Lighting a fire of change?

Characterizing the learning process in a German non-formal education for sustainability network and examining the outcomes

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A thesis submitted in partial fulfillment of the requirements of Lund University International Master's Programme in Environmental Studies and Sustainability Science

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[1] This is my composition of the verbs "to feel", "to think" and "to experience".

Short and simple

Education for sustainability (EfS) has been regarded a promising approach for solving sustainability challenges. Results have been unsatisfying due to a knowledge-dissemination focus in the formal sector. Reasons are economic and political interests shaping formal education. Therefore, hopes are placed in the non-formal sector to close this knowledge-to-action gap.

In this case study, I aim to understand how JUBiTh (Youth Environmental Education Thüringen) as a German non-formal EfS network understands and implements EfS, how the learning process is characterized from the perspective of students and facilitators and whether workshops enable youth to become agents of change. The theoretical framework comprises comprehensive learning theories and concepts, including cognition, emotions, facilitation, systems thinking, action and creation, social learning and critical global citizenship education. The methodological basis is participant observation, complemented by informal conversations, 10 semi-structured interviews and 4 focus groups.

Results show that JUBiTh adopts an interdisciplinary sustainability understanding in line with the three-pillar model. In the learning process, cognitive aspects are implicit; emotions play an explicitly important role. Systems thinking is regarded as crucial. The more interdisciplinary workshops are; the more systems perspective is visible. "Either-or" categorizations on how people learn best are not helpful. Systems competencies have to be evaluated critically since they reproduce skill drill. Workshops include students' own action and self-directed learning of mainly individual action options. The danger of instrumentalizing described elements or EfS in general to achieve desired pro-environmental behavior remains. Student feedback shows that action after workshops is rare. JUBiTh's contribution is not to produce immediate change agents since workshops are short and change processes take time. At best, JUBiTh achieves higher awareness with some students which might lead to future action. JUBiTh gives students a space for opinion and emotion building and exchange with peers regardless of facilitators' viewpoint, performance measurement and school hierarchies. Facilitators place this achievement above the workshop content. JUBiTh has potential to provide more critical EfS and to reflect critically on action options' focus on individual sustainable consumption. Systems constraints due to a focus on school activities limit their achievements. Nonetheless, workshops are meeting places where new pedagogical modes are tested and authoritarian school structures challenged. JUBiTh has potential to build a niche for change together with other EfS networks and to initiate a societal dialogue on visions for education and society as a whole. In all aspects of learning, contradictions have to be accepted to allow for more tolerance.

Keywords: education for sustainability, non-formal, self-directed learning, learning process, agent of change, Germany

Word count: 13,991

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"Education is not the filling of a pail, but the lighting of a fire."
(William Butler Yeats)

1 8:30[2] - Introduction

Good morning everyone and thank you for joining. I am a JUBiTh – Youth Environmental Education Thüringen – representative and we are a non-formal network providing education for sustainability (EfS) in schools and youth centers. JUBiTh's aim is not to transfer knowledge, but to discover with youth individual and societal possibilities of active participation. During the last months, I have been working on a project called "Exploring JUBiTh's fairytale", which I share with you today. Before starting, we play the snowball game to get to know each other better.

Now that we know what we ate for breakfast this morning, I will shed light on "sustainability" and sketch the aims of EfS. Sustainability is defined as intra-generational (spatial) and inter-generational (temporal) equity (Sund, forthcoming as quoted in Kopnina & Cherniak, 2016; Muraca, 2012). Bonnett (2002) names two motivations for EfS. The first one is to promote pro-environmental behavior according to predefined standards (Bonnett, 2002). Gugerli-Dolder & Frischknecht-Tobler (2011) argue that long-standing habits inhibit pro-environmental behavior. Thus, they advocate for starting early (Gugerli-Dolder & Frischknecht-Tobler, 2011). The second motivation is to develop students' critical ability (Bonnett, 2002). This story will address both. However, it is not enough to address students. According to Sterling & Huckle (1996), education is part of the problem - educating for a world that cannot be sustained - and the solution. In order to fulfill its promise as agent of change, it has to be a subject of change (Sterling & Huckle, 1996; Danielzik & Flechtker, 2012).

Now, we will have a brief look at the history of EfS and clarify its meaning. Sterling & Huckle (1996) define three challenges for EfS, which I elaborate on in this thesis. The first challenge is to clarify its definition (Sterling & Huckle, 1996). Environmental Education (EE) marked the start and assumes the perspective of the natural environment (Spahiu & Lindemann-Matthies, 2015; Chawla & Cushing, 2007). Based on the UN's decade of Education for Sustainable Development (ESD), this approach has gained widespread attention (Dahms, Mcmartin, & Petry, 2008; Ireland & Monroe, 2015). ESD is more human-centered and stresses social justice, capacity-building, politics and culture (Spahiu & Lindemann-Matthies, 2015; Abramovich & Loria, 2015). Some authors replace ESD by EfS, referring to the same content (Tomas, Girgenti, & Jackson, 2015). Later, I elaborate on my understanding of the term.

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[2] These mirror the time structure in a workshop day.

Since JUBiTh is a non-formal education project, I sketch the differences between the formal, non-formal and informal sector. This justifies the relevance of education in the non-formal sector. Formal education is the hierarchical, state-designed system with performance measurement and certificates (Brennan, 1997; Schugurensky, 2000). Non-formal education comprises organized educational activities outside the formal sector (Brennan, 1997), which often do not require previous knowledge and sometimes certify learning (Schugurensky, 2000). I chose a non-formal EfS network due to the criticism of the formal education system, which I will elaborate on now.

Fasten your seatbelts, we're entering bumpy roads. The second challenge is criticizing the current, especially formal, education (for unsustainability) system (Sterling & Huckle, 1996; Stables & Scott, 2001; Danielzik & Flechtker, 2012; Legros & Delplanque, 2014; Eisenberg, 2006). According to Sterling & Huckle (1996), EfS can be sub-divided into education about, in and for sustainability. Conventional EfS research focuses on "education about", measuring what learners know (Weston, 1996; Spahiu & Lindemann-Matthies, 2015; Langfitt, Haselbach, & Hougham, 2015). It defines a set of knowledge students should acquire regardless of their interests (Weston, 1996). The mindset of education as accumulation is an evidence for Fromm's (1976) diagnosis of today's society being more oriented on "having" (e.g. degrees) instead of "being" (e.g. learning as a process). I question whether knowledge accumulation is sufficient for solving sustainability issues. If not, it could be favorable to redefine our current understanding of learning. "Education in" focuses on outdoor education (Owens, Sotoudehnia, & Erickson-McGee, 2015; Jørgensen, 2015; Maynard, Waters, & Clement, 2013) and is not relevant for this work. I will address "education for" later in this chapter.

This section addresses further critical aspects in formal education. One is the influence of global market systems on education (Samuelsson & Hägglund, 2009). Political, academic and corporate interests determine what good learning is and instrumentalize education for their purposes (Blewitt, 2010; Lapayese, 2003). Thus, the education system reproduces oppressive structures (Eisenberg, 2006; Danielzik & Flechtker, 2012). Other issues are fragmentation into subjects, which hinders transdisciplinary sustainability thinking (Zoller, 2015). Decontextualized and abstract knowledge dissemination is in the focus (Zoller, 2015). Last but not least, instrumental rationality is seen as only valid way of knowledge, personal and community knowledges are underrated and utilitarian and anthropocentric values are placed in the center (Sterling & Huckle, 1996).

Is there light at the end of the tunnel? Now, let's debate whether and how the non-formal sector can overcome this criticism. Due to the formal sector's constraints, many claim that the aspired change in EfS is unlikely to happen in this sector. According to Blewitt (2010), learning must be rooted in the experience of living. The best learning process happens without hierarchies and restrictions imposed

by formal education (Illich, 1985). Ideally, it is lifelong and life-wide (Illich, 1985; Weston, 1996). According to Grimm, Mrosek, Martinsohn, & Schulte (2011), advantages of non-formal education are less hierarchies, voluntary participation and the possibility to apply innovative methods. This allows education to be more learner-centered and oriented towards practical knowledge. We will see whether these characteristics describe JUBiTh well.

On the rocky path to a new EfS approach, the third challenge suggests alternative pedagogical modes. Many scholars focus on educational methods, including games (Schulze et al., 2015), tool kits to prevent frontal teaching (Spahiu & Lindemann-Matthies, 2015) and field trips (Owens et al., 2015). Based on the trouble with the current ESD approach and the (formal) education system, Sterling & Huckle (1996) advocate for a new sustainability paradigm in education. Blewitt (2010) argues that sustainability learning's task is to politically erode the cultural domination of neoliberal perspectives on education and learning. Based on the above-mentioned criticism of "education about", focusing on knowledge transfer or awareness raising, Sterling (2004) proposes the concept of EfS (education for sustainability), which emphasizes learning for change, critical and reflective thinking. Since JUBiTh's facilitation fits best to EfS (see Chapter 5.1), I will use this term. Sterling (2004) claims that EfS does not imply adding another topic, but to reorganize current educational thinking and practice. Based on the statement that education needs to be the subject of change, it is necessary to investigate to what extent JUBiTh challenges conventional notions of teaching and learning. I claim that JUBiTh as a non-formal EfS network fills the formal education system's gaps by giving youth a space for more self-directed learning. Also, I claim that they allow youth to assume a different social role than in a formal school lesson.

There is a wide array of literature on EfS in the formal higher, secondary and primary education sector (see Introduction). However, few researchers tell the German non-formal EfS story (e.g. Grimm, Mrosek, Martinsohn, & Schulte, 2011, evaluating non-formal forest education programs). Most stories about non-formal initiatives focus on other countries and some don't refer to EfS (e.g. Auladi, 2013 for Indonesia; La Belle, 2000 for Latin America; Nath, Sylva, & Grimes, 1999 for Bangladesh).[3]

1.1 Aim and research questions

What's all this for? This journey's aim is to shed light on JUBiTh's work from a transdisciplinary sustainability science perspective, establishing a tighter link between educational and sustainability science. Another aim is to understand how JUBiTh provides EfS to youth in Germany. For this

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[3] LaBelle (2000) sketches the history of non-formal education programs in Latin America, Auladi (2013) sheds light on the role of education for mangrove conservation and Nath, Sylva, & Grimes (1999) focus on a non-formal education program aiming at improving basic education in Bangladesh.

purpose, I use a variety of learning theories, such as Illeris' (2005) comprehensive theory of learning, Gugerli-Dolder & Frischknecht-Tobler's (2011) Integral Environmental Education theory, Rogers' (1969) as quoted in Laird (2003) facilitation theory, Jordan, Carlile & Stack's (2008) social learning theory and Andreotti's (2006) and Lapayese's (2003) critical global citizenship education framework. My research questions are as follows:

RQ1: How does JUBiTh understand EfS and how do they implement it in practice in terms of content?

RQ2: How is the learning process in JUBiTh seminars characterized from the perspective of both facilitators and students?

RQ3: Can education for sustainability in JUBiTh enable youth to become agents of change?

1.2 Limitations

Literature stresses the importance of families for youth's learning (Durlak, Weissberg, Dymnicki, Taylor & Schellinger, 2011). Due to the limited scope, I did not address this aspect. Also, a synthesis of where theories fall short to enlighten the case would have complemented this thesis. I leave these aspects as recommendations for further research (see Chapter 6 for additional recommendations).

1.3 Storyline

After having introduced topic and research questions, I present my theoretical framework and methodology. Afterwards, I elaborate on the stories heard, analyze and discuss them. At the end, I point out to constraints and opportunities of JUBiTh's work.

1.4 Contribution to sustainability science

Sustainability science is a multidisciplinary topic addressing nature-society interactions and their effect for solving sustainability challenges (Kates, 2011). In EfS, human beings learn collectively about the complexities of these interactions. Since EfS is believed to have a problem-solving effect, it is time to critically revisit its potential to fulfill this promise. According to Kates et al. (2001), sustainability science moves along scales from local to global, involving different actors in a social learning process. My point of departure is JUBiTh as a local case of a non-formal EfS network, from which I draw conclusions to global processes. I finish with suggestions on how affected actors can collaboratively find solutions for existing challenges in EfS. Before I continue, let's have a short tea break.

