and Axial Coding

During the open coding process, codes were derived from passages that seemed relevant to the study, being considerate about the individual experience of the participants. Following this, the codes were clustered to get an overview of possible categories. This process was applied to all DS, adding similar codes to already identified themes or clusters until no further concepts could be identified.

Resulting from this process, the categories were formed. Consequently, relationships between the categories were classified during the axial coding process, whereby several sub-categories emerged. As stated in section 3.2.2., the same process of open and axial coding was applied to the narrative interviews. As a result, it could be observed that both the DS and the narrative interviews constituted the same categories but to different extents. Other than that, the relationships between the categories became more evident through analyzing the interviews, given the narrative flow of the interviewees. Hence, some categories could be merged and in some cases involved different aspects.

In order to ensure a better reading flow, the results of both data sets will be presented in the following chapter. Assuredly, differences between and specific features of both sets will be demonstrated accordingly and can be reconstructed in two separate coding tables (see Appendix 9.3. + 9.4.).⁸

4.2. Findings

Process of Reflection

Both categories and sub-categories as identified during this coding process will be put in italics in the following sections. It could be observed that one major theme of focus was the *Process of Reflection*, which was inherent to the experiment process. However, throughout the course of coding, two main dimensions emerged within that category. One refers to the reflection on how one's own perspective has changed throughout the process, while the other dimension involves the reflection on how the participants' behavior has changed. Thus, by reflecting on how their own perspective had changed, participants became aware that they would view certain things differently compared to before the experiment. Such a change in perspective could involve a shift in consciousness or awareness. Similarly, it would entail that they view their personal or other people's consumption habits in a different way.⁹ Also, a *Change in Perspective* could refer to a shift in the participants' attitude towards a certain climate friendly practice that they tried out in the course of their experiment. For instance, one participant stated:

⁸ Abbreviations for Data Citation: DE, Day (XX); DS, No. (XXX), Question (X.X); NI, I (X)

⁹ Indirect quotes and passages from the DS and the DE will be translated into English by the author (unless already documented in English by the participant), whereas direct quotes will always be in the original language.

“Ich kann nach diesen 14 Tagen schon eine andere Sicht auf die Dinge erkennen.“ (DE, 030, Day 14)

Another aspect that arose throughout the coding was *Indicators for long-term Effects*, meaning that certain statements signified that the practices implemented throughout the experiment would continue to be integrated in the participants’ daily lives. However, whereas those indicators on the DS are rather subjective, the interviews provided evidence for numerous long-term effects.

“[...] weil ich einfach gemerkt hab es geht auch ohne? [...] dass da die zwei Wochen auch gereicht haben, dass ich mir nicht dann gedacht hab so ja zwei Wochen ohne geht irgendwie [...] danach macht mans wieder. Also so kleine Sachen hab ich dann schon beibehalten.” (NI, I1, ll. 21-27)

Generally, it could be observed that the majority of participants experienced an increase in awareness or consciousness (e.g. DS, 007, 5.3.). Here, a clear difference could be observed between a *Change in Perspective* that resulted from getting involved with a certain topic, for example through *Research* or *Discourse*, which initiated a *Reflection Process*, and a *Change in Perspective*, which was pre-determined by *setting the Goal* of increasing one’s awareness during the experiment.

A *Change of Behavior* can often be referred to a prior *Change in Perspective* and the other way around, which demonstrates the interdependency between both phenomena. The sub-category of reflecting on the *Change of Behavior* constitutes the results of the change, the consequences and what implications it has. The difference between those three aspects is very blurry, since results already imply various consequences, whereas those often have particular implications. Therefore, it could frequently be observed that participants stated certain consequences or implications resulting from their changed behavior. For example, one person stated that the new pattern of behavior eliminated anger (DS, 009,5.2.).

AHA-Moments

Another category that was derived from the coding is *AHA-Moments*, which comprises the sub-categories *Realization of Self-Efficacy* and *Turning Point of*

View. The term *AHA-Moment* is used here as a shift in perspective, which is not consciously brought about, but involves a rather abrupt and arbitrary change in thought and thus, differs from the first category, in which a *Change of Perspective* evolves from a conscious *Reflection Process*. However, both categories are closely related, since the result encompasses a *Change in Perspective* in either case. It was frequently noticed that *AHA-Moments* play a pivotal role in effecting *Change in Perspective*, e.g. when such moments were connoted with surprise or shock, something the participant did not expect prior to this moment: “It’s crazy how easy it is to misbelieve the amount of plastic used for cooking.” (DE, 005, Day 1).

AHA-Moments that specifically constitute the *Realization of Self-Efficacy* also showed a great effect among the participants, since the insight that oneself can contribute to change was mostly associated with positive *Emotions*, such as joy and pride. Other *AHA-Moments* simply encompassed an unanticipated *Turning Point of View*, a moment, which unexpectedly challenges the own assumptions. Those moments were often signified by notions such as “I was surprised that..” or “I realized that..”. For example, one participant stated:

“It can be surprisingly easy to get a completely/partly free-plastic life if one is aware of it.” (DS, 002, 4.5.)

It is important to mention here that the *Realization of Self-Efficacy* can also be brought about by a *Reflection Process*, in which participants realize their ability to act based on a conscious development of thought.

“[...] aber ich finde wenn jeder einzelnt was macht des schon auch en Unterschied macht, den einige glaub ich gar nich kapiieren, also ich auch lange nich verstanden hab, dass man dazu beitragen kann was zu ändern [...] alles was jeder so in seinem Umfeld machen kann, is en Schritt in die richtige Richtung.“ (NI, I3, ll. 221-233)

Here, *Realization of Self-Efficacy* further constitutes the understanding that one can act *autonomously* and make *autonomous* decisions, both within their own reach and within a broader context. This implies that participants, based on that realization, *evaluate* what their limits and possibilities are, meaning what is within their own reach of doing and also, wanting to do. This aspect became apparent when

participants stated for example that they adapted from living completely plastic free to just buying plastic free nutrition, since it was more *feasible* (e.g. DS, 005, 4.4.).

