Embodying Systems Thinking: An in-depth investigation into five climate change-professionals' experience of Alexander Technique

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(*The Mighty Banyan Tree Can 'Walk' and Live for Centuries*, 2019)

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Abstract

Rationale and methods

This paper introduces Climate Change (CC) as a systemic issue that calls for a systemic approach. The project is a qualitative, exploratory study that aims to investigate, in a practical setting, if Alexander Technique (AT) can induce an embodied understanding of Systems Thinking (ST) for CC-professionals (defined as people working with climate related issues and/or sustainability on a daily basis). This was done by giving five climate CC-professionals five lessons of AT each during the five weeks of September 2020, and analyzing their subjective experiences and insights through a ST lens. The empirical data was collected through questionnaires and in-depth interviews. Furthermore, all lessons were filmed.

Results

The analyzes showed that the five lessons in AT furthered the participants understanding of ST. The participants insights from the project were both drawn from and strengthened by the participants bodily experiences. Furthermore, the participants readiness to implement their insights to their work correlated with: 1. If they addressed their skepticism in the open during the lessons or not and 2. If deviating from what the participants perceived to be other people's (and colleagues) norms was a point of concern or not. The one participant that addressed his skepticism in the open, and who did not perceive other 'people's norms' as a point of concern was more prone to transfer his insights to a work-related setting.

Conclusion and perspectivation

The results of this study indicate that lessons in AT as an EL approach can in fact induce a deepened understanding of ST. The results can further be seen to nuance the widely accepted view of skepticism as such representing a barrier towards adopting pro-environmental behavior, and points towards the importance of norms, acceptance and community support when it comes to behavior-change. Further research is needed to fully establish the above.

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1 Introduction

"What is needed is an intuitive, passionate and embodied response, a radical shift in the dominant Western worldview, a quantum leap in consciousness that will shake us from our cultural malaise and inspire us to take action and build practical solutions for sustainable living." (LeFay, 2006, p. 36).

1.1 Climate change, Systems Thinking and the Alexander Technique

The idea to this project came about as I concurrently with the MSc in Climate Change at Copenhagen University, was studying to become a teacher of Alexander Technique (AT). During the weekdays I went to university in the mornings and learned about the natural and human made systems of earth and the afternoons and evenings I spent learning about the human bodily system at the AT school. As time passed, I started to realize how much the two disciplines supplemented each other. I realized how many similarities and common features the two disciplines had and that the understanding of one became deeper and more nuanced as I experienced new learnings in the other. I spent a lot of time thinking about and wondering what precisely it was that made the two subjects seem so supplementary although appearing so different at a glance. I came to the conclusion that many of the concepts we talked about during the lectures at the university I experienced in a bodily context during the AT lessons. Most importantly, AT provided an embodied systemic perspective that I could apply directly to my studies at the university.

During the mornings at the university, I learned that Climate Change (CC) is a phenomenon that has impacts on nearly all natural and human systems across the globe, it is a systemic issue that calls for a systemic approach to be understood and dealt with in a meaningful way. The complexity involves feedback loops, interactions within ecosystems and between human and natural systems and its implications will evolve over temporal, geographical, socioeconomical and ecological scales (Glaser, Krause, Halliday, et al., 2012; Krause & Welp, 2012; National Research Council, 2012; Pachauri et al., 2015). Mitigation efforts in place today are not enough to avoid irreversible and severe impacts from global warming at the end of the 21st century. Driven by economic activities and global population growth, greenhouse gas emissions are likely to continue to rise through this century if no further mitigation efforts are put in place (Pachauri et al., 2015). To stabilize the temperature-increase to below 2°C at the end of this century will require an "urgent and *fundamental departure from business as usual*." (Pachauri et al., 2015, p. 5)

A true understanding of a phenomenon like CC cannot be found within one discipline and the responsibility cannot be given to a single nation or political instance. Dealing with CC and ecological degradation calls for a broad comprehension and curiosity about the connections and relationships within and between the systems that are producing and maintaining them. And, it calls for integrated multidisciplinary science (Bosch et al., 2007; National Research Council, 2012; Randle & Stroink, 2018).

Still, based on the reductionism and linear thinking of a mechanistic worldview, scientific publications often present information about reduced, tiny parts of the picture. It results in managers and decision makers continuously dealing with symptoms rather than underlying causes (Bosch et al., 2007; Randle and Stroink, 2018) and it is being done with an emphasis on more control, increased productivity and intensification of all sorts of activities (Walker et al., 2006).