2 9:00 - Theoretical framework

2.1 Comprehensive theory of learning

Welcome back with exciting theories. Illeris' (2005) comprehensive theory of learning compiles different learning theories. The constructivist model is in line with my epistemology. It is based on two assumptions, displayed in Fig. 1. First, learning includes the **external interaction** between the **learner** and her **social environment**[4] (Illeris, 2005). Also, it includes the **relationship between learner and facilitator**[5], displayed with arrows in Fig. 1. Second, learning consists of an internal process of **acquisition** and **elaboration**, during which new impulses are linked with previous ones (Illeris, 2005). According to Illeris (2005), learning includes three dimensions (see Fig. 1). The first one is the **cognitive dimension** of knowledge and skills, the second the **emotional dimension** of feelings and motivation and the third the **social dimension** of communication and cooperation (Illeris, 2005).

Illeris' (2005) theory's shortcomings justify adding another theory. Illeris' (2005) does not include any specifics useful for EfS. As mentioned in the introduction, sustainability as a complex and interconnected topic needs alternative approaches. According to Kolb (1984), **students' own action** is crucial for a long-term learning process. Gugerli-Dolder & Frischknecht-Tobler (2011) pick up this aspect (see Fig. 1). Since Gugerli-Dolder & Frischknecht-Tobler (2011) include **systems thinking**, they acknowledge connections to non-human actors (see right part of Fig. 1). This tackles the reproach of education being anthropocentric (see Introduction).

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[4] Illeris (2005) also mentions the cultural and material environment. Since social learning is part of my theoretical framework, I focused on the social environment and left out the other two in order to make the graph more readable.

[5] See relational pedagogy theories, for instance Bergum, 2003; Bingham & Sidorkin, 2010.
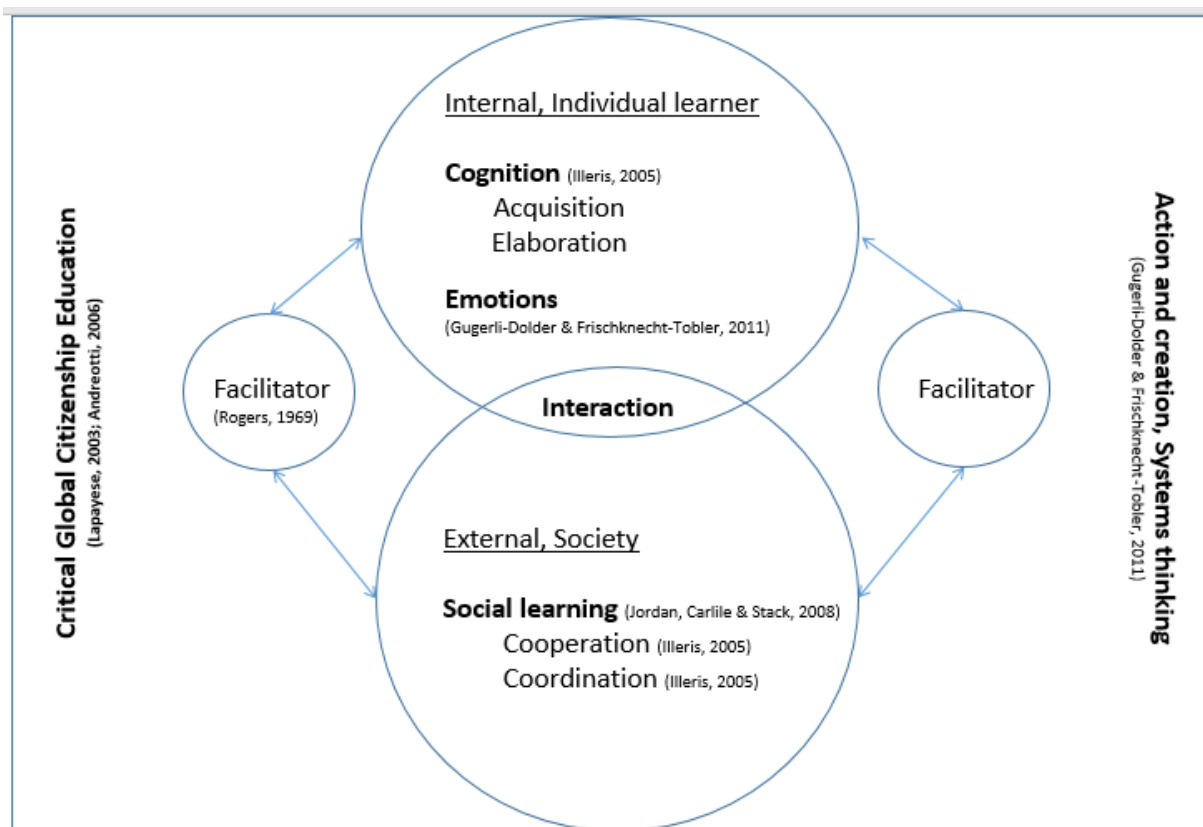
Fig. 1: This figure shows the theoretical framework of students' and facilitators' learning process. Students, facilitators and society are in constant interaction, action and creation, systems thinking and critical global citizenship education frame the process. Source: Own creation based on Illeris (2005), Gugerli-Dolder & Frischknecht-Tobler (2011), Jordan, Carlile & Stack (2008), Rogers (1969) as quoted in Laird (2003), Andreotti (2006) & Lapayese (2003).

2.2 „Integral Environmental Education" concept

Based on the notion that we cannot solve sustainability issues with the same mindset that brought us here (Ravetz, 2006), Gugerli-Dolder & Frischknecht-Tobler's (2011) model addresses cognitive and emotional learning processes. It is based on holistic ethics, trying to bridge the gap between anthropocentrism and eco-centrism (Gugerli-Dolder & Frischknecht-Tobler, 2011). The model consists of four dimensions, three will be used:[6] **Emotions**, **Systems thinking** and **Action and creation** (see Fig. 1).

2.2.1 Emotions

According to Durlak, Weissberg, Dymnicki, Taylor & Schellinger (2011), positive and negative emotions play a crucial role in learning. They are depicted in the upper part of Fig. 1 and enhance or impede learning (Durlak et al., 2011). For this reason, it is important to consider the role of emotions

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[6] Due to the limited scope of this thesis, I left out the fourth dimension, mindfulness, because Gugerli-Dolder & Frischknecht-Tobler (2011) describe it as a touchy issue in E(fs) since literature rarely addresses it outside religious studies. Also, mindfulness was not addressed during fieldwork.

in EfS. Gugerli-Dolder & Frischknecht-Tobler (2011) do not argue for an instrumental use of emotions for educational purposes, but for developing emotions as such (Gugerli-Dolder & Frischknecht-Tobler, 2011). Positive emotions can be experienced during outdoor activities involving all senses or when implementing positive changes (e.g. building solar panels on the school roof) (Gugerli-Dolder & Frischknecht-Tobler, 2011). Acknowledging negative emotions such as fear or sadness regarding environmental problems is a crucial step for overcoming them and finding solutions (Gugerli-Dolder & Frischknecht-Tobler, 2011).

2.2.2 Systems thinking

Systems thinking is located to the right in Fig. 1 and is crucial for understanding sustainability issues. It involves including as many factors of an issue as possible and detecting their interconnectedness (Ireland & Monroe, 2015). We are part of highly complex, interconnected systems which constantly give and receive feedback (Meadows, 2009). The dynamics of self-organizing systems have to be understood (Meadows, 2009). Since linear cause-and-effect thinking will not help to solve complex problems, systems thinking goes beyond (Gugerli-Dolder & Frischknecht-Tobler, 2011; Meadows, 2009). One element is to replace "either-or" by "both-and" thinking, which implies adding new perspectives and dealing with contradictions (Reich, 2004). According to Gugerli-Dolder & Frischknecht-Tobler (2011), necessary competences in systems thinking are system reconstruction, i.e. describing systems including their structures, boundaries, own and others' perspectives and cause-effect relationships. These descriptions are used for prognosis (Gugerli-Dolder & Frischknecht-Tobler, 2011). The authors contradict themselves since they first single out cause-effect relationships and then acknowledge they are necessary to look at. My interpretation is that thinking in cause-effect relationships is necessary as a first step, but it is equally important to move beyond that. Gugerli-Dolder & Frischknecht-Tobler (2011) as teachers argue within "competence-acquisition" structures. They start their monography with a competences definition. Illich (1985) and Weston (1996) criticize this focus on skill acquisition common in "education about". Thus, this skill focus poses one shortcoming to the theory. I will elaborate on this contradiction later on.

2.2.3 Action and creation

The importance of this aspect (see Fig. 1) is stressed by stark discrepancies between knowledge and action (Chawla & Cushing, 2007). The authors relate to meaningful action in school, daily life and community (Gugerli-Dolder & Frischknecht-Tobler, 2011). This stage connects the insights and experiences from the other dimensions (Gugerli-Dolder & Frischknecht-Tobler, 2011). The authors describe three action categories. The first one is use- and investment action, such as recycling, saving resources and sustainable consumption (Gugerli-Dolder & Frischknecht-Tobler, 2011). This part taken

alone is problematic because it focuses only on the individual. The second is political action and systems change, for instance school development processes, stakeholder dialogues or political activities (Gugerli-Dolder & Frischknecht-Tobler, 2011). This aspect is important because it adds the societal-systemic aspect to individual behavior change. The third aspect are actions for a new perspective, for instance solidarity with others in daily life (Gugerli-Dolder & Frischknecht-Tobler, 2011). The solidarity aspect is crucial, also regarding other societal issues such as racism and the current refugee challenge. It is also crucial for sustainability, how can one be solidary with the natural environment, but not care for the community? This would imply using the natural environment for one's own purposes.

2.3 Facilitation theory

Facilitators are displayed in two outer bubbles in Fig. 1.[7] Rogers' (1969) as quoted in Laird (2003) emphasizes learners' personal involvement in and self-evaluation of her learning process. Rogers (1969) as quoted in Laird (2003) also focuses on the relationship between facilitator and learner (see Chapter 2.1). He does not regard the teacher as controlling, but facilitating the learning process. Rogers (1969) as quoted in Laird (2003) indicates that facilitators cling less to their world views, listen better, accept students' ideas, pay as much attention to the facilitator-student relationship as to the course and accept feedback.

Some learning theories are criticized for focusing on the individual. Neither Illeris' (2005) nor Gugerli-Dolder & Frischknecht-Tobler's (2011) nor Rogers' (1969) as quoted in Laird (2003) theories overcome this limitation. For Illeris (2005), internal and external learning processes are equally important. Gugerli-Dolder & Frischknecht-Tobler (2011) imply societal relations in their reference to systems thinking and when stressing the importance of action and creation not only on an individual, but also societal basis. However, they do not make explicit society's influence on human learning. Rogers (1969) as quoted in Laird (2003) leaves out society by focusing on learners' inner development and their relationship with the facilitator. Hence, social learning theory[8] is helpful, consisting of two strands: 1. sociological and 2. psychological theories. This thesis focuses on sociological theories due to the importance of societal structures for sustainability.

2.4 Social learning from a sociological lens

Social learning is displayed in the lowest bubble in Fig. 1. According to Cooley (1909)[9] as quoted in

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[7] This is due to the fact that two facilitators work collaboratively in JUBiTh.
[8] Reed et al. (2010) criticize social learning for being ill-defined. As will be elaborated in this paragraph, my focus is on peer learning and the theory's educational implications.
[9] I am aware that this source is outdated, but according to Jordan et al. (2008), the US sociologist Cooley was

Jordan, Carlile & Stack (2008), three groups influence human behavior and learning: family, peers and community. Since peer learning is JUBiTh's method, peers are considered most important here. For teenagers, peers are influential in developing status, roles and identity (Jordan et al., 2008; Meighan, Harber, Barton, & Siraj-Blatchford, 2007). According to Hargreaves (1967) as quoted in Jordan, Carlile & Stack (2008) and Meighan et al. (2007), being a part of the peer group is more important than adopting educational values. According to Jordan et al., (2008), peer groups challenge individual opinions by providing other perspectives. Peer learning and group work also have a motivational effect, which leads to deeper meaning-making than individual learning (Gabriele & Montecinos, 2001).

Jordan et al. (2008) name educational implications of social learning from a sociological lens. The first one is to identify social norms by looking for examples (Jordan et al., 2008). The second step is to transmit these norms by raising consciousness about environmental issues, nurturing respectful behavior and rooting discussions on mutual social values (Jordan et al., 2008). The last aspect is crucial, since raising consciousness is not enough (Kollmuss & Agyeman, 2010). The learner needs to be prepared to take on an active role in society. She should not be seen as a wax figure shaped by the teacher, but as a person with an own brain and mind who constructs learning based on experience. Regarding peer groups, they recommend teachers to small-group learning and encourage students to join social clubs (Jordan et al., 2008).