Social Context

One category that also seemed vital for the participants was their *Social Context*. It needs to be stated that this category had a stronger emphasis among the interviewees, although it could also be frequently detected within the DS. This category involves several dimensions/sub-categories. A lot of participants perceived it as important to monitor their relationships or social interactions during the experiment. Sometimes this implied informing friends and family about the experiment, but also receiving *Feedback* from the personal environment. Accordingly, a fundamental factor here was to participate in *Discourse*, exchanging information, experience and different perspectives. The interaction with the participants' personal environment during the experiment or receiving *Feedback* within a *Social Context* could either be a factor of *Motivation*

“Wurde heute an der Haltestelle von einer Frau gelobt weil ich meine Tochter bespaßt habe und nicht vor dem Handy saß.“ (DE, 013, Day 4)

or *Constraint* for them.

“Ich gehe mit Opa Essen. Gott sei Dank am Buffet – er bekommt garnicht mit, dass ich nur Gemüse + Salat esse.“ (DE, 029, Day 7)

Given that the experiments were carried out in *Tandems*, this factor cannot be neglected in the analysis. As mentioned before, the *Social Context* and the *Tandem* partners in particular, were of significant importance for the interviewees, serving as a source of support and *Motivation* and as a person to *exchange* and share experiences with. In two interviews the participants even mentioned that they would not have done certain things without their *Tandem* partner. Interviewee 3 stated:

“[...] wenn ichs jetzt alleine gemacht hätte, hätt ichs nicht so gemacht, weil es wär wahrscheinlich viel zu anstrengend gewesen [...]“ (ll. 177-179).

The interviewees also increasingly talked about the influence of their behavior on their social environment, for example through collective cooking or dialogue.¹⁰ Similarly, it was stated:

“[...] ja man hat halt mitgekriegt was andere Leute auch für [...] nachhaltige Sachen machen und dann denk ich mir so HEY, das is eigentlich gar keine so schlechte Idee [...]“ (I2, ll. 301-304).

This shows that in some cases, certain perspectives or behaviors also ‘spilled over’ from the participants’ social context. Hence, another sub-category here constitutes the *Spillover Effect*.¹¹

Research Process

Given that a SE implies trying out something new, it required the participants to do *Research* at the beginning of the process, in order to get *involved* with the topic and find out what may be important for the further progress. Especially, this included the research on alternatives, such as substitutes for plastic or animal products.¹²

Evaluation

Although *Evaluation* is mostly integral to *Reflection*, it is demonstrated as a separate category here, since the outcomes of the participants’ *Evaluation* strongly influenced their actions and further learning processes. Whereas some participants focused on a *qualitative* approach to *Evaluation* such as journaling or *Feedback* from the personal environment, others put emphasis on measuring and documenting numbers like their ecological footprint, in order to “draw personal conclusions” (DS, 007, 2.4.). Both *quantitative* and *qualitative* tools were used to compare normal routines with the adapted behavior throughout the experiment.

Through the *Evaluation* of thoughts and actions both during and at the end of the experiment the participants could assess the *Feasibility* of the experiments, namely whether or not the goals were realistic and how easy or challenging it was to implement the new practices. Mostly, the participants stated that the prior set

¹⁰ (see also NI, I1, ll. 63-65, 75-77; I3, ll. 140-145)

¹¹ (see also NI, I1, ll. 46-50)

¹² (e.g. DS, 002, 3.3.; DS, 003, 4.2.; DS, 006, 3.3.)

goals were realistic or even easily reachable, which implied the feeling of *Achievement*.¹³ On the contrary, there were those who expressed that some practices were not implementable, which in return led to an adaption of the initial plan. If the goals set for the experiment were not realizable, it often led to the participants being *overwhelmed*. This is demonstrated in notions such as “softer goals to transit the self-experiment into all-day life” (DS, 009, 6.5.) or “only do one experiment at a time” (DS, 006, 6.5.).

Likewise, it was observed that this feeling of *Achievement* or the insight that the experiment was manageable implied the *Realization of Self-Efficacy*, for instance when participants realized that the experience was “easier than initially thought” (DS, 027, 4.5.) or “not as complicated as initially thought” (DS, 003, 4.5.).

Emotions

Another crucial category that could be derived from the data is *Emotions*, since they influence the participants’ processes, their learning and ultimately, what they take out of the experiment. Throughout the coding process, the sub-categories were narrowed down to *Chances* and *Challenges* that can be either *Mental Barriers* or of *practical* manner. Here, it is worth mentioning that *Chances* can be referred to positive feelings or benefits that resulted from the experiment. Given the diversity of experiments, statements about *Challenges* and *Chances* increasingly varied. However, they are significant to note here due to their great effect on the participants’ experiences. Whereas numerous experimenters had fun¹⁴ or enjoyed carrying out the SE, participants who got involved with meditation instead of using their phones or started to use their bike to travel mentioned a decrease in stress levels (DS, 019, 5.3.) or increased calmness.¹⁵

A major *Challenge* for many participants was *Time*.¹⁶ Since this referred to various contexts, such as time in general, time during an examination period or time for certain practices, it constitutes a separate sub-category here. In terms of *Mental Barriers* it could be observed that participants, who had already experienced a *Change in Perspective* during the experiment, dealt differently with those barriers.

¹³ (e.g. DS, 029, 6.4.; DE, 002, Day 14)

¹⁴ (see DS, 003, 4.3.; DS, 027, 4.3.; DS, 031, 6.1. ; NI, I1, II. 142; NI, I2, I. 55)

¹⁵ (see DS, 006, 5.1.; DS, 009, 4.2., 5.5.)