"We cannot solve our problems with the same thinking we used when we created them" Albert Einstein supposedly said. One of the key issues in the way we as a society respond to CC seem to be the nature of the thought processes that are supposed to save us. The mechanistic worldview has made it increasingly difficult to view the world as one, interdependent, coherent system where everything we do affect everything we know (LeFay, 2006).

"You can't navigate well in an interconnected, feedback-dominated world unless you take your eyes off short-term events and look for long-term behavior and structure; unless you are aware of false boundaries and bounded rationality; unless you take into account limiting factors, nonlinearities and delays. You are likely to mistreat, misdesign, or misread systems if you don't respect their properties of resilience, self-organization, and hierarchy." (Meadows, 2008, p. 87) the systems thinker Donella Meadows states in her book *Thinking in systems: a Primer* from 2008.

During my afternoons at the AT school, I got to experience ST in practice. When I paid close enough attention to the nature of my body, with an experienced teacher by my side, the uncontrollable and self-organizing nature of a natural system appeared undeniable. It became obvious how much my cognitive models and habitual response to all sorts of stimuli (from both the outside and the inside) affected how I went about problem solving in a bodily context. I also realized that how I thought about problems and problem solving in a bodily context, obviously, was how I went about life in general, and hence how I went about my studies in CC as well. Working with my body the way an AT teacher does gave me an embodied understanding of the workings of natural systems. Concepts such as resilience, mitigation and sustainability suddenly had a much broader spectrum of meanings and I seemed to achieve an 'embodied knowing' (Bird & Sinclair, 2019; Forgasz & McDonough, 2017) of them.

It seemed to me, that a more systems-oriented approach towards CC and sustainability was inevitable and that achieving that would, for most people and organizations, require a radical shift in worldview. Drawing from my own experiences from AT supported by Embodied Learning (EL) theory that argues for the body being both a 'process of inquiry', a 'mode of knowing' in itself and

the notion that bodily experiences can act as a source of understanding and meaning (Bird & Sinclair, 2019; Forgasz & McDonough, 2017; Satina & Hultgren, 2001), I wanted to know if others, like me, could gain a deeper insight about the systemic approach (Systems Thinking (ST) in particular) towards their work with climate related issues from working with their bodies in the AT manner.

1.2 The project

This project was a qualitative, exploratory and in-depth investigation of five CC-professionals' (defined as people working with climate related issues and/or sustainability on a daily basis) subjective experience from having five lessons in AT each during the five weeks of September 2020. The overall research aim was:

To explore and gain an extended, in practice, understanding of whether or not AT can be used as a method to induce an embodied understanding of ST for climate -professionals. Furthermore, to investigate whether or not there is potential for general meaningful learnings and insights towards a more systems-oriented approach for these CC-professionals' work with CC and sustainability through this particular embodied approach.

The data collection consisted of a questionnaire that was filled out by the participants prior to the lessons and in-depth, one-hour long interviews subsequent to the participants having undergone the lessons. Furthermore, all lessons were filmed.

Additionally, a significant part of this project consisted of the outlining of the theoretical foundation and argumentation for the application of AT as a method for an embodied learning of ST. This was crucial in order to provide a meaningful context for the above. It was done by the gathering of existing research and literature on the theories of ST, EL and AT and the combining of the methodologies of ST and AT in a comparative manner (chapter 2).

1.3 The structure of the paper

In the following chapter (2) I will present the theoretical framework for the project, starting by introducing the theories of ST (2.1), EL (2.2) and AT (2.3). In section 2.4 the methodologies of ST and AT are combined in a comparative manner. The Methods chapter (3) outlines the project design (3.1) the participant selection process (3.2), the data collection (3.3) and processing (3.4), and the methodical considerations (3.5). In chapter 4 the empirical data is presented and analyzed. This

chapter is divided in to four sections; in the first (4.1) some of the answers from the questionnaire are presented and the three following sections represent three separate analyzes: the Questionnaire and interview follow-up analysis (4.2), The Path of Learning and A New Perspective (4.3), and Skepticism (4.4). Chapter 5 contains a brief conclusion to the analyzes and chapter 6 provides a perspectivation of the results.

2 Theory

This section contains an introduction to the theoretical foundations of ST (2.1), EL (2.2) and AT (2.3) followed by a comparison of ST and AT as methodic approaches (2.4). The comparative section, supported by the theory of EL, represents the rationale for the hypothesis that an embodied understanding of ST can be achieved through lessons in AT.