Literature indicates that youth is rarely asked about their perceptions of the social world (Meighan et al., 2007; Morrow & Richards, 2007). The literature I refer to in the first two chapters confirms this claim. Despite the described importance of peer groups and the influence young people have on each other, few studies research on youth's impressions of EfS[10] and who they learn most from. If youth is involved, their knowledge and skills are measured. Based on this gap, this study takes into account student, facilitator and teacher perspectives.

2.5 Critical global citizenship education

Is all this unproblematic? No! A group of teachers from Latin America rejected conventional EfS and demanded a more critical concept (Guimarães & Sato, 2005). I use Lapayese's (2003) and Andreotti's (2006) critical global citizenship education concept to shed light on how critical JUBiTh's concepts are towards global injustices. Critical global citizenship education is based on the idea that education provides a space for students and teachers to discuss their world views on issues of justice and equity

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the first researcher distinguishing these groups. I decided to rate correct attribution higher than a contemporary source.

[10] Morrow & Richards (2007) and Meighan et al. (2007) confirm this finding for the education system in general.

(Lapayese, 2003; Andreotti, 2006). It asks how to address economic and cultural roots of power inequalities (Andreotti, 2006) and presents an alternative to traditional schooling. However, it remains contested, since it is in danger of being instrumentalized by the curriculum (Lapayese, 2003). "Critical" distinguishes the concept from mainstream global citizenship education, which reinforce dominant discourses instead of challenging them (Lapayese, 2003). Andreotti (2006) argues that critical literacy does not convey a truth, but provides students with a space to reflect.

You might wonder how this fits the rest of my work. Sustainability implies questioning global power structures creating an unjust society (Martínez-Alier, Pascual, Vivien, & Zaccai, 2010; Martínez-Alier, 2012). The framework suggests dealing with contradictions (see Chapter 2.2.2). Any genuine work on education should deal with the dilemma mentioned previously, education being both part of the problem and the solution (Sterling, 1996). This theory points out to the contradiction instead of trying to resolve it. Andreotti's (2006) argument builds on postcolonial theorists. Since we're already looking forward to lunchtime, I will not delve deeper into these roots. Rather, I apply this theory to JUBiTh's work.

Tired after so many theories? Let's mirror a workshop and continue with group work. Group Sun will research on Thüringen's education system, Group Moon on JUBiTh.

3 10:00 - Introduction to the case

3.1 Thüringen's educational context

Group Sun, what did you find? Group: "We knew that JUBiTh targets youth in different educational settings, including youth centers, vocational, middle and high schools. Now we read that despite efforts to establish a nation-wide frame of reference, education in Germany still lies within the responsibility of each federal state (Erk, 2003). The federal government defines school types and curriculum contents. Each setting has to fulfill their own educational goals specified in the curriculum. Since JUBiTh operates in the federal state of Thüringen, only their educational system is relevant. Children have the opportunity to go to a Gemeinschaftsschule (common school, grades 1-12), where students learn together until grade 8 (Thüringer Ministerium für Bildung Jugend und Sport [Thüringen's Ministry of Education Youth and Sports], 2016). The idea is to attenuate the criticism of other school types which sub-classify students after only four years of primary school according to intellectual performance. If students attend four-year primary school, they can continue with Gymnasium (high school, grade 5-12), Regelschule (grade 5-9 or 10, different degrees depending on when they take the final exam) or Gesamtschule (grades 5-9/10 or 13) (Thüringer Ministerium für Bildung Jugend und Sport [Thüringen's Ministry of Education Youth and Sports], 2016). Regelschule, Gesamtschule and Gymnasium provide the option to graduate earlier with a lower degree or to continue schooling to get a higher degree. Students with special pedagogical needs have the opportunity to go to a special support school called Förderschule (Thüringer Ministerium für Bildung Jugend und Sport [Thüringen's Ministry of Education Youth and Sports], 2016)."

3.2 JUBiTh

Group Moon, it's your turn. Group: "According to their website, the Network for Youth Environmental Education Thüringen (JUBiTh) introduces sustainability topics to youth aged 14 to 18 (Arbeit und Leben Thüringen e.V., 2015) in all school types mentioned in Chapter 3.1. Since workshops often take place with younger or older groups, the real target group age varies from 10 to 22 years. Participants of special support programs are sometimes older (25 to roughly 40) (Thomas, personal communication, 16.03.2016)."[11]

Good! Regarding topics, JUBiTh covers, among others, climate change, sustainable clothing, sustainable nutrition, world trade – fair trade, ecological footprint, cellphone, climate-induced migration and happiness and consumption (Arbeit und Leben Thüringen e.V., 2015). In addition to the aim stated before, JUBiTh intends to motivate youth to find out how to live sustainably in a globalized

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[11] Since the target group during my fieldwork was between 10 and 18 years old, I refer to "youth" in this thesis, being aware that JUBiTh occasionally addresses older groups.

world because they see this knowledge as a basis for action (Arbeit und Leben Thüringen e.V., 2015). Methods are action-oriented and intend to show youth the impacts of their actions on society (Arbeit und Leben Thüringen e.V., 2015).

Regarding the motivation for researching with JUBiTh[12], I selected Germany since children or adolescents as research partners make mastering the local language crucial, unless the site is an international school. Also, DeWalt & DeWalt (2011) name local language knowledge as a criterion for genuine participant observation. After a preliminary literature review, I singled out a formal sector case due to its limitations (see Introduction) and decided for a non-formal project. I chose JUBiTh because their aims fit to my first research hunch and first RQ ideas. A friend recommended me JUBiTh because she knew the coordinator and I figured that the first contact would be easier having a common friend. I assumed that the coordinator's cooperation was a crucial precondition for becoming an insider (see Chapter 4 for further explanation), which was confirmed throughout the process.

After so much work, let's enjoy fika!

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[12] See Chapter 4 and Appendix D for more tales regarding case selection process.

4 10:30 - Methodology

4.1 Ontological and epistemological considerations

Before continuing with some philosophy, we will play the game "Pillow Race". Awake again? My ontological basis is constructivism (Bryman, 2008). According to constructivists, social phenomena are created and constantly revised through social interactions. Bryman (2008) points out that constructivism is increasingly regarded as an epistemology, trying to explain how knowledge about the social world is created (e.g. Ultanir, 2012). I follow Bryman's (2008) understanding of constructivism as an ontological position.

My epistemological approach is interpretivism (Bryman, 2008). This notion was introduced as a contrast to positivism (Bryman, 2008). Since social reality consists of meaningful actions, the researchers' task is to gain access to people's thinking and interpret their lifeworld from their perspective (Bryman, 2008).

4.2 Research design

4.2.1 Research strategy

My research strategy is an explanatory single case study (Yin, 2003), with JUBiTh and their activities as unit of analysis. Thus, it is a case of a non-formal EfS network. I chose a case study because my aim was to conduct an intensive analysis of a real-world setting, such as a group or organization (Bryman, 2012; Yin, 2003). According to Yin (2003), an explanatory case is apt for "How" and "Why" questions. Yin (2003) stresses the importance of justifying the choice of a single case. As will be elaborated on later, my methodology required me to become an insider in the setting to increase the study's validity. Due to time constraints, it would not have been feasible to become an insider in two settings. Since this factor was crucial to address methodological limitations, I chose to study one setting very intensively instead of two in a shallow way.

4.2.2 Introduction to methodology

My methodology is micro-participant observation (Jorgensen, 1989). According to Jorgensen (1989), participant observation allows the researcher to learn about processes, relationships and organization among people and events. This fits both my epistemological stance and my involvement with JUBiTh. I observed their workshops and collaborated partly in the facilitation process. Jorgensen (1989) states that the methodology is especially apt for phenomena about which little is known, such as newly formed groups. Since JUBiTh was founded in 2007, it is not that new anymore. However, this thesis is only the second academic work written on the network and the first one from a

sustainability science angle.[13] According to Bryman (2008), the distinction between participant observation and ethnography is not clear-cut. I selected the term participant observation because according to Bryman (2008), ethnography usually means spending a long time in the field. This is rarely possible within the scope of a master's thesis (Bryman, 2008). I spent six weeks in the field, from the beginning of February through mid-March. This short time frame justifies naming my methodology micro-participant observation.[14] Also, I do not use ethnographic writing (Bryman, 2008), which makes my research fit better to participant observation. My research fulfills DeWalt & DeWalt's (2011) criteria for participant observation, i.e. participating in an array of regular activities, knowing the local language and using informal conversations as one interview technique.

4.2.3 Methodology limitations

Participant observation has several shortcomings. One is the danger of "going native", i.e. losing sense of the researcher position when being immersed in a setting (Bryman, 2008). DeWalt & DeWalt (2011) state that participant observation is an oxymoron due to the tension between trying to understand people's viewpoint and going native and between personal involvement and scientific detachment. Hence, the researcher should constantly reflect on her role (DeWalt & DeWalt, 2011). If this is done, the tension can be embraced instead of being seen as a limitation. As elaborated in the theory section, "either-or" thinking should be challenged. This thinking also applies to methodology. A critical reader might question my methodology since my findings partly rely on interviews. According to Bryman (2008) and DeWalt & DeWalt (2011), participant observers frequently conduct interviews during their research. I realized that observations answer "What?" and "How?" questions, but interviews are needed to construct answers for "Why?" questions. Thus, observations are implicit in the results because they form the basis the interviews build upon. I address further justifications and limitations later in this chapter.

4.2.4 Research methods

Participant observation

According to McNeill & Chapman (2005), in participant observation, the researcher gains insights from within instead of only from outside (unlike surveys and interviews). She observes and engages in informal conversations and interviews with participants within the natural setting of the research (McNeill & Chapman, 2005). I participated and observed in three JUBiTh workshops in two different settings, in a team meeting and in a workshop for facilitators. The researcher has to be aware of the

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[13] The first one is a psychology master's thesis (Walsch, 2014). She evaluated one workshop on "Sustainable nutrition" using quantitative methods.

[14] Bryman (2008) suggests to use the term micro-ethnography for master's thesis projects due to limited research time. Since this limitation applies to my research, I adopt this suggestion.

degree of participation (DeWalt & DeWalt, 2011). During the two workshop days in a youth center, I was an active participant (DeWalt & DeWalt, 2011) because I also led activities. As recommended by Jorgensen (1989), my first two workshop day observations were unstructured. They allowed me to familiarize myself with the project and to pre-evaluate my research questions. During the last two school workshops, I was a moderate participant. According to DeWalt & DeWalt (2011), classroom participation is often moderate participation. The researcher is part of the setting, but mainly observes and does not take part in all activities (DeWalt & DeWalt, 2011). I answered student questions and led one group during an activity, but otherwise mainly observed. Based on the first unstructured observations, I observed more specific phenomena with the help of an observation sheet (see Appendix B). At the team meeting, I was a moderate and during the facilitator workshop an active participant. I recorded observations in my fieldwork journal and transcribed them electronically afterwards (see Appendix G for an excerpt from observation notes).

Semi-structured individual and group interviews

As mentioned before, semi-structured interviews complement observations (Jorgensen, 1989). The reason is arising questions during observations which are best clarified in spoken interaction (Jorgensen, 1989). Fitting to my epistemological stance, I regard interviews as tools which allow to describe the project's lifeworld and require me to remain open towards my research partners' experience (Kvale, 2007). I conducted 10 semi-structured interviews with 11 people, which lasted from 15 minutes to one hour and 40 minutes. One group interview with two facilitators was conducted for practical reasons because they lived together. I audio-recorded most interviews and transcribed all of them afterwards (see Appendix F for an excerpt from interview transcripts).

Informal conversations

According to DeWalt & DeWalt (2011), informal conversations are common in participant observation since they allow the researcher to be part of naturally unfolding activities and to understand them from participants' viewpoint. I recorded all informal conversations relevant for the research in my journal.