¹⁶ (see DS, 003, 4.3., 5.5.; DS, 027, 4.3.; DS, 029, 6.5.; DS, 030, 6.6.; NI, I2, II. 324-329; NI, I3, II. 17)

This was shown in two interviews, in which the participants were entirely aware of their mental barriers, resulting in their willingness to either try out what seemed unachievable or to try reintegrating a previously tested practice during the experiment.

“[...] also da steh ich noch son bissjen vor dieser Hürde so, wo krieg ich das überhaupt alles her? Oder so ehm aber das wär vielleicht sowas was ich ma bei nem anderen Selbstexperiment irgendwie in Angriff nehmen könnte [...]“ (NI, I1, ll. 220-224)

Goal Setting

One last category that should be mentioned here is the *setting of Goals* during the SE. Whereas all participants wrote down their *Goals* in the DS, the interviewees increasingly talked about future *Goals* regarding climate friendly ways of living. Considering that each experimenter set *Goals* for him- or herself in the beginning of the SE, it helped them to plan the process accordingly and ultimately, *evaluate* how successful their experiment was. On the one hand, participants set *practical Goals* such as reducing plastic waste and on the other hand, they aimed at increasing their awareness during the course of this experiment, which constitutes a rather *mental Goal*. More text passages with so-called anchor examples can be found in the respective coding tables (see Appendix 9.3. + 9.4.).

4.3. Selective Coding

After the open and axial coding process, the last step in Strauss' (1991) procedure is selective coding, in which the aim is to identify the core category through which all other categories are integrated. Once relationships between the core category and the sub-categories are described again, the goal is to identify patterns and conditions for those, in order to formulate a theory (Flick, 2014, pp. 396–397). Given the scope of this study and the already identified similarities with the previously defined theory, the findings from this process will be used to expand and discuss the shortcomings of the given theory (see chapter 5), in order for it to be applicable in the given research context.

Throughout the analysis of the interviews, it became increasingly clear how the identified categories influence each other and how they interconnect. Since this thesis does not intend to develop a new theory, three core categories were identified to play an essential role in the participants' learning process.

Overall, it was observed that during the SE, the following three types of 'interventions' led to a *Change in Perspective* for the participants. First, a conscious *Reflection Process*, which constitutes a careful evaluation of the experience. Second, the influence of the participant's *Social Context* through *Discourse* and the negotiating of one's own assumptions. And lastly, *AHA-Moments* that happen arbitrarily, and thus challenge the participant's assumptions through an unexpected confrontation of those. However, those moments can also be provoked during the engagement in *Discourse*. A simplified overview of how those categories relate to both their sub-categories and each other can be found in the Appendix (9.5.)

After all DS and interviews have been thoroughly examined, the following chapter will be dedicated to the discussion of results and the comparison of those with the findings from section 2.3..

5. Data Discussion – Connecting & Comparing Findings

Since this study refrained from developing a new theory, the following discussion will focus on the three identified core categories, what role they play in the participants' learning process and what this implies for the given research question.

As already identified in section 2.3., both reflection and discourse have proven to play a vital role in the participants' learning processes. However, the insights from the participants increasingly revealed how certain conditions influence the outcome of the reflection process. This was particularly represented in the experiences of all three interviewees, who described very similar learning processes, which solidly demonstrate how different factors relate to each other. Accordingly, the access to trying out new things through the framework of an SE caused the learner to reflect on the newly implemented practices and thus evaluate those according to feasibility and corresponding emotions. This, in return, led to a change in perspective, which resulted in a change of behavior.

“[...] dass einem dann diese zwei Wochen auch irgendwie das geben, dass man da nochmal en bissjen intenstiver drüber nachdenkt [...] das war jetzt ja auch nicht son riesen projekt [...] deshalb [...] jetzt schon auch en bissjen anders lebe [...] halt gemerkt hab, viele Sachen tun mir persönlich nichts WEH? [...] einfach ausprobieren kann was [...] is für mich einfach [...] umsetzbar, also in meinem Alltag [...]“ (NI, I1, ll. 99-110)¹⁷

Evaluating the practices allowed them to become aware of their own limits and possibilities and act accordingly. Ultimately, this realization of what is within one’s own reach and likewise the realization that this decision is completely dependent on the learners themselves, leads to the consolidation of climate friendly practices and thereby demonstrates a long-term learning effect.

Since the interventions in the SE are self-initiated by the learner, they are able to start with small steps and carefully explore this process, which prevents the feeling of being overwhelmed and fosters the realization of self-efficacy instead. Becoming aware that one can contribute to effecting change as an individual and further, that oneself is in charge of how to contribute is a vital aspect in TLT (see also Brookfield, 2012; Freire, 1971), since it constitutes the transformation of the learner’s assumptions regarding his or her own abilities.

On the contrary, it can be argued that the feeling of being overwhelmed can have the opposite effect, which became increasingly apparent through statements, such as:

“[...] weil wir einfach gesagt haben wir wollens halt so machen, dass wirs halt trotzdem noch auch mit Spaß machen können und dass es für uns auch machbar is und nich so ne riesige Aufgabe irgendwie is, die wir eh nich schaffen können [...] dadurch hab ich auch mehr beibehalten [...]“ (NI, I1, ll. 12-17)

It can be argued that evaluating learners based on their performance or achievements, just like in traditional learning settings, can easily result in feeling overwhelmed, which constrains the learning process of the person. Since learners are given the freedom to set their own goals for their SE, they can determine the

¹⁷ (see also NI, I1, ll. 120-131; NI, I3, ll. 64-67, 185-192)

feasibility of the experiment. This implies that they are able to adapt their plans if the experiment is not manageable at all, which provides a great extent of self-determination for the learners and therefore differs from an instrumentalized education, in which learning outcomes are predefined (see also Freire, 1971; Jickling & Wals, 2008; Wals, 2011). However, goal setting and planning are not necessarily in alignment with the fundamentals of a self-emancipatory and autonomous approach to education (Vare & Scott, 2007; Wals, 2011). Although it helped the participants to measure the success of their experiment and was frequently associated with the feeling of achievement (see DE, 002, Day 14), the focus should not be on the practical outcome of the experience, for instance saving a predefined amount of CO₂ during the given period, but rather on the process, which is at the core of transformative education. Hence, instead of making learners feel the need to radically implement climate friendly practices during the experiment, educators should convey a sense of empowerment and acknowledge the individuality of everyone's learning process.