2.1 Systems Thinking

"If a factory is torn down but the rationality which produced it is left standing, then that rationality will simply produce another factory. If a revolution destroys a government, but the systematic patterns of thought that produced that government are left intact, then those patterns will repeat themselves…. There's so much talk about the system. And so little understanding" – Robert Pirsig, *Zen and the Art of Motorcycle Maintenance* (Meadows, 2008, p. xv)

First of all, a system is a set of entities or variables that are interconnected in such a way that certain behavior patterns form over time. The system can be affected by outside sources, but the behavior of the system in reaction to outside sources is characteristic to the system itself. To a large extent, the system itself causes its own behavior. As we start to understand the relationships between the structure of the system and its behavior, the working of the system becomes visible. This gives us the opportunity to identify the root causes of a problem and see clearly the range of choices and opportunities to manage the problem (Krause & Welp, 2012; Meadows, 2008; Ratter, 2012).

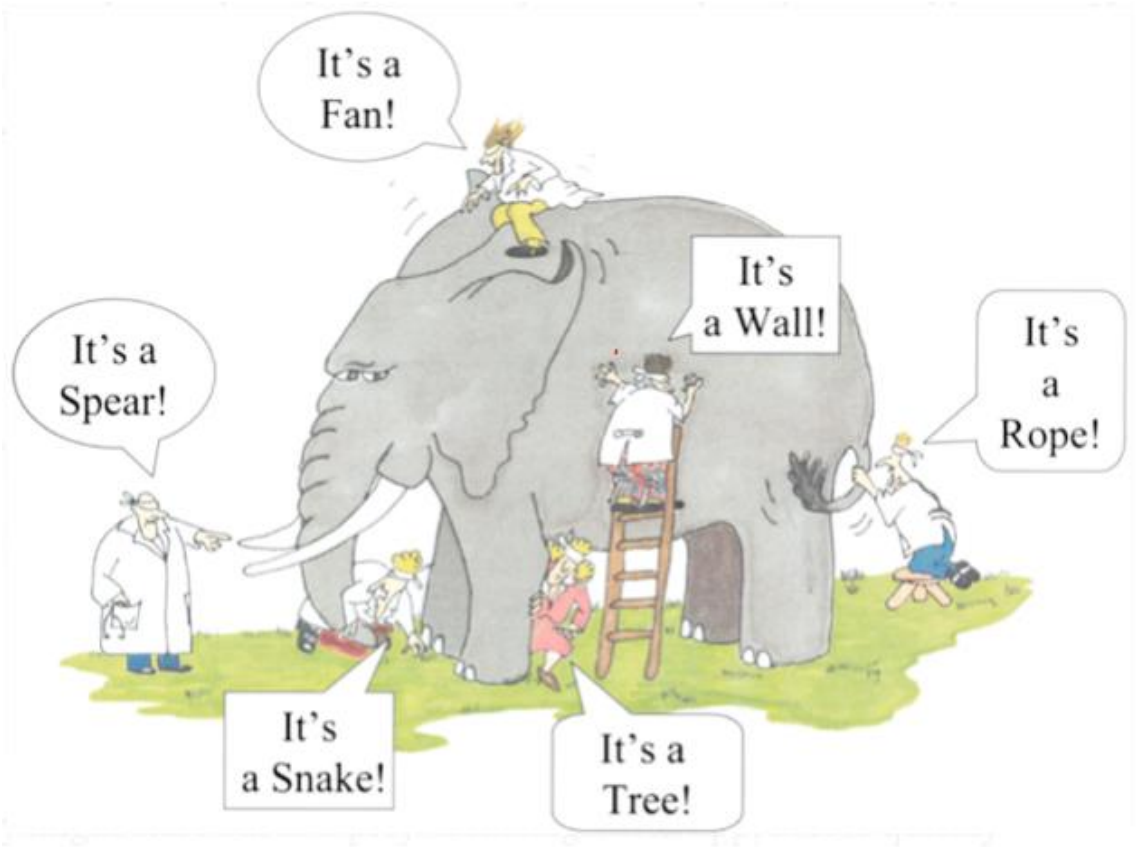

Figure 1. There is an ancient Sufi telling about a group of blind men trying to understand what an elephant is. Clearly, you can't know a system only by knowing the entities it is comprised of (Tepe, 2019).

ST is an approach that takes the connections and flows between the interdependent components in a system into account. It has emerged in several different fields and disciplines and the definition of it varies a little bit between them. The approach recognizes that in a forever changing world, with complex problems it is critical to understand the interdependency between the different entities within the system. This, in order to come up with viable, lasting and sustainable solutions (Bosch et al., 2007; Lezak & Thibodeau, 2016; Randle & Stroink, 2018; Weisz, 2018). ST can further be defined (and this is the definition that lays the foundation for my thesis) as a cognitive paradigm. A cognitive paradigm in which people perceive themselves and the world as dynamic entities that continuously form patterns and interactions with other entities in interconnection and in which people have a more holistic view on causality. Hence, ST is conceptualized as a worldview in which core beliefs, values and assumptions concerning reality guides people through life's choices (Randle & Stroink, 2018).