Focus groups

During fieldwork, I decided to conduct focus group research with school students. The motivation for focus groups instead of individual interviews was of a practical character. Students had to be consulted during school lessons or breaks. Since teachers were under time pressure due to curriculum demands, they did not spare more than 15 min lesson time. School breaks are between 15 and 30 min long. Thus, there is not enough time to interview several students individually. After a long school day, I assumed students would be too tired to talk to me and obliged to go home. Since

students experienced JUBiTh seminars together with their peers and peers are important for them, I found it relevant to let them share experiences in a group. Also, exclusion issues could have arisen when selecting students for individual interviews (Greig, Taylor, & MacKay, 2007). I did not recruit students myself. The teachers recruited depending on who got parental consent to participate. According to Stewart, Shamdasani, & Rook (2007), a focus group usually consists of 8-12 participants. The amount of participants in my research depended on teachers' recruitment and class size. I conducted four focus group interviews in three different schools. The first group consisted of five, the other three between 17 and 21 students. Each focus group session lasted between 15 and 20 min. The short duration poses a limitation to my focus group research, since focus groups usually last 1.5 to 2.5 hours (Stewart et al., 2007).

Fieldwork journal

A fieldwork journal is a crucial tool for participant observers since it allows documenting details regarding space, participants, interactions etc. (DeWalt & DeWalt, 2011). As suggested by Jorgensen (1989), I recorded observations with greater attention to detail at the beginning and focused on more specific phenomena later (see Appendix G for observation notes and Appendix H for other journal excerpts).

4.3 Sampling strategy

According to Bryman (2008), most qualitative researchers use purposive sampling, i.e. selecting the most suitable case for answering the research questions. As elaborated in Chapter 3.2, I applied purposive sampling for selecting my case. During fieldwork, most participant observers use a mix of snowball (an example for purposive sampling) and convenience sampling (Bryman, 2008). I also followed this strategy. With snowball sampling, the researcher asks key stakeholders for recommendations on further interview partners (Bryman, 2008). After identifying key stakeholder groups, i.e. coordinators, facilitators, school teachers and students, I asked the coordinator to recommend me facilitators potentially interested in sharing their experience. For identifying school teachers and students, I had to use convenience sampling because I couldn't predict teacher disposition and principal consent to participate in the research.

4.4 Ethical considerations

Ethical challenges emerge during all kinds of research involving living beings (Bryman, 2008; Jorgensen, 1989). Special attention has to be paid to research ethics when researching with minors (Greig, Taylor, & MacKay, 2007). According to Greig, Taylor, & MacKay (2007), parents are mostly gatekeepers for research with children and have to be asked for permission. When inquiring with the JUBiTh coordinator on ethical guidelines, he confirmed this procedure. Thus, I sent out a parental

consent form (see Appendix C) to teachers before conducting interviews with school students. On interview day, most students brought the signed consent to school. During the interview, I only took notes of student answers who had handed in the consent form. Since the consent form did not include permission for audio records, I took paper notes during student focus group sessions.

As recommended by DeWalt & DeWalt (2011), I gathered facilitators' and teachers' informed consent before observing and informed all participants beforehand about my role as a researcher. For interviews, I followed Lund University's (2005) and Bryman's (2008) ethical guidelines. I informed my interview partners beforehand about interview purpose and rough content, their anonymity and data protection measures, asked for consent to audio-record the interview and informed about the option to give consent to direct and indirect citations before publication. During the writing process, I sent citations via email to all cited research partners asking for consent and amended or eliminated statements I did not get consent on. This applies to statements from both interviews and observations. I ensure confidentiality by using pseudonyms for all research partners and places (see Appendix E for information on research partners).

4.5 Validity and reliability

Jorgensen (1989) argues that participant observation results in highly valid concepts, since it allows the researcher to test to what extent concepts reflect everyday life meaning. The issue is whether the researcher has been able to gain access to the insiders' world (Jorgensen, 1989). Since I have been a part of the JUBiTh team, I have not been treated as a researcher, but as a fellow team member. Thus, I claim to have become a part of the insiders' world. After the fieldwork, my name has remained in the internal mailing list and I have been encouraged to facilitate workshops when I'm in the area. Jorgensen (1989) adds that in order to enhance validity, the researcher has to construct various forms of evidence. Since I used five different research methods (including literature review), I believe to have fulfilled this criterion.

Jorgensen (1989) states that reliability in participant observation is oftentimes questioned. Reliability refers to whether the same result can be reproduced when another researcher replicates exactly the same research procedure (Jorgensen, 1989). It is claimed that this is difficult with non-quantitative methods since researchers adapt them to context, specific questions and changing conditions (Jorgensen, 1989; DeWalt & DeWalt, 2011). My attempts to ensure reliability to the best extent possible follow DeWalt & DeWalt's (2011) recommendations. First, I documented how, where, what and whom I observed or interviewed and how I recorded observations and interviews (see this chapter and Appendices). Second, I observed similar events (JUBiTh workshops) and talked to several interview partners about the same issue.

4.6 Field work limitations

Several limitations arose during fieldwork. First, February and March were slow months for JUBiTh. February marks the start of a new school year, so teachers are busy with other issues and do not book JUBiTh as frequently as during fall, early winter or late spring. For this reason and due to a workshop cancellation, I had a limited number of observation days. Due to this cancellation, I could not facilitate as planned, so I have limited facilitation experience. Also, I got access to a limited number of university student interview partners due to exams and German semester break. Furthermore, I was permitted a limited number of school student interview partners due to a non-cooperative principal. Another issue was time constraints in schools. I had only 15 min on average to interview students and 15 min to talk to teachers in school breaks. Since student focus groups were conducted without recording device, I had to rely on my notes and memory when transcribing them. Group dynamics during student focus groups also bias results, since most focus groups were dominated by the opinions of two to three students. Despite a careful interview guide design (Bryman, 2008), interviewer bias might have biased interview and focus group results (see Appendix A for interview guide). My translations from German to English during the writing process might also have distorted results. In the next section, I refer to how I crafted the stories in Chapter 5 based on the conversations I had.

4.7 Data analysis

For data analysis, I followed Charmaz (2006) recommendation to start with initial line-by-line coding and proceed with focused coding. Line-to-line coding allowed me to familiarize myself with the data, while I had to ensure critical distance (Charmaz, 2006). Also, it ensured to remain open towards possible theoretical outcomes and my research partners' understanding (Charmaz, 2006). For observational data, I conducted incident-to-incident coding which allows to compare similar events (Charmaz, 2006). During focused coding, I merged and synthesized the most frequent codes according to themes (Charmaz, 2006).

After so much content, let's go for a walk while I tell you the stories JUBiTh facilitators, students and teachers shared.

5 11:30 - Stories, analysis and discussion

5.1 JUBiTh's understanding of EfS and practical implementation in terms of content

First, let's talk about workshop contents and how topics can be classified. JUBiTh facilitates 11 different topics: "Cellphone", "Sustainable nutrition", "Ecological footprint", "Happiness and consumption", "Fair trade – cocoa", "Clothing – Social sustainability", "Climate-induced migration", "Climate change", "Sustainable city walk Jena", "Experiencing energy" and "Understanding grid power" (Arbeit und Leben Thüringen e.V., 2015). Many topics emerged from project founders' personal interests (Ulli, personal communication, 07.03.2016), but patterns can be detected. The first topics focus more on environmental sustainability, such as "Climate change" and "Ecological footprint" (Own observations, 15. & 17.02.2016; Julian, personal communication, 10.02.2016). Some later topics focus rather on social sustainability, such as "Clothing – Social sustainability" and "Happiness and consumption" (Julian, personal communication, 10.02.2016). However, this line cannot be drawn sharply. The topic „Cellphone" addresses both physical resource scarcity and social conditions under which resources are mined. The fieldwork indicates that JUBiTh's understanding of sustainability is in line with the three-pillar model of ecology, society and economy (Dawe & Ryan, 2003). The concepts prove to be in line with sustainability because they are multidisciplinary (Kates, 2011), with contents ranging from disciplines as diverse as sociology, ecology and psychology. As will be elaborated further in the next sections, JUBiTh's facilitation is in line with Sterling & Huckle's (1996) understanding of EfS (see Introduction). It enables learning for change and critical and reflective thinking (Own observations during fieldwork; Julian, personal communication, 10.02.2016).

Most topics have an implicit connection to environmental and social justice issues (Martínez-Alier, 2012). "Justice" was mentioned several times without me asking for it. Thus, JUBiTh adopts Andreotti's (2006) problem definition of inequality and injustice instead of poverty and helplessness. Interview partners' understanding of environmental justice remains mainly on a distributional level (Schlosberg, 2004).

Some topics were added for demand and up-to-date-ness reasons. „Cellphone" was added due to teacher demand (Ulli, personal communication, 07.03.2016). It was perceived as close to students' lifeworld because most students own a cellphone nowadays (Ulli, personal communication, 07.03.2016). As will be mentioned later, it is crucial for students' interest to match topics to their reality. "Climate-induced migration" was added due to its perceived up-to-date-ness (Ulli, personal communication, 07.03.2016). Some expected migration due to the civil war in Syria and perceived a connection of migration and climate change (Ulli, personal communication, 07.03.2016).

Last but not least, I elaborate on the structure of a JUBiTh workshop. JUBiTh's aim of not only

transmitting information, but showing youth options for active societal participation also emerged in the interview with the coordinator (Ulli, personal communication, 07.03.2016). In order to fulfill this aim, workshops have a similar structure (Own observations during fieldwork). After a brief introduction and problem definition, they point out to how the problem is manifested in other parts of the world and what this has to do with the Global North's way of life (Own observations during fieldwork). This is in line with Andreotti's (2006) feature of critical global citizenship education, in which individuals are encouraged to analyze their own context as a first step to changing assumptions and attitudes.

5.2 Characterizing the learning process from facilitator and student perspectives

5.2.1 Role of facilitators

Rogers' (1969) as quoted in Laird (2003) facilitation theory enlightens fieldwork findings. Seminar leaders are not called "teachers", but "facilitators" (Own observations during fieldwork), which is aligned with their self-understanding (Julian, personal communication, 10.02.2016; Thomas, personal communication, 09.03.2016). They ask for and accept student feedback (Own observations during fieldwork) and use it for their own improvement (Carlos, personal communication, 03.03.2016). Flexibility to adapt the day to students' needs was mentioned as an important facilitator characteristic (Pierre, personal communication, 15.02.2016; Thomas, personal communication, 09.03.2016). This shows that facilitators are willing to place their relationship with students above the seminar content (Rogers, 1969 as quoted in Laird, 2003). Facilitators frequently named other characteristics helpful to establish a positive relationship with students, e.g. humor, positive attitudes towards topic and students, affinity for methods and confidence in their facilitation style (Carlos, personal communication, 03.03.2016; Thomas, personal communication, 09.03.2016). Thus, the importance of relations was visible in the field (Bergum, 2003). However, the role of facilitators should not be overestimated. Facilitators were rated positively by students in their authenticity and ability to explain concepts, but were not in the center of student feedback. This is potentially also due to the central role student-to-student learning plays in JUBiTh. Hence, as suggested by Rogers (1969) as quoted in Laird (2003), JUBiTh's facilitation allows students to choose the direction of their learning (Own observations during fieldwork). Another potential reason is the short time facilitators and students spend together, which does not allow to build a deeper relationship.

5.2.2 Cognition

Neither interview partners nor the literature deny the importance of a knowledge base and cognitive information processing (e.g. Cotton, Miller, Winter, Bailey, & Sterling, 2015; Illeris, 2003; Illeris, 2005).

Most interview partners agreed that, although valid, students do not benefit a lot by receiving and storing fact-based knowledge (Pierre, personal communication, 15.02.2016). Workshops relying mainly on knowledge dissemination are rated as boring and too theoretical by students (Students Blue School, personal communication, 11.03.2016; Thomas, personal communication, 09.03.2016). This result is no surprise because JUBiTh's main focus is not knowledge dissemination (see Chapter 3). Also, it is in line with education critics Weston (1996) and Illich (1985) (see Introduction) and educational relations theorists Bingham & Sidorkin (2010). The main reason for knowledge-centered workshops are time and local infrastructure issues which require facilitators to adapt the original concept (Own observations, 17.02.2016; Thomas, personal communication, 09.03.2016). For instance, it would have taken too much time to let students go to cellphone stores far away from school (Thomas, personal communication, 09.03.2016).