Essential to TLP is the engagement in *Discourse*, in order to challenge the own assumptions. One passage of an interviewee particularly expressed the value of learning about different points of view.

“[...] was sind so meine Gewohnheiten, die ich vielleicht ändern will und vielleicht nicht [...] erstmal umständlicher erscheint [...] der Moment was auch cool ist sich mit anderen Leuten auszutauschen. [...] hört sich ja immer so an so ja, ich bin jetzt voll selbstreflektiert, aber das ist ja auch immer noch ein Prozess [...] wichtig sich noch mit Leuten zu unterhalten und einfach noch viele andere Sichtweisen sozusagen kennenzulernen.“ (NI, II, ll. 188-200)

However, participating in discourse during an SE was not explicitly used to challenge personal assumptions, but rather served as a means to exchange experiences and information and furthermore, to motivate each other. Indeed, the mutual support among tandem partners helped to overcome mental barriers, which has shown to be vital for a transformation in perspective during the experiment.

Whereas the two categories introduced above constitute fundamental aspects of TLT, the category AHA-Moments has not yet been adequately discussed in this matter. Nevertheless, the experiences from SE participants revealed the importance of so-called AHA-Moments for TLP. Following this, AHA-Moments were frequently observed in the data as a crucial trigger for a change in perspective. Whereas TLT exclusively focuses on a conscious process of bringing about change, namely the interplay between reflection and action (see also Freire, 1971), the experience of so-called AHA-Moments comes unexpectedly and was dominant throughout the majority of experiments. Such moments stay in the learner's mind, since they unsuspectedly challenge his or her – up to this moment – present assumptions. Thus, it can be argued that such triggers are neglected in the TLT discourse, despite their transformative character. Given that SE imply trying something new, the outcome of the experiment is hardly foreseeable, which fosters the occurrence of AHA-Moments. Although transformation itself does not happen abruptly, the effects of such an unanticipated experience were observed to be of long-lasting nature. Since the narrative interviews were conducted one year after the SE were carried out, it could be ascertained that the AHA-Moments experienced by participants could still be recalled.^{18 19}

In conclusion, it can be argued that the theory of transformative learning was necessary to satisfy the research question. However, the approach of applying Grounded Theory made a valuable contribution to how TLP can look like in approaching sustainability issues. Furthermore, it supported the findings regarding Self-experiments empirically.

¹⁸ “[...] und hat halt einen so schockierend wachgerüttelt. So SCHOCK. AH. Ich bin wach mäßig und ja.“ (NI, I2, ll. 378-380).

¹⁹ “[...] war so en Moment wo ich irgendwie gemerkt hatte was das auch so, in welcher Blase ich persönlich uh auch einfach lebe [...] und das war einfach son moment wo ich gemerkt hatte wie normal das einfach für uns jetzt hier is so die ganze Sache mit – also das war jetzt spezifisch Plastik [...] manchmal mach ich mir da jetzt auch noch Gedanken drüber [...]“ (NI, I1, ll. 80-96)

6. Conclusion

This thesis was directed towards answering the following research question:

How can Self-experiments, in the specific context of applying climate friendly practices, foster Transformative Learning Processes and consequently, contribute to transformative Education as a whole?

As clarified earlier, the research conducted in the course of this study was of constructivist manner. Hence, there are various ways of approaching this research question and thereby answering it. However, by providing tentative findings through the theoretical framework and applying Grounded Theory to two associated data sets to complement those, the research question could be satisfied accordingly.

Following TLT, the format of Self-experiments shows characteristics of promoting TLP, considering that the critical reflection of one's own assumptions and the engagement in discourse are integral to Self-experiments and also constitute the fundamentals of such learning processes (see Mezirow, 1997b). The analysis of both the documentary sheets and the narrative interviews particularly emphasized how the continuous process of reflection resulted in the learner's change of perspective on the one hand, and how the concept of tandems applied in the Self-experiments contributed to this transformation on the other hand. Indeed, the tandem partners also served as a source of support to overcome mental barriers, which constituted a vital aspect in changing the learners' perspectives.

Whereas AHA-Moments have not yet found their way into the TLT discourse, they displayed a significant role in promoting transformation among the Self-experiment participants. The explorative way of learning during a Self-experiment is very likely to provoke such unanticipated moments, since the outcome of trying something new is mostly uncertain and thus challenges prior assumptions. Here, it became increasingly clear that it cannot be generalized how exactly learners gain a planetary consciousness (see O'Sullivan, 2002). But the fact that during the Self-experiment, something in the students' minds had changed, which empowered them to go one step further and keep asking questions, that was found to be the true value of such a Self-experiment. It creates an environment for

the learners to start asking questions, to critically reflect on their assumptions and beliefs – whatever they may be – and to engage with others during this process in order to create a sense of both Self and community.