As I have already mentioned, we have been used to, when analyzing systems from a mechanistic viewpoint, to break them up into smaller comprehensible parts, trace problems in a linear path from cause to effect, and to solve issues around us by trying to control our environments. We constantly search for the technical fix, the pill or the product that can make a problem go away. In many cases this search has helped us in managing serious issues such as preventing measles, providing people with energy and transporting food and people over long distances in short time. However, focusing on external agents rather than those that are internalized in the systems has also led some of our "solutions" to cause new problems. Some of our most severe problems that are deeply rooted in the complex structures of our systems persists (Meadows, 2008). CC is an obvious example of a new problem that has risen parallel to our search for external fixes. Environmental degradation is one that persists despite the technological and analytical power that has been mobilized in order to solve it (Glaser, Krause, Ratter, et al., 2012). As long as we refuse to look at the system itself and recognize it as the source of its own problems the system will regenerate, revive and eternize its issues. To solve these problems, we must see things differently, ask different questions and react to the answers in a different way. Instead of asking "who or what to blame?", we need to ask "What's the system?" (Glaser, Krause, Ratter, et al., 2012; Meadows, 2008).

If you want to change a system, changing the elements of the system is usually the least efficient way of making a substantial change. A system consists of three kinds of entities: elements, interconnections and a function/purpose. The elements are easy to spot but the interconnections and

the functions of the systems are usually much less obvious. It is in altering these, however, that profound changes to the systems behavior take place.

To make it easier to visualize, here is an example from Donella Meadows book 'Thinking in systems: a primer' (Meadows, 2008): Imagine a football team; the purpose of the football team is to play football. If you replace all the football players the system will still behave in more or less the same way. The team might play better or worse, but you can still recognize the system as a football team with the purpose of 'playing football' or 'winning the football game'. If you instead keep the players but change the interconnections – the football rules to basketball rules the change is much more comprehensive. Suddenly, it's a different game. Keeping the players and the rules but changing the purpose from 'winning' to 'loosing' and the behavior of the system will change profoundly (Meadows, 2008).

In the context of CC, one of the most important goals for sustainable societies and ecosystems are for them to be resilient. It is almost impossible to read a text about either impacts, adaptation or mitigation of CC without encountering the word resilience. From a systems thinkers perspective resilience is not a firm state that is constant over time but it requires the ability of the system to constantly adapt to a forever changing environment (Meadows, 2008; Walker et al., 2006). Resilience is usually invisible without the magnifying glass of a whole-system perspective and the elasticity and buoyancy that comprises resilience is therefore often sacrificed for rigidity, short-term productivity, or stability. These are all properties that are more immediately recognizable and may seem like suitable replacements (Meadows, 2008). Again, here is a few examples to demonstrate the difference:

Example 1: A chair in its rigidity, with four firm legs of equal height, is a common conception of stability. It does not wobble when you sit on it, and it will not fall over unless you give it a push. If you do give it a push, however, it will fall over. There is no elasticity built into the chair that will make it bounce back after being pushed. The chair is a stable system but it is not resilient.

Example 2: Intensive forest management with the purpose to increase productivity of European forests has replaced native ecosystems. These single species plantations has altered the composition of animal and microbiota species in the forest and the soils leaving the forests much less resilient and more vulnerable to pests, diseases and pollution (Meadows, 2008).

One important property of a resilient system is its ability to self-organize. Self-organization is the ability of a system to learn, reorganize and evolve its own structure whenever it is required. As for resilience, self-organization is often sacrificed for the sake of short-term productivity and stability. It can seem frightening and threatening to power structures with self-organizing systems as they are unpredictable and likely to make up completely new ways of doing things. Because of this, governments might prefer to implement policies that can show short-term outcomes and that have been tested before (Meadows, 2008).

2.2 Embodied Learning

During the past couple of decades theories about embodied cognition has suggested that mind and body are not isolated entities. Rather, the mind is deeply interconnected with the body's sensorimotor systems (Macedonia, 2019; Stolz, 2015). This means that our bodies are in constant interaction with the environment and that any information from the inner or the outer environment is perceived, organized and filtered through the body. Thus, it is through the body that a person reacts or responds to stimuli from within the self or from the outside world (Macedonia, 2019; Munro, 2018).

Many different nuances to the definition of embodiment can be found in the literature. MacLachlan (2004) defines embodiment as the "identification of an abstract idea with a physical entity" (Maclahlan, 2004, p. 2