Illeris' (2005) concept of acquisition and elaboration also enlightens the fieldwork. In one school, students had already learned in a chemistry lesson about raw materials in cellphone batteries (Students Blue School, 11.03.2016). The workshop addressed this content again, but focused on origin and mining conditions of raw materials (Students Blue School, 11.03.2016). Thus, students connected new knowledge gained with JUBiTh with previous one from the lesson. Although not central, cognitive aspects are implicit in the analysis whenever the focus is on students reflecting on their and others' stance (see following sections).

5.2.3 Emotions

In fieldwork and literature, emotions are depicted as very relevant for learning in general (e.g. Bächler & Pozo, 2016) and learning for sustainability (e.g. Fröhlich, Sellmann, & Bogner, 2013). Before the fieldwork, my idea was to omit this concept because it lacks the social dimension. Nonetheless, several interview partners mentioned the importance of emotional moments during workshops at the beginning of the interview without me prompting them with the word "emotion" (Pierre, personal communication, 15.02.2016; Julian, personal communication, 10.02.2016). In the description of their dream workshops, many included emotional elements (Julian, personal communication, 10.02.2016). This stresses the high relevance of emotions when facilitating sustainability-related issues. Bächler & Pozo (2016) point out to research placing emotions in the center and blurring the strict line of emotion vs. cognition. This aspect will be elaborated on later.

Interview partners had different opinions on why and how these emotions can be created and dealt with. Gugerli-Dolder & Frischknecht-Tobler (2011) suggest outdoor activities in nature in order to cultivate an emotional relationship with nature. This is in line with findings of outdoor education researchers (Jørgensen, 2015). Since JUBiTh workshops mainly happen within school classrooms, this

relationship is unlikely to be established during a workshop. Excursions take place in some days and the day "Sustainable city walk Jena" is centered on walking. Nonetheless, excursion destinations are mainly stores within cities (Own observation, 17.02.2016). Thomas (personal communication, 09.03.2016) detects this flaw and proposes a workshop based in the forest or another outdoor setting. He also suggests to create gimmicks as a group which remind students of the positive experience during the day (Thomas, personal communication, 09.03.2016). This is in line with Gugerli-Dolder & Frischknecht-Tobler (2011), who let 16-year-old students connect natural symbols (e.g. stones or branches) with negative emotions to deal with these in a group. Regarding negative emotions, facilitators agree that workshops include elements of sadness and melancholy about unsustainability practices and environmental or social injustices (Carlos, personal communication, 03.03.2016). This happens in the "Cellphone" day, when participants learn about the raw material mining conditions (Own observations, 17.02.2016). Facilitators do not leave students alone with these emotions, but give them a space for sharing them in a group (Own observations, 17.02.2016). They agree that workshops should be fun and leave participants with a positive memory (Thomas, personal communication, 09.03.2016).

Gugerli-Dolder & Frischknecht-Tobler (2011) stress the importance of creating spaces for clarifying emotions' causes, reflect on own and others' emotions and to perceive and express them. This is in line with interview partners aiming at establishing dialogues with participants about their emotions (Julian, personal communication, 10.02.2016; Pierre, personal communication, 15.02.2016). One interview partner mentioned music (instruments), movements or voice as medium to deal with emotions. His emotional work aimed at giving students a space to express themselves in other forms than talking (Julian, personal communication, 10.02.2016). Pierre (personal communication, 15.02.2016) aims to find out causes for certain opinions (e.g. on vegetarianism) by talking to participants and allowing them to reflect on their opinion. This is in line with Andreotti's (2006) dialogue and reflexivity as main principle for change. Pierre's (personal communication, 15.02.2016) aim is to achieve a more conscious opinion with participants.

Gugerli-Dolder & Frischknecht-Tobler (2011) argue against "catastrophe pedagogies", i.e. instrumentalizing emotions to achieve action changes. I detected some traces in the answers I got. Two aimed at using emotional moments to achieve action change or better learning (Carlos, personal communication, 03.03.2016; Thomas, personal communication, 09.03.2016).

"During workshops, one has to make sure not to focus too much on theoretical aspects. Instead, one

ought to treat the topic in an emotional way. It is my aim to transmit something which gets stuck in

students' heads. I would like participants to form their own opinion. If I had a wish, it would be that

they lived more sustainably after a JUBiTh seminar, more consciously, that they paid attention to that.

Thus, emotions play a very important role."

(Carlos, personal communication, 03.03.2016, translated by author)

One person would use audiovisual material (i.e. pictures and videos) to transmit images of today's reality. The idea is to shake up participants about negative incidents, e.g. animal suffering during slaughter practices and to convince them to change their action to a more sustainable practice (for instance eating less meat) (Carlos, personal communication, 03.03.2016). This differs from Gugerli-Dolder and Frischknecht-Tobler's (2011) approach of developing and creating emotion as such and to reflect on them. However, Gugerli-Dolder & Frischknecht-Tobler (2011) also advocate for using emotions constructively as a basis for actions and decisions. Interview statements are in line with Gugerli-Dolder & Frischknecht-Tobler's (2011) finding that, if anything, it is emotions which induce long-term action changes (Pierre, personal communication, 15.02.2016; Ulli, personal communication, 07.03.2016). Thus, the idea of using them to transform actions is similar in these answers and the theory.

Students' learning process cannot be separated from the facilitators'. Many facilitators named negative emotions regarding global sustainability issues and injustices as a major motivation for their involvement in JUBiTh (Pierre, personal communication, 15.02.2016). This is in line with Soper (2009) addressing people's anger and anxiety about environmental issues, which makes them reflect upon other ways of living. Gugerli-Dolder & Frischknecht-Tobler (2011) argue that without emotions, intrinsic motivation can hardly develop.

Another aspect many interview partners agreed upon is required empathy from facilitator's side during a workshop. They argued that it is not helpful to facilitate a preplanned concept regardless of group needs (Thomas, personal communication, 09.03.2016; Pierre, personal communication, 15.02.2016). Facilitators have to be flexible and adapt their plan to group characteristics and dynamics. This implies adapting methods or even deviating from the topic and allowing students to discuss issues of their concern if needed. This is in line with Gugerli-Dolder & Frischknecht-Tobler (2011) mentioning the importance of teachers' emotional competence, above all empathy to detect students' needs.

5.2.4 Systems thinking

All interview partners agreed that systems thinking is a crucial aspect of sustainability, EfS and JUBiTh workshops. Marina (personal communication, 17.02.2016) stated that without systems thinking, change is not possible. Some interview partners referred to systems thinking in their descriptions of

dream workshops without mentioning the concept's name. This is even more valid as Ulli (personal communication, 07.03.2016) explained:

"[We do not use] the notions „system" or „systems theory" because we want to communicate it to young people and not to those who have already studied Luhmann for three semesters."
(Ulli, personal communication, 07.03.2016, translated by author)

This shows that JUBiTh adapts the message to students' previous knowledge to make it more accessible.

Gugerli-Dolder & Frischknecht-Tobler (2011) claim that systems thinking teaches connectedness with areas geographically far away from us. This is in line with various interview statements, for instance:

„It is important to me that people learn that if they trash their television somewhere here, a small child sits on a dump in Ghana and tries to get the metals from these devices (…). I believe there are tilts between human beings, how life works elsewhere and how this is related to us. I would focus more on that."
(Pierre, personal communication, 15.02.2016, translated by author)

Another interview partner gave a similar example talking about the "sustainable clothing" workshop:

„And then one realizes that if I pay more money for the jeans, it does not automatically imply that the cotton farmer receives more money."
(Marina, personal communication, 17.02.2016, translated by author).

Sanna (personal communication, 17.02.2016) advocated that JUBiTh's most important aim is to make students realize connections. This is in line with Meadows' (2009) understanding of systems thinking, understanding root causes of problems to tackle them accordingly.

Some workshops make systems thinking more explicit than others (Own observations, 15. & 17.02.2016). "Clothing – Social sustainability" makes it very explicit since it includes a case study about "The journey of a jeans", which explains the effects of actions in other places (Sanna & Marina, personal communication, 17.02.2016). According to Thomas (personal communication, 09.03.2016), it becomes obvious who the actors are, in which places and under which conditions clothes are produced. "Cellphone" includes information about raw material mining sites and environmental and social issues connected to precious metal mining for cellphone production (Own observation, 02. & 03.02.2016). In "Happiness and Consumption", the connection is implicit since it focuses on individual happiness perception and consumption behavior (JUBiTh, 2015b). This shows that the more interdisciplinary the workshop's concept, the more visible is the systems perspective (Own

observations during fieldwork). Hence, the systems perspective is best integrated in workshops which address nature-society interactions and thus are truly in line with sustainability science.

Regarding the motivation to use systems thinking, Gugerli-Dolder & Frischknecht-Tobler (2011) state that it avoids regrets over a hasty purchasing decision. Students in workshops and my interview partners frequently referred to purchasing decisions which connect with or influence the situation in another part of the world (Own observations during fieldwork; Ulli, personal communication, 07.03.2016). Given the commodification in modern society (Bauman, 2009), Soper (2009) detects a troubled relationship in Western countries towards unlimited consumption. This aspect will be elaborated on further in the discussion.

Gugerli-Dolder & Frischknecht-Tobler (2011) stress the importance of a connection between emotional and cognitive aspects. The fieldwork showed that an "either-or" definition of how people learn does not reflect reality. JUBiTh facilitators illustrated that workshops receive best feedback when methods are mixed, e.g. theoretical input, audio-visual methods and game-oriented methods vary (Pierre, personal communication, 15.02.2016; Thomas, personal communication, 09.03.2016). This stresses the relevance of both realms, which makes disputes about which is most important obsolete. Moreover, it is related to Gugerli-Dolder & Frischknecht-Tobler's (2011) statement of how systems thinking is connected to other aspects relevant for learning.

Several interview partners reflected on how to foster students' ability to think in systems. According to Gugerli-Dolder & Frischknecht-Tobler (2011), students learn best in systems they are concerned by. Asking "How is this related to myself?" provides a good introduction to systems thinking (Gugerli-Dolder & Frischknecht-Tobler, 2011). This was reflected in the fieldwork. An excellent example is the day "Cellphone". As mentioned above, some organizers book it since it is related to students' everyday life (Ulli, personal communication, 07.03.2016). Carlos (personal communication, 03.03.2016) and Sanna (personal communication, 17.02.2016) also reflected upon the importance of relating topics to students' realities. Nonetheless, a related topic is not enough to make students think in systems. Several interview partners stated that systems thinking is not yet well-developed with students. The main reason they gave was the fact that it is not intensively taught in school (Julian, personal communication, 10.02.2016; Sanna & Marina, personal communication, 17.02.2016; Pierre, personal communication, 15.02.2016). Gugerli-Dolder & Frischknecht-Tobler (2011) argue that in education (for sustainability), systems thinking is neither implemented thoroughly nor connected with ecological, social and economic aspects. One potential reason is the fragmentation into subjects impeding sustainability learning (Zoller, 2015, see Introduction). Also, teachers are unsure how to handle the complexity and adequate teaching material is lacking (Gugerli-Dolder & Frischknecht-

Tobler, 2011). It becomes evident that Gugerli-Dolder & Frischknecht-Tobler (2011) also understand sustainability in three-pillar-terms (see Chapter 5.1).

Frischknecht et al. (2008) as cited in Gugerli-Dolder & Frischknecht-Tobler (2011) write about systems competences including reconstructing systems, creating prognosis and judging action options. Based on these, teaching contents are created (Gugerli-Dolder & Frischknecht-Tobler, 2011). Thus, they put theorizing on scenarios and the future (e.g. Mahmoud et al., 2009; Swart, Raskin, & Robinson, 2004) into pedagogical practice. These aspects emerged during fieldwork. Julian (personal communication, 10.02.2016) suggested a workshop which does not only focus on current unsustainability practices, but also creates future scenarios, including utopias. Afterwards, students compare and reflect on their outlooks (Julian, personal communication, 10.02.2016). This is in line with Andreotti's (2006) goal of critical global citizenship education: to enable individuals to reflect critically on own and others' stances and imagine different futures. Thus, the previously described aspect of allowing students to reflect is picked up again in systems thinking (Gugerli-Dolder & Frischknecht-Tobler, 2011). Paulo Freire's pedagogy is also connected to utopia (Freire, Macedo, & Araujo Freire, 2015; Papastephanou, 2015; Webb, 2012). Webb (2012) characterizes Freire's utopia as both a system, designing a prescriptive societal vision and a process of becoming. However, also in this chapter, the competences aspect of Gugerli-Dolder & Frischknecht-Tobler's (2011) theory has to be criticized because it is too close to the conventional "education about", i.e. teaching certain skills. As mentioned before, this is sharply criticized (Illich, 1985; Weston, 1996).