Overall, this study revealed that Self-experiments, in the specific context of applying climate friendly practices, foster TLP in many ways. In order to reach a genuine transformative Education that approaches the climate crisis at the principles its rooted in (Selby & Kagawa, 2010) and thereby breaks free from an instrumentalized way of learning (see Wals, 2011), a new approach must challenge every aspect the current education system comprises (O’Sullivan, 2002). In this respect, it was clearly demonstrated that learners developed a high degree of autonomy during the Self-experiment, not lastly due to its emancipatory character. So if the goal of a new approach is to develop critical thinking and autonomous decision-making (see Vare & Scott, 2007), it can be concluded that Self-experiments, if applied in such a self-determined way, can make a genuine contribution to a transformative Education that is needed to tackle the “Great Transformation”.

7. Limitations & Outlook

In order to acknowledge this study’s shortcomings, this section covers both structural and substantial limitations and further, presents recommendations for future research in the field. First of all, it is important to mention again that the research question and topic of interest evolved from a given set of data, which the author had been granted access to throughout an internship. Therefore, this study did not precisely follow a traditional research process, in which the method is chosen according to the research question. However, to further contribute to the study empirically, three follow-up interviews were conducted about one year later to pursue a longitudinal character of study. Here, it is crucial to note that three interviews do not represent the entire previous sample but the access to the field was limited within the given time frame. A next limitation regarding the data constitutes the fact that out of 32 experimenters only 21 participants agreed to the evaluation of the data. Another point worth mentioning is the structured character of the DS, which, to some extent pre-determined the foci of analysis and

simultaneously could be regarded as a constraint in the participants' reflection process. Likewise, the academic context in which the experiments took place could have possibly restrained the outcomes of the DS.

Further limitations that arise with the methodology applied in this thesis are mentioned in the Methodology section (chapter 3). Likewise, the constructivist character of this study implies a certain degree of subjectivity regarding the interpretation of the data.

The scope of this study didn't allow to further analyze the discourse around ESD or look deeper into a holistic approach content-wise, as well as regarding the reflection on asymmetric power relations in the traditional education context. For this purpose, future research should more exhaustively investigate the potentials of SE with a stronger holistic approach, not only in terms of how individual values, beliefs and behavior regarding climate friendly practices are transformed, but also the way education is perceived and conceptualized within society. In that sense, potentials should also be considered from the perspectives of self-development and personal well-being, since studies have shown that (a) there exists a strong correlation between subjective well-being and environmentally friendly behavior and (b) the preconceived idea that more possession leads to more happiness does not hold true anymore (Hunecke, 2013; Jackson, 2009).

Other concepts that were not thoroughly addressed in this thesis, yet play an important role in the given context, are Global Education, Citizenship Education and Experiential Learning. Hence, I would suggest to further elaborate on – if followed an integral approach – how topics such as, democracy, injustice, inequity and the personal connection to nature, can be incorporated in designs like the SE, considering the compelling interconnectedness between social inequalities and environmental issues (e.g. Jickling & Wals, 2008). Therefore, an adequate methodology would be Action Research, given the comparability with TLT, regarding their goals and assumptions in terms of educational change (Taylor, 2007). This approach would simultaneously address issues, such as the gap between science and society or learning and research.

One last issue that could not be covered during the course of this thesis is the exclusive focus on adult education in TLT. Given the need for an integral shift in the education system and further, the individualistic design of SE, there exists great potential in employing both the concept and the theory to different educational

levels. The need to develop the theory by applying it to all age groups was also stated by Schugurensky (2002).

These suggestions may raise the issue of standardization mechanisms to allow measurability regarding the success of such experiments, but this should by no means be intended, pursuing a self-emancipatory, self-determined and more autonomous way of learning.

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9. Appendix

9.1. Documentary Sheet SE blanc²⁰

²⁰ Due to data privacy, this part of the appendix cannot be made available here.

9.2. SE Overview

Sheet No.	Name of SE	Goal/Content SE
002	Plastic-Free Living	Comparing of consumption habits, waste production & quality of life between normal routine and plastic-free way of living
003	Plastik im Alltag - Reflektieren & Reduzieren	Buying plastic-free nutrition, document plastic in daily routine, weigh necessary of plastic product
005	Plastic waste usage	Comparing of consumption habits, waste production & quality of life between normal routine and plastic-free way of living
006	Das Zusammenspiel von "Digital Detox" und Meditationsmethoden	Reduce cellphone usage to 30 min/day – instead, use time and thoughts to meditate
007	Energie- und CO2-Bilanzierung des eigenen Lebensstils	List all energy values of different areas in daily life (consumer goods, nutrition, secondary energy sources, mobility)
008	Energie- und CO2-Bilanzierung des eigenen Lebensstils	List all energy values of different areas in daily life (consumer goods, nutrition, secondary energy sources, mobility) based on that: identify ecological footprint
009	Digital Detox + Meditation	Reduction of screen time as much as possible, fill free time with meditation or yoga to boost self-awareness
011	Personal consumption analysis	Keep track on personal meat consumption + ingredients, reduce meat consumption
013	Internet? Fasten	Internet renouncement in free time to have less energy consumption and use the time otherwise
014	Inventur und Reflexion meines Privatbesitzes	Make inventory of things in bathroom, kitchen, etc. to find out if it is really needed/broken/repairable

015	Reparatur und Upcycling elektrischer Geräte	To extend lifecycle of electrical devices, collect defect/unused multimedia devices to repair and upcycle them; engage at the repair café
016	Ge-Meinwohl durch Nachhaltigkeit	Improve common good through sustainability and make roommates engage with the topic
017	Reparatur und Upcycling elektrischer Geräte	To extend lifecycle of electrical devices, collect defect/unused multimedia devices to repair and upcycle them; engage at the repair café
018	Ge-Meinwohl durch Nachhaltigkeit	Improve common good through sustainable practices with the effect that everyone in social environment feels comfortable
019	Fortbewegung mit dem Fahrrad + Soziales Engagement Bikes without borders	Use bike for all upcoming travel; engage at bikes without borders
020	Minimalismus	Inventory to find out what is really needed, increase appreciation for products and concentrate on bare essentials
023	Zuckerreduzierte Ernährung	Reduce sugar intake; renouncement of refined sugars to increase knowledge and increase well-being
027	Plastik im Alltag – Reflektieren und Reduzieren	Buying plastic-free nutrition, document plastic in daily routine, weigh necessary of plastic product
029	Vegan	Eat vegan and deal with regional and unprocessed foods to sensitize, increase knowledge and well-being
030	Inventur und Reflexion meines privat Besitzes	Become aware of own property; sort out things; question consumption behavior and become conscious about necessity of products; get rid of ballast
031	Sew-it-Yourself (SIY)	Produce sustainable clothing instead of buying, repair old pieces of clothes instead of throwing them out

9.3. Consolidated Coding Table DS

Categories	Explanation	Sub-categories		Anchor Examples
Reflection Process	<p>The Reflection Process constitutes an inherent part of the SE and involves the assessment of the experience throughout the process.</p> <p>It allows the learner to both reflect on their present circumstances (e.g. habits and points of view) and how those circumstances have changed during the SE.</p> <p>The result of the Reflection Process encompasses insights on (1) how one’s perspective has changed (sometimes implied the realization of self-efficacy) and (2) how a change in behavior could be adapted accordingly.</p>	Change of Perspective	Realization of Self-Efficacy	<p>“I made myself aware of the big impact that plastic has in our lifes, and how easy it can be to change it.” (DS, 002, 5.2.)</p> <p>“Meine Wertschätzung für Kleidung und dessen Herstellung ist sehr gestiegen.“ (DS, 031, 5.4.)</p> <p>“Echte Nachhaltigkeit bedeutet radikalen Wandel“ (DS, 008, 5.4.)</p>
		Change of Behavior		<p>“Erfreut über drastische Reduktion” (DE, 014, Day 11)</p> <p>“[...] it was hard for me because I love eating meat, but I did it” (DS, 011, 5.2.)</p>
		Indicators long-term Effects		<p>“Einige Gewohnheiten aus dem Experiment möchte ich beibehalten.“ (DE, 013, Day 14)</p> <p>“einiges auf jeden Fall weiterführbar, anderes im abgeschwächten Maße“ (DE, 027, Day 13)</p> <p>“keep reducing my meat consumption” (DS, 011, 6.5.)</p>
AHA-Moments	<p>AHA-Moments here result in an unanticipated, arbitrary change in perspective, since they involve an experience, which abruptly and unexpectedly challenges the learner’s assumptions that had been self-evident up to this moment.</p> <p>They either comprised the sudden realization of self-</p>	Realization of Self-efficacy	Autonomy	<p>“fast Kommilitonen geschrieben, dann einfach Menschen gefragt [...]“ (DE, 006, Day 4)</p> <p>“Probieren geht über studieren: jeder muss selbst rausfinden, bei welchen Dingen er/sie am ehesten Plastik einsparen kann“ (DS, 027, 6.7.)</p>
		Turning Point of View		<p>“Ich bin schockiert, ich besitze knapp 200 Nähgarnrollen.“ (DE, 019, Day 6)</p>

	efficacy, which further constitutes the understanding that one can act autonomously, or a random turning point of view.			“Ich habe mich beim Zeitschriften blättern ertappt wie ich was kaufen wollte“ (DS, 030, 5.3.)
Social Context	The Social Context during the SE has a notable influence on the participants’ emotions and actions. Thus, engaging in discourse with the learner’s personal environment was a vital aspect to exchange experiences, challenge personal and distinct assumptions. Consequently, it could either be a factor of motivation for the learner or constitute a constraint in further action or thought. Likewise, feedback from the learner’s social environment can have similar effects.	Exchange/ Discourse	Constraint	“Kompromissbereitschaft von sozialer Umgebung war geringer als gedacht“ (DS, 003, 5.2.)
			Motivation	“[...] weist mich auf Klimatarier hin. Sehr nützliches Tool.“ (DE, 007, Day 7) “gemeinsames Kochen -> Spaß & Erfahrungsaustausch“ (DS, 027, 4.2.)
		Feedback	Constraint	“Freunde reagieren abwertender auf Ernährungsansätze als Eltern“ (DE, 029, Day 6)
			Motivation	“viel Lob erhalten“ (DS, 016, 4.5.) “Fam. hat sich über erledigte Hausarbeit gefreut“ (DS, 018, 5.5.)
Research Process	The Research Process was integral to the SE, in order to get involved with the chosen area of interest. Research included for example looking for plastic alternatives or informing oneself about meditation practices. The involvement with the topic could further encompass other activities, such as visiting places concerned with the topic.	Involvement		“research of plastic free alternatives for food products, cosmetics...” (DS, 005, 3.3.) “Auseinandersetzung mit regionalen & unverarbeiteten Produkten.“ (DS, 029, 1.2.) “1 Besuch in buddhist. Zentrum für Anfänger-Meditation“ (DS, 006, 3.2.)
Evaluation	Evaluation is mostly integral to the Reflection Process.	Qualitative		“Tagebuch... was fällt schwer/leicht?“ (DS, 003, 2.4.)