Also here, it becomes evident that facilitators' learning process is connected to students'. Facilitators' successful communication of systemic connections depends on their own ability to think in these terms. One facilitator reflected upon improving his ability to think in systems and recognizes the responsibility associated with this way of thinking (Pierre, personal communication, 15.02.2016).

Gugerli-Dolder & Frischknecht-Tobler's (2011) plea for transcending "either or" categorizations and for learning to think in "both and" is also reflected in Reich (2004), who stresses the importance of dealing with contradictions instead of aiming for one-sided solutions. This aspect was brought up in a facilitator workshop on post-colonialism. Facilitators stress the importance of including options for action at the end of each workshop in order to not leave youth helpless (Soraya, personal communication, 02.03.2016). The workshop facilitator pointed out to the danger of extrapolating colonial thinking by conveying a "We, the white people, have to help them" attitude (Jana, personal communication, 11.03.2016). This is in line with Andreotti's (2006) worry of a new generation aiming at saving or educating the world. Jana (personal communication, 11.03.2016) indicated ways out of this dilemma, for instance calling attention to local projects in which people take action in their local

contexts. She concluded that this dilemma was not 100% solvable, but that it should be reasonable for youth to accept these contradictions (Jana, personal communication, 11.03.2016).[15]

5.3 Can EfS in JUBiTh enable youth to become agents of change?

"Students' action and creation" is separated into two layers, action *during* and *after* workshops. The layers are not separable because actions during workshops are supposed to lead to follow-up actions. Regarding Meighan et al.'s (2007) distinction in learning process and outcome, this first layer is process and the second outcome oriented. I address both layers in this section.

Interview partners agreed that students' action and creation is crucial for their learning process. Furthermore, creating students' action options is in the center of JUBiTh's aims (Ulli, personal communication, 07.03.2016). Hence, the project responds to what Gudjons (2001) perceives as a major school crisis:

"The crisis of schools today is not primarily caused by authority conflicts, the fight for freedom, emancipation or democratization, but by a crisis of lacking action options relevant for the future, [thus, it is a crisis] of the whole point of schools." (Gudjons, 2001, p. 40).

Regarding the first layer, JUBiTh has built their concepts on action-oriented methods, which facilitators appreciate (Pierre, personal communication, 15.02.2016; Thomas, personal communication, 07.03.2016). Workshop units activating students received best feedback (Students Red School, personal communication, 17.02.2016). Foster (2001) confirms that learning about nature and society can only be an active process. Some workshops include excursions, where students go to town and construct information (Own observation, 17.02.2016). One workshop includes a student-run simulation, which shows them consequences of their action (Own observation, 15.02.2016). Brainstorming about action options after the workshop relies on students' group work (Own observation, 15. & 17.02.2016). One interview partner expressed the benefits of student-led work in the following way:

"They should work a lot by themselves because acquisition is different; you memorize it differently when you have worked on it by yourself, when you feel 'I am supported, my opinion is important, I am allowed to think by myself and I am not just confronted with something and somebody says 'This is true, accept this, this is reality.''"

(Sanna, 17.02.2016)

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[15] As mentioned earlier, this thesis does not elaborate further on post-colonialism. The point here is to shed light on the importance of dealing with contradictions in teaching.

This is another path to acquisition elaborated on by Illeris (2005) (see Chapter 5.2.2). This should be seen critically because of the danger of instrumentalizing action in order to achieve better learning.

Although Gudjons (2001) does not regard it as major crisis, some interview partners addressed authority and hierarchies in school. During workshops, facilitators encourage students to address them informally, which creates a more equal relationship (Own observations during fieldwork). This is different to formal school lessons where hierarchies are cemented by students addressing teachers formally. Facilitators appreciated that JUBiTh allows students to reflect and act themselves instead of having to accept ready-made opinions (Sanna, personal communication, 17.02.2016). This is related to pluralism proposing democratic ideas exchange instead of teaching consensus (Wals, 2010; Kopnina & Cherniak, 2016). Facilitators do not see themselves as experts entitled to give speeches about unsustainability practices and how to best tackle them (Pierre, personal communication, 15.02.2016; Thomas, personal communication, 09.03.2016). This is in line with Andreotti's (2006) statement that this approach does not tell learners what to think or do. Facilitators give impulses encouraging students to draw conclusions for their action and life (Own observations during fieldwork; Thomas, personal communication, 09.03.2016; Marina, personal communication, 17.02.2016).

The question of action afterwards is trickier to answer. According to Gugerli-Dolder & Frischknecht-Tobler (2011), opinions and experiences are connected and manifested through actions. Not implementing things cements the pattern of knowing, but not acting (Gugerli-Dolder & Frischknecht-Tobler, 2011). Interview partners reflect that knowledge is important, but not enough to trigger action (Matthias, personal communication, 16.02.2016).

The gap between expressing intentions to act and acting for real (Gugerli-Dolder & Frischknecht-Tobler, 2011) emerged in the fieldwork. According to facilitators, some students indicated willingness to change action after the day (Julian, personal communication, 10.02.2016; Thomas, personal communication, 09.03.2016). I talked to students to see whether indicated willingness translated into action. It didn't. Some students reported increased knowledge. None reported action change after a workshop and one reported raised awareness about the topic (Students Green School, personal communication, 16.02.2016). Despite its limitations, raising consciousness with some students about environmental issues is one of JUBiTh's achievements (Ulli, personal communication, 07.03.2016). Related to systems thinking, several interview partners and a few students agree that JUBiTh introduces them to context and connection of their action to others' situation (Sanna, personal communication, 17.02.2016; Students Green School, personal communication, 16.02.2016). This is in line with Gugerli-Dolder & Frischknecht-Tobler (2011) naming higher consciousness for the larger

context as one step towards more mindfulness.

Elaborating further on outcomes, most facilitators agreed that a workshop of three to six hours cannot provide more than a knowledge base and thought-provoking impulse for a few (Sanna & Marina, personal communication, 17.02.2016). Hence, their reflections were aligned with students' answers. This change of perspective might be manifested during future encounters with topics, for instance in media (Carlos, personal communication, 03.03.2016). Interview partners agree that it takes time to change attitudes and behavior (Thomas, personal communication, 09.03.2016). Since one workshop day is short, these ambitious goals are attributed to facilitators' wish list for a few students, but not seen as realistic pretense for change.

The role of students' families also arose. Gugerli-Dolder & Frischknecht-Tobler (2011) are positive about students' action in school because conditions are more uniform than at home. Some school teachers mentioned a potential transfer from students' school action to their homes (Matthias, personal communication, 16.02.2016). Again, a discrepancy between teachers' and students' opinion is visible. Most students negated having talked to anyone outside school about the workshop (Students Colored School, personal communication, 04.03.2016). One student talked to his parents about the workshop content, another mentioned the workshop topic to her parents without elaborating on the content (Students Blue School, personal communication, 11.03.2016). The importance of peers emerged. Students stressed exchanging opinions on the workshop with their mates (Students Colored School, personal communication, 04.03.2016).

Here, I address the relationship between individual and societal action options in workshops. Regarding Gugerli-Dolder & Frischknecht-Tobler's (2011) three action categories mentioned in Chapter 2.2, the first, individual category is clearly addressed in JUBiTh. Most options for action aim at individual behavior change and often relate to sustainable consumption (Own observations during fieldwork). This is due to the fact that exclusively students are supposed to come up with these ideas (Own observations during fieldwork; Julian, personal communication, 10.02.2016). A global and societal context is left out in some workshops (Own observations during fieldwork). One coordinator remarked that the issue of global food waste was not included in the sustainable nutrition workshop (Carina, personal communication, 11.03.2016). It is centered on organic produce and fair trade labels to incentivize students to purchase these (Sanna, personal communication, 17.02.2016). Some facilitators stressed the importance of adapting contents to students' individual possibilities (Ulli, personal communication, 07.03.2016; Julian, personal communication, 10.02.2016). It is not easily possible for a student from a family dependent on social welfare to buy organic products (Ulli, personal communication, 07.03.2016).

Gugerli-Dolder & Frischknecht-Tobler's (2011) second category, political action and systems' change, is barely present in workshops (Own observation during fieldwork). One reason mentioned frequently is the time constraint of one day. Interview partners suggested to expand workshops to two days, but worried these would not be booked by teachers (Marina, personal communication, 17.02.2016). Also, insecurity from a facilitators' perspective about how to introduce societal options for action was given as a reason (Thomas, personal communication, 09.03.2016). This is in line with Gugerli-Dolder and Frischknecht-Tobler's (2011) previously stated finding of teachers' insecurity how to address systemic complexity. If societal actions are not introduced well, input from students regarding these options will remain shallow (Own observation, 03.02.2016; Thomas, personal communication, 09.03.2016; Julian, personal communication, 10.02.2016).

5.3.1 Social and peer learning

Peer learning involves two layers, from university to school student and among school students. It resulted that peer learning from university students seems more authentic to youth because university students are closer to their lifeworld than regular school teachers (Students Blue School, personal communication, 11.03.2016). Due to a long hiring freeze in Thüringen's schools, teachers' average age is fairly high (Own observations during fieldwork). Thus, the difference is more visible (Own observations during fieldwork).

Jordan et al.'s (2008) recommendation to small group learning is common practice with JUBiTh (Own observations during fieldwork). In this context, Gabriele & Montecinos' (2001) claim that peer students serve as motivators emerged. In group discussions, peers are encouraged to collaborate, communicate and challenge other opinions (Own observations during fieldwork; Thomas, personal communication, 09.03.2016). Rudsberg & Öhman (n.d.) as quoted in Wals (2010) call this pluralistic meaning making, which they consider essential for EfS. The previously mentioned aspect of forming opinions without having to accept anything imposed is relevant here as well (Own observations during fieldwork; Sanna, personal communication, 17.02.2016). Students are encouraged to contribute their ideas on how to make change happen (Own observations during fieldwork).

Definition and transmission of social norms also takes place in workshops (Own observations during fieldwork). This is seen as equally or more important than the content (Julian, personal communication, 10.02.2016; Pierre, personal communication, 15.02.2016). One example is establishing common, respectful norms for conversations.

Peer pressure also emerged (Own observation, 11.03.2016). Even if a student favors a more sustainable diet, opposite tendencies among families and friends might prevent the change (Elena, personal communication, 04.03.2016). This is in line with Jordan et al.'s (2008) diagnosis of

"groupthink" which keeps individuals from voicing opinions if they endanger group cohesion.

6 12:30 - Shade and light in JUBiTh's work

Before closing, I discuss constraints within JUBiTh's work and draw connections to broader societal constraints. Afterwards, I light the dark by pointing out to JUBiTh's opportunities.

6.1 Shade

6.1.1 Critical EfS

There is potential for improvement in JUBiTh's implementation of critical EfS. One coordinator problematized role plays (Ulli, personal communication, 07.03.2016). Powerful roles (e.g. corporate actors) are attributed to the North whereas less powerful roles (e.g. peasants) stem from the South (JUBiTh, 2015a). Thus, one underlying message in action options could be a "them-us" distinction by "us helping them by consuming a certain good". This perspective is sharply criticized by postcolonial scholars (Spivak, 1988; Kapoor, 2004). Ulli (personal communication, 07.03.2016) expands on facilitators' responsibility to shed a critical light on these projections. Thus, the coordinator illuminates Andreotti's (2006) claim that educators have to be critically literate. If they are not, they reproduce belief systems and practices of those they want to support (Andreotti, 2006). In the workshop on post-colonialism and one interview, Andreotti's (2006) doubt to what extent educators from the North are able to step out of the role they grew up with was echoed. JUBiTh used to have a facilitator from a country directly affected by resource exploitation. This led to a more authentic narrative. Nowadays, it has been difficult for JUBiTh to gain participants from different world regions due to the previous lack of international permanent residents in Thüringen (Ulli, personal communication, 07.03.2016). This shows again the two-fold sword of education trying to mitigate some issues while reinforcing current Western-dominated power structures. Also here, I detected a literature gap because Andreotti (2006) and Lapayese (2003) are examples of only a few scholars working with critical global citizenship education.[16] Further research could address EfS with a post-colonial lens and examine strategies for facilitators to deal with these contradictions. Kapoor (2004) proposes to ask questions, for instance "To what extent do our depictions and actions marginalize or silence subaltern groups and mask our own complicities?" (p. 625). As a first step, it might be more important to ask questions than to give ready-made answers.

In practice, JUBiTh facilitators and coordinators became aware of these issues during the post-colonialism workshop. One coordinator proposed revising topics with a critical lens (Own observations, 11.03.2016). It remains to be seen whether this will happen because project funding after the year 2016 is unclear. The coordinators indicated that they might not put too much effort

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[16] Said (2006) elaborates on the issue without referring to EfS.

into revising JUBiTh concepts because they got funding for a new project as of April 2016 (Ulli, personal communication, 02.03.2016). This relates to a debate about short-termism (Marginson & McAulay, 2008 for economic, Bilgin & Morton, 2004 for political). Short-termism has influenced public institutions' project funding, resulting in projects only being funded for a couple of years.

6.1.2 Sustainable consumption

As stated in the introduction, some scholars are critical towards a utilitarian view on EfS, regarding it as a means to an end rather than an end itself (Russell, 2010). Both ends stated earlier, pro-environmental behavior and critical thinking, emerged in the fieldwork. Since the first one is more problematic, I will debate it here. It should be questioned whether individuals' pro-environmental behavior will in sum lead to a more sustainable society. One category of pro-environmental behavior which frequently emerged is the focus on individual, sustainable consumption. The focus on the individual is one of five core values of neoliberalism (Larner, 2000). Based on consumption being a major driver of unsustainability, EfS is regarded instrumentally as a tool to change this (Barth, Fischer, Michelsen, Nemnich, & Rode, 2012). Sterling (2001) and Kopnina & Cherniak (2016) remark that conventional EfS prepares for competing and consuming instead of caring. This exacerbates the dilemma stated before, education being a part of the problem and the solution. Although it is important to address consumption patterns, individuals cannot be burdened with the whole responsibility. The illusion of free market choice through consumption is a characteristic feature of today's neoliberalism (Kopnina & Cherniak, 2016). As elaborated before, students from low-income families do not have an easy choice to consume more sustainably.

To tackle the dilemma, societal structures need to change as well. Bourdieu argues that both structure and agency play a role in social change (Lauder, Brown, Dillabough, & Halsey, 2006). Durkheim poses societal functions above individual actions (Callinicos, 2007). This stresses the importance of the second end, critical thinking and societal participation. The fieldwork showed that this is difficult to achieve in a workshop of a few hours. According to Sterling (2001), mainstream education supports the growth paradigm, individualism and consumerism uncritically, either directly or by default. Although JUBiTh is not free from these tendencies, they do not support it uncritically. In contrast, they are aware of their work's dependencies and limitations. Some societal dependencies will be addressed as follows.

6.1.3 Systems constraints

I agree with Lapayese (2003) that critical global citizenship education is in danger of being instrumentalized by the curriculum. This applies not only to critical EfS in JUBiTh workshops, but to the whole project. JUBiTh seminars in schools and youth centers are often booked because their

contents fit the curriculum (Elena, personal communication, 04.03.2016). "Ecological footprint" fits to curriculum contents in NaWi (natural science and technology) and English lessons (Elena, personal communication, 04.03.2016). "Cellphone" was booked due to chemistry curriculum fit (Camila, personal communication, 11.03.2016). Also, it depends on curriculum whether topics are prepared upfront or followed up afterwards (Own observation, 11.03.2016). Facilitators and students criticized this (Sanna & Marina, personal communication, 17.02.2016; Blue School, personal communication, 11.03.2016). Curriculum contents, including skill definitions, are shaped according to political and economic interests (Samuelsson & Hägglund, 2009), leaving little space for self-directed learning. Since JUBiTh is rooted in the non-formal sector, they overcome some formal sector limitations. They are free to choose their methods and are not part of school performance measurement. Thus, they avoid the skill drill focus criticized by Illich (1985) and pay attention to other kinds of learning. Due to the limited time of one workshop day, their impact remains small compared to the amount of knowledge-dissemination centered lessons. Sustainability science contributes to educational science and practice by pointing out to these constraints and their root causes.

A debate this thesis relates to is the "critical of growth" debate. Some scholars not only criticize economic growth[17], but also cultural growth mindsets (Welzer, 2011). Welzer (2011) elaborates on how we are entangled with mental infrastructures of growth. Sustainability science and this thesis show that different growth angles are hardly separable. There is a remarkable contradiction between our education system designed to serve global market systems including (economic) growth (Samuelsson & Hägglund, 2009; Illich, 1985) and the responsibility for our planet's future being placed on youth's shoulders (Larsson, 2012). Perhaps it is due to this moral dilemma that literature critical of growth does not focus on education. Brehm (2014) suggests to de-grow education by reducing knowledge input. Since JUBiTh is already doing this (see Chapter 5.2), they could be seen as a practical implementation of de-growth in education. This debate needs to be theorized on further and implemented into practice by other networks than JUBiTh.[18] Lastly, the weak link between academia and practitioners (Blomley, 1994) has to be strengthened also in the field of education.

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[17] Refer to Paech (2012) or Kallis, Kerschner & Martinez-Alier (2012). These scholars would criticize the three-pillar model's assumption of sustaining the natural environment under conditions of economic expansion.
[18] There are similar initiatives in other federal states, e.g. organized by ökoscouts e.V. (2016) in Niedersachsen focusing on livestock industry.

6.2 Light

6.2.1 Spaces

JUBiTh creates spaces for students to form and express opinions and emotions and to learn from each other and the facilitator. If EfS is not seen instrumentally, but as an opportunity for this, the view on young people changes. Then, as stated earlier, they are not seen as wax figures stamped by the teacher, but as people constructing meaning by experience. According to Kant, action with love as a motive cannot be virtuous (Russell, 2010). If education is conducted with love, it will never be purely instrumental. The facilitators' motivation will be to share time and space with students and to be open to learn as much from them as they potentially learn from her. Many educators see their work's limitations, but this intrinsic motivation and dedication makes some conclude "It's not perfect, but we have to start somewhere."[19]

6.2.2 Wish to learn

I agree with Russell (2010) that children's spontaneous wish to learn should be the driving force of education. Extracurricular activities, organized by external actors like JUBiTh and by students inside schools, nourish this wish. One positive example is a student-run sustainability group in a school. They organized a school-wide project day during which JUBiTh gave a workshop. Also, they were awarded for developing an energy-saving plan for their school (Matthias, personal communication, 16.02.2016). This good practice for students to learn to assume responsibilities and to organize their learning process is a crucial step for students to become change agents.

6.2.3 Niche

Due to the unlikely change in the formal sector, JUBiTh as a grassroots network could contribute to building a niche for an EfS innovation in the non-formal sector. Niches are conceptualized as protected spaces where new practices evolve without regime (dominant system) selection pressure (Seyfang & Longhurst, 2013). Seyfang & Longhurst (2013) argue that grassroots initiatives within civil society are promising actors for sustainability innovations. Regarding the three challenges[20] for EfS mentioned earlier, JUBiTh best addresses the third: to implement alternative pedagogical modes.

I recommend JUBiTh to adopt Seyfang & Longhurst's (2013) niche-building processes: visions and expectations, networks and learning and awareness of external pressures. External pressures relate to whether the formal education regime can adopt their modes. JUBiTh's work is related to the regime, which limits their achievements (see Chapter 6.1.3). To tackle this, JUBiTh could build

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[19] This is my personal, biased impression of JUBiTh members' attitude.
[20] The first was to define EfS and the second to criticize conventional approaches.

networks with other non-formal EfS and intermediary organizations to define common expectations and to learn from each other. This could help to implement common strategies to potentially influence the regime:[21] project replication, gaining more participants and translation of niche ideas into mainstream settings (Seyfang & Haxeltine, 2012). Further research could focus on JUBiTh as a grassroots network's opportunities and challenges for niche-building from a transition theory perspective.

Since sustainability transitions are facilitated by shared visions (Geels, 2010), Welzer (2011) and Harvey (2008) suggest their creation, including utopias mentioned earlier. JUBiTh could initiate a round table where students, teachers, parents and other non-formal education initiatives create common visions and goals. Do we want schools and if yes, for what purpose and how could they look like? What is good learning? What would we like to learn and how? Regarding sustainability, potential questions could be "How does a 'right' relationship with nature look like? What is our basic stance?" (Bonnett, 2002, p. 12). Since Weston (1996) and the fieldwork indicate that it is not enough to change schools, but the lifeworld, it could include questions on how we want our society to look like.

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[21] Seyfang & Longhurst (2013) highlight that the outcome is not necessarily to displace the regime, but could be to work alongside or to reform it. Smith, Voss, & Grin (2010) argue that partly external landscape changes, e.g. in politics or academia, can create opportunities for niches to influence.

7 13:00 - New horizons?

Looking forward to lunch? We're almost there. JUBiTh provides a space for youth to build, share and reflect upon emotions and opinions with peers and facilitators without performance control and school hierarchies. Facilitators place space above contents and students assume a different social role than in formal lessons. Contents show interdisciplinary sustainability characteristics aligned with the three-pillar model. In the learning process, cognition plays an implicit role and emotions are explicitly important. The more interdisciplinary workshop contents are; the more systems perspective is visible. Workshops are characterized by action-oriented methods and self-directed learning about mainly individual action options. The danger of instrumentalizing methods to achieve a certain outcome remains. JUBiTh's potential is to initiate a first spark for a fire of sustainability with some participants which might start burning later. Short-term action changes cannot be expected because change processes take time. Long-term changes depend on factors beyond facilitators' control. JUBiTh has potential for more critical EfS and to reflect on their individual sustainable consumption focus. The fact that they operate within the formal sector is a dark cloud limiting their achievements. Still, an oasis without sun is a meeting place nourishing people. JUBiTh has potential to build a niche together with similar networks and other organizations spreading its practices and to create visions in collaboration with wider society.

After this rollercoaster journey through JUBiTh's colorful world, I close with reiterating two points. First, accepting contradictions is necessary for understanding learning processes, sustainability challenges and their root causes. It provides a basis for tolerating differing worldviews, a major prerequisite for creating collaborative visions and solutions. There is no "right" solution and more paths to get there. Second and related, in learning (sustainability), the process matters more than the outcome.[22] Rather than learning *about* sustainability, what really matters is learning to "feelthinkexperience" sustainability in a more holistic way than it has been done, transcending existing categories and including *everyone regardless whatever background* into this process of becoming and creating futures.

Thank you for listening and I finish with a JUBiTh anecdote. After the second workshop day discussing personal use and raw material origin in cellphones, some students told us "We will miss you". Thus, we assumed that we initiated the spark.

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[22] As stated before, this does not mean that the outcome is irrelevant.

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Appendices

Appendix A: Interview guides

Since I adapted my questions to the natural flow of the conversation, this is only a rough guideline. Not all questions were addressed in all interviews.

Facilitators

For how long have you been involved with JUBith?

Which JUBiTh topics have you taught so far?

How would you describe students' experience of a JUBiTh seminar you have taught?

How would you describe students' experience of peer teaching (by university students) and learning in peer groups in JUBiTh seminars?

How would you describe the role of emotions in JUBiTh and in education for sustainability?

How would you describe the role of systems thinking in teaching and learning about sustainability?

How would you describe the role of students' own action, both in the seminar and beyond, in education for sustainability?

In what way do JUBiTh seminars prepare students to take an active role in society and make change happen?

How would you assess JUBiTh's potential for critical sustainability education?

Students

How did you feel during the seminar?

What was the most memorable moment?

How did you feel about being taught something from university students, i.e. people who are not that much older than you are?

How would you describe the difference between a regular class and the JUBiTh seminar?

How did you perceive the facilitators?

Have you heard about these topics before?

Would you participate again?

School teachers and youth center worker

Which subjects do you teach?

Why did you decide to contact JUBiTh and to invite them to your school?

Why did you choose the specific topic XX?

If applicable: How did you perceive the JUBiTh seminar?

In what way are sustainability topics part of your daily work?

How would you describe the difference between a JUBiTh seminar and a regular lesson?

What change can a JUBiTh seminar induce for youth?

Coordinator

For how long have you been working with JUBiTh?

What exactly are your daily responsibilities?

On which basis did you select the topics which are taught in JUBiTh?

On which basis did you select contents and methods for the workshops you created?

(In what way) Does the content have to comply with certain standards?