	<p>It can be differentiated between qualitative (e.g. journaling, feedback) as well as quantitative (e.g. CO2 tests, documenting waste) tools.</p> <p>Evaluation also helped learners to assess the feasibility of the experiment in order to judge the overall experience.</p> <p>Depending on whether or not the experiment was feasible, feelings of overpowering or achievement could be identified, which influences how participants view things after the experiment.</p>			<p>“Austausch mit Anderen, Veränderung v. persönlichem Umfeld & Kontakt mit Umfeld“ (DS, 006, 2.4.)</p>
		Quantitative		<p>“Aus den Daten persönliche Schlüsse ziehen“ (DS, 008, 2.4.)</p> <p>“gefährte km / eingespartes CO2 reparierte Fahrräder“ (DS, 019, 2.3.)</p>
		Feasibility of Experiment	Overpowering	<p>“Unwille weiter so streng durchzuhalten (Warum soll ich das eigentlich machen?)“ (DE, 009, Day 7)</p> <p>“30 Minuten täglich Meditation am Anfang zu viel“ (DS, 006, 6.2.)</p>
Achievement	<p>“Really satisfied for the achievement, and happy to see that with a small effort, everyone can make a big difference!” (DE, 002, Day 14) [also: Self-Efficacy]</p> <p>“Durchhaltevermögen (Erfolgsenerlebnis/Stolz)” (DS, 029, 6.4.)</p>			
Emotions	<p>Emotions influence the participants’ processes, their learning and ultimately, what they take out of the experiment.</p> <p>It can be differentiated between Challenges and Chances, whereas Challenges constitute both mental barriers and practical challenges.</p>	Challenges	Mental Barriers	<p>“Also täglich kalt duschen könnte ich niemals.“ (DE, 019, Day 14)</p> <p>“Bei Regen das Rad zu nehmen“ (DS, 019, 4.3.)</p> <p>“Sich von Dingen trennen” (DS, 020, 4.3.)</p>
			Practical	<p>“Kleidung selber Nähen erfordert viele Ressourcen [...] Kleidung Upcyclen bedarf mehr Erfahrung [...]“ (DS, 031, 5.2.)</p> <p>“Beschaffen von Altgeräten“ (DS, 015, 4.3.)</p>
	Chances here are associated with positive emotions, which increasingly varied, due to the diversity of the experiments.	Chances		<p>“persönlich habe ich an Lebensqualität nicht eingebüßt durch die Einschränkungen [...]“ (DS, 007, 6.4.)</p> <p>“Urlaub war deutlich besser genießbar“ (DS, 013, 4.3.)</p>

Goal Setting	Goals were set at the beginning of the SE and were of either practical or mental manner. Practical goals included for example the reduction of plastic waste, whereas mental goals were concerned with themes like self-consciousness and increased awareness. It served as a means to evaluate the experience in the end.	Practical	<p>“Wir wollen... Lebensmittel plastikfrei einkaufen“ (DS, 003, 1.2.)</p> <p>“Alle anfallenden Wege mit dem Fahrrad zurücklegen“ (DS, 019, 1.2.)</p>
		Mental	<p>“Ge-Meinwohl durch Nachhaltigkeit verbessern“ (DS, 016, 1.2.)</p> <p>“Awareness of the current impact that plastic has.” (DS, 002, 2.1.)</p>

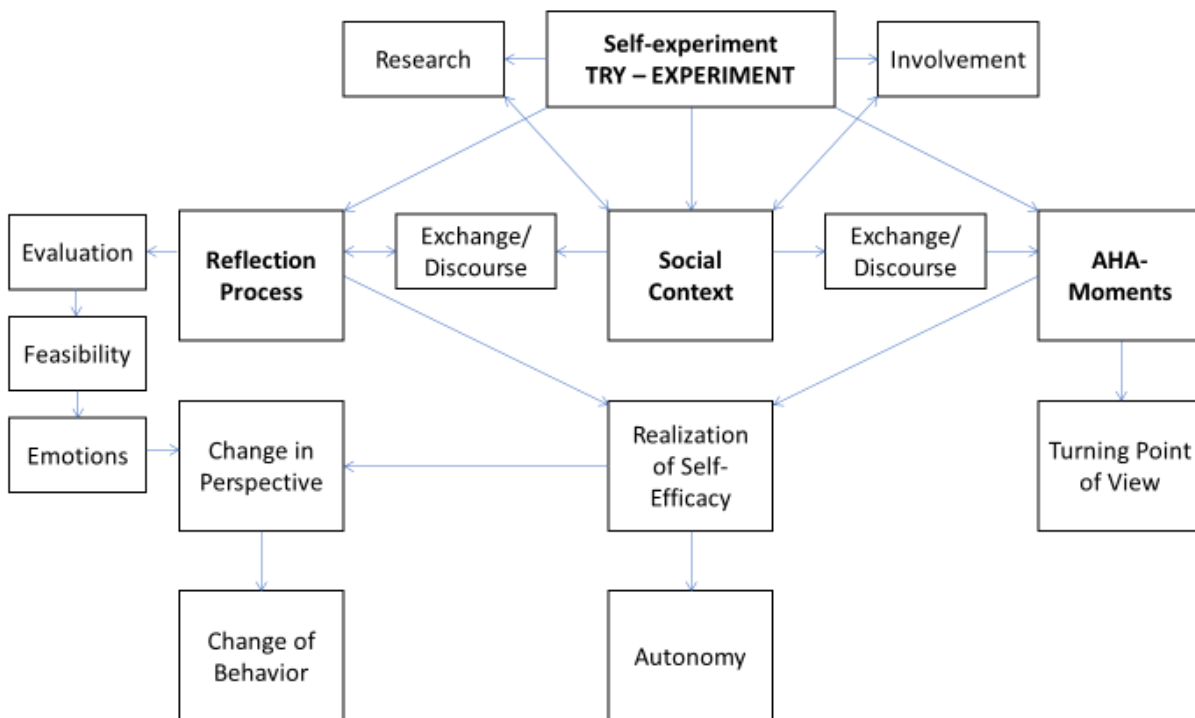
9.4. Consolidated Coding Table Interviews

Categories	Explanation	Sub-categories		Anchor Examples
Reflection Process	See Appendix 9.3.	Change of Perspective	Realization of Self-Efficacy	<p>“[...] gedacht, dass ich nich so viel alleine überhaupt dazu beitragen kann [...] ich find schon, dass mir das DOLL gezeigt hat, dass man auch als einzelne Person schon extrem viel ehm machen kann.“ (I3, ll. 202-210)</p> <p>(see also I1, ll. 143-144; I2, ll. 66-68; I3, ll. 86-90, 106-115)</p>
		Change of Behavior		<p>“[...] und ich hab auch ehm ewig halt lang so Plastikflaschen benutzt [...] dann hab ich mir jetzt quasi so ne Dauerflasche gekauft [...]“ (I3, ll. 125-131)</p> <p>(see also I1, ll. 105-106; I2, ll. 31-36, 59-64; I3, ll. 83-86, 156-159)</p>
		Long-term Effects		<p>“[...] dadurch hab ich auch mehr beibehalten so ungefähr, weil zum Beispiel was ich davor immer gemacht hab sind halt so Aufbackbrötchen in Plastiktüten [...] das hab ich dann danach halt einfach gelassen [...]“ (I1, ll. 17-21)</p> <p>(see also I1, ll. 33-39, 50-56, 95-101; I2, ll. 78-80, 238-242; I3, ll. 64-67, 83-84)</p>
AHA-Moments	See Appendix 9.3.	Realization of Self-Efficacy	Autonomy	<p>“[...] wenn alle Menschen so leben wie ich, brauchen wir anderthalb Erden [...] wo ich dann denke SCHEIßenkleister, HILfe [...] war so mein Auslöser, also warum ich beschlossen hab den Fleischkonsum runterzuschrauben.“ (I2, ll. 260-285)</p> <p>(see also I2, ll. 303-307, 373-380; I3, ll. 280-281, 311-313)</p>
		Turning Point of View		<p>“[...] so en Moment wo ich irgendwie gemerkt hatte was das auch so in welcher Blase ich persönlich uh auch einfach lebe [...]“ (I1, ll. 80-82)</p> <p>(see also I1, ll. 88-95)</p>

Social Context	<p>Different from the DS, there was a strong focus on the tandem dynamics among the interviews. Through the regular exchange, they served as a great source of support.</p> <p>Further, the so-called Spillover Effect was observed in all three interviews in a mutual manner, meaning the participants influenced their social environment and the other way around.</p>	Exchange/ Discourse	Motivation	<p>“[...] dass ich dan nauch Leute hab, die vielleicht sagen können, hey ich hab das schonmal gemacht und hier kannste das machen.“ (I1, ll. 225-227)</p> <p>(see also I1, ll. 136-142, 193-207; I2, ll. 307-309; I3, ll. 255-261)</p>
			Constraint	<p>“[...] dass man dann oft son bissjen so als Gutmensch in Anführungszeichen so rüberkommt und ich hatte das mit Geschwistern teilweise, dass das so en bissjen genervt hat offenbar.“ (I3, ll. 136-139)</p>
			Spillover Effect	<p>“[...] Freunde und Familie auch son bissjen mitbekommen [...] meine Mama da jetzt auch wieder mehr angefangen hat irgendwie Milch vielleicht in Glasflaschen zu kaufen [...]“ (I1, ll. 61-65)</p> <p>(see also I2, ll. 141-143, 225-228; I3, ll. 301-304)</p>
		Tandem Dynamics	Exchange/ Support	<p>“[...] ich glaub es is immer gut, wenn man das nich alleine macht [...] die genau die gleichen Probleme haben am Anfang, dann ist das natürlich voll hilfreich [...] auch Tipps gegeben gegenseitig [...] also vor allen Dingen mit meiner Teampartnerin und das war echt gut.“ (I3, ll. 245-255)</p> <p>(see also I1, ll. 245-250; I3, ll. 175-181)</p>
Research Process		Involvement	<p>“[...] und hab mich damit SEHR intensiv auseinandergesetzt und das eh war auf jeden Fall schon en riesen [...] Sprung halt direkt [...]“ (I3, ll. 181-184)</p> <p>(see also I2, ll. 49-53 ; I3, ll. 83-86)</p>	
Evaluation	<p>Given that the interviews were conducted a year later, the evaluation of the experiment in this case rests heavily on the feasibility of the experiment/the practices implemented.</p>	Feasibility of Experiment	Overpowering	<p>“[...] auch mal anstrengend und emotional wo man sich denkt, man kann auch irgendwie nich genug machen und es ist alles nich genug [...]“ (I3, ll. 286-288)</p> <p>(see also I1, ll. 114-117; I3, ll. 15-18, 47-49)</p>
			Achievement	<p>“[...] HEY ich kann auch in zwei Wochen was ändern [...]“ (I1, ll. 54-55)</p> <p>(see also I1, ll. 21-22; I2, ll. 103-106)</p>

Emotions	See Appendix 9.3.	Challenges	Mental Barriers	“[...] aber das erscheint mir wirklich aufwendig [...] also da steh ich noch son bisschen vor dieser Hürde so [...]“ (I1, ll. 214-221) (see also I1, ll. 190-192; I2, ll. 150-152, 203-204)
			Time	“[...] und dann hatt ich jetzt halt bis Freitag Klausurenphase und dann war das quasi so ein – Kochen – oh Shit [...] weil das halt am schnellsten geht [...]“ (I3, ll. 324-329) (see also I3, ll. 17-18, 43, 49, 112-113)
		Chances	“[...] weil es is hat auch einfach Spaß gemacht [...]“ (I1, ll. 142-143) (see also I1, ll. 40-42, 72-76; I2, ll. 53-57, 179-184)	

9.5. Core Categories & Relationships



9.6. Transcripts²¹

9.6.1. Interviewee 1

9.6.2. Interviewee 2

9.6.3. Interviewee 3

²¹ Due to data privacy, this part of the appendix cannot be made available here.

9.7. Context Workshop „Nachhaltigkeit im Selbstexperiment“²²

²² Due to data privacy, this part of the appendix cannot be made available here.