(In what way) Do funding issues influence choice and standards of topic? If so, how?

In what way is the program's work evaluated internally or externally?

Is it true that action options are supposed to arise out of students' ideas? I have observed that internal documents include societal action options, but the workshops themselves are very much focused on individual action options.

How do you see the role of emotions in JUBiTh and in education for sustainability?

How do you see the role of systems thinking in JUBiTh and in education for sustainability?

How do you see the role of students' own action and creation in education for sustainability?

How would you assess JuBiTh's potential for implementing critical sustainability education?

Appendix B: Observation sheet

Observation sheet – February 15 and 17

1. General information

  Number of participants: facilitators
             students
  Estimated age (grades 6-9)
  Teachers present? Influencing teaching process?
  Mapping scene / settings
  Log (chronology of events – read preparatory documents in advance!)

2. RQs

How does JuBiTh put sustainability education into practise?

  What is being taught? Ecological footprint
  Where is it being taught? High school
  Which content?

How is the learning process characterized from the view of both students and teachers?

  Which methods?
      Emotions?
      Systems-thinking?
      Students' own action within the seminar and triggered beyond?
      Peer-to-peer?
      Pictures/props/graphics/teaching aids?

  Participation of students? Motivated? Interested in topic? Atmosphere in class? Group dynamics?
  Reactions of students: Which kinds of questions do students ask? What are they especially interested in?
  Interaction among students? (peer-to-peer)
  How do facilitators (re)act, how do they motivate students?
  Is there a feedback round? If yes, what do students think/feel/etc. about seminar?

Can sustainability education in JUBiTh enable youth to become agents of change?

Appendix C: Parental consent form

I adapted this template to each school.

Letter of permission concerning research project in your school

Dear parent or legal guardian:

My name is Christiane Mößner and I am a master student of Environmental Studies and Sustainability Science at Lund University in Sweden. Currently, I am working on my master thesis project on the Network Youth Environmental Education Thüringen (JUBiTh). My aim is to find out how the learning process of sustainability topics is characterized from the perspective of facilitators and students and what the potential outcomes are.

On January 15, JUBiTh held a workshop at Blue School in Laliluhausen about the topic "Cellphone – Resource use and production conditions". On Friday, March 11, I will visit the Blue School and would be happy to have a group conversation with youth about their impressions of the workshop. The conversation will have a duration of approximately 15-20 minutes. I do not intend to test knowledge or conduct other measurements. Hereby, I ask you for consent for your daughter's/your son's participation in this conversation.

When writing the final report, I will ensure participant anonymity by using pseudonyms for participants and locations. If you wish, I will send you citations with your daughter's/your son's statements before publication, asking for permission to publish. If you are interested, I will send you the completed thesis for your reference.

If you agree on your daughter's/your son's participation in the group conversation, please sign the consent form below and ask your daughter/your son to hand it in by Friday, March 11 with Camila.

If you have any questions, do not hesitate to contact me under ess14cmo@student.lu.se or telephone number +49-1234679.

Sincerely yours,

Christiane Mößner
_____
Please cut here and hand in to Camila.

My daughter/my son

_____

□ is allowed to participate in a group conversation on March 11 with the purpose of giving feedback on a JUBiTh workshop.

_____
Date/signature of parent or legal guardian

_____
Optional: E-Mail address for sending citations

Appendix D: Background on case selection journey

My journey towards this final case was adventurous. After singling out the formal sector, my first idea was to focus on non-formal EfS activities for smaller children in Skåne, Sweden. Thus, I visited several projects in fall 2015. However, I singled them out as potential cases for several reasons. The Malmö-based project Bärfis (Arvsfonden, 2015) ran out of funding after the end of 2015. Thus, they did not know whether and how they could continue in 2016. The Lund-based ABC project "Ett Grönare Lund" (ABC Sweden, 2015) in which I am an active volunteer is still running, but with a reduced number of children and volunteers. Also, I visited St Hansgården in Norra Fäladen, a project providing spare time activities for youth with an environmental focus (Lunds kommun, 2015). Eventually, I doubted whether my conversational Swedish skills would be good enough to conduct the entire research in Swedish.

Appendix E: People, spaces, times

Pseudonym	Who/Where	Interaction	Date
Yellow House	Youth Center	JUBiTh workshop, active participation	02. - 03.02.2016
Daniel*	Youth worker in a youth center	Individual interview	03.02.2016
Julian	JUBiTh facilitator	Individual interview	10.02.2016
Red School	Integrative school student group (11-16 yrs.)	JUBiTh workshop, moderate participation	15.-17.02.2016
Pierre	JUBiTh facilitator	Individual interview	15.02.2016
Green School	High school student group (13-17 yrs.)	Student focus group	16.02.2016
Matthias	Teacher Green School	Individual interview	16.02.2016
Kalle*	Teacher Red School	Informal conversation	17.02.2016
Sanna	JUBiTh facilitator	Group interview	17.02.2016
Marina	JUBiTh facilitator	Group interview	17.02.2016
Soraya	JUBiTh facilitator	Individual interview	01. - 02.03.2016
Team meeting	-	Moderate participation	02.03.2016
Carlos	JUBiTh facilitator	Individual interview	03.03.2016
Elena	Regelschule (middle school) teacher	Student focus group	04.03.2016

Colored School	Middle school student group (15-16 yrs.)	Student focus group	04.03.2016
Ulli	JUBiTh employee (coordinator)	Individual interview Observation during team meeting	07.03.2016
Thomas	JUBiTh facilitator	Individual interview	09.03.2016
Carina	JUBiTh employee (coordinator)	Observation during workshop	11.03.2016
Valerie*	High school teacher	Student focus group and individual interview	11.03.2016
Camila	High school teacher	Student focus group	11.03.2016
Blue School	High school student group (15-16 yrs.)	Student focus group	11.03.2016
Workshop "Postcolonialism"	-	Active participation	11.03.2016
Jana	Workshop "Postcolonialism" facilitator	Observation during workshop	11.03.2016

Research partners marked with * were not cited in the study.

Appendix F: Excerpt from interview transcript

This is just one example, for complete transcripts please contact me.

Interview partner: Pierre
Date: February 15, 2016
Venue: Red School
Duration: roughly 1 hour and 15 min

C: Which topics have you facilitated so far?

P: Different topics. Ecological footprint, cellphone, happiness and consumption, sustainable clothing, sustainable nutrition, climate and migration. I assume I've covered most of them by now.

C: Which differences do you perceive when facilitating different topics?

P: The topics are connected to each other, but each topic and concept have specific characteristics. I prefer some workshops because of the concept, because they are more stimulating, appealing, they work better, and some do not work so well sometimes.

C: Which workshops work better and which do not work so well? And why?

P: All workshops have small stumbling blocks. The better I know these, the better I can handle or facilitate them. Apart from that, I especially like "Sustainable clothing" because I like the concept. I like the days if they have an element at the beginning which triggers emotional uproar, when participants feel "Oh yes, this is really important, this catches my attention." Some days have more of these elements, some fewer. "Ecological footprint", for instance, has it due to the simulation, but "Climate-induced migration" has it as well. Recently, I have been facilitating a day which forms a bit of an exception, "Happiness and consumption". This one is relatively new and was a bit lengthy. But it is difficult to say because the more often I facilitate these days, the better I can create this moment or get a feeling for it. "Sustainable clothing" is cool because it is very coherent.

C: You like that everything fits together somehow?

P: Yes. Workshops win by having a logical structure and if one detects a consistent red threat. Exactly. I do not have the "Sustainable clothing" workshop exactly in mind, but with "Ecological footprint", this bio capacity, what is this exactly and to transfer this to "What can I actually do?" or the calculations, to get a feeling for the measurement "Ecological footprint", and then to see in small groups "What can I actually do?". Then, they often realize that they have lots of opportunities to influence.

C: When you say "emotional moment", you mean a moment when students realize that something happens and something is not the way it should be? Or how do you mean this?

P: Exactly. The reason why this topic is appealing to me personally or why I'm dealing with it is because it touches me emotionally. Because I felt there are many things going wrong in this world which should work differently, and this feeling of "There is a tilt in our way of dealing with the world." or "There is an injustice between people living here and people living somewhere else." This emotion appears sometimes or this is the moment when many felt or experienced this feeling of injustice which has not been imposed on them from outside. They have experienced it themselves and got motivation through that. I believe this is one of the cruxes determining whether it works or not and what participants get out of this.

(…)

C: Related to what you have said already, which role do emotions play for you in JUBiTh workshops and EfS?

P [takes some time to reflect]: Mhm. For the workshops it is the, or one of the central aspects because sustainability or how we deal with the world is a topic which induces lots of emotions. I believe that EfS can transmit a lot, and lots of normative knowledge which participants do not get that much out of. Also things they know, they perhaps memorized cognitively, but have not experienced or lived or felt. But my very personal impression is that sustainable behavior change can be caused above all by experiencing emotions. In addition, I consider that workshops do not only become alive by knowledge-dissemination, but also by starting a discourse. I can transmit knowledge, but it is indeed possible that the attitudes behind this knowledge remain the same because knowledge is wrapped in a certain way. In these situations, when I got closer to their personality and did not only juggle with knowledge, but reached an emotional exchange, especially with the topic vegetarianism, emotions start boiling with participants, strong antipathies, I have the feeling that I can change a lot there, that there is huge potential to transmit the contents I would actually like to transmit.

(…)

Appendix G: Excerpt from observation records

Again, this is just an example, please contact me for access to the complete material. The reason I do not present you more entertaining stories here is to protect the integrity of research partners.

Second workshop observation day
Topic: Cellphone (second half, continuation of February 2)
Date: February 3, 2016
Venue: Youth Center (same venue as the day before)
Participants at the beginning: Two JUBiTh facilitators (Pierre and Julian), one youth center intern, several participants between 15 and 17 (one had not assisted the day before), myself
Observation type: Unfocused observations to familiarize myself with the project

Reflections on my role: I did not have defined tasks during the workshop because the two other facilitators were more familiar with structure and contents of the workshop day "Cellphone". I did not know the supplementary material other than the concept description and was not sure when to use which of the material. According to the coordinator, it is obviously not the same to read the concept description and to implement it in practice (Ulli, personal communication, 18.01.2016). Hence, I did not take a leading role in order to familiarize myself with the project. My role was an active participant because I participated in all the activities, though. I sometimes took the initiative to ask participants additional questions, but also listened a lot and focused on taking notes.

Observations: The workshop started with an introductory phase during which the new participant presented himself. Pierre asked at the beginning for raw materials in cellphones to remind participants of what was talked about the day before. Participants answered that it was aluminium, copper, plastic and glass. Then, a brief discussion about the current copper price followed. Everyone paid attention during the first phase. Pierre asked them what the raw material of plastic was. Since participants did not know the answer, Pierre explained that it was crude oil, a limited resource. Afterwards, everyone got a sheet with country characteristics, including a brief description of the country and of the raw material which is mainly mined there. Furthermore, the sheet explained the environmental conditions of raw material mining. When someone indicated that cellphones imply environmental issues with raw material mining, one participant remarked that it was not necessary to purchase cellphones in a store, but that they were available in internet. Participants got some time to read the sheet and were told to be prepared to report the content of the sheet very briefly. (…) During the presentations, some participants get distracted. Despite colorful graphics, sheets contain high information density. One participant starts leaning back and looking at her phone. She looks bored. Another participant also looks aloof and a third one remarks he would fall asleep in a minute.

Appendix H: Excerpt from fieldwork journal

This is an excerpt with personal reflections. I will keep more interesting stories in my records to protect research participants.

February 29, 2016 – Workshop cancellation

The circumstances of the cancellation of two workshop days in the beginning of March are somewhat strange. Since I was supposed to co-teach and had asked the teacher preliminary questions, he sent me the cancellation via email on Friday afternoon. Afterwards, I contacted both the potential co-facilitator and the coordinator to let them know. Ulli responded today (Monday) that the teacher had called him on Friday to ask for postponing the workshop to a week later (mid-March). Thus, it was weird that the teacher sent me the complete cancellation a tiny bit later. Well, nothing we can do about this. Good news is that another facilitator indicated willingness to meet for an interview next week ☺

March 1, 2016 – Good to know

I learned a late, but useful lesson about research partner recruitment today. It is always a good idea to tell people that the interview will be very short and will not consume too much of their time. If they like the process, it won't matter to them anymore if it takes a little longer. Important to remember and better late than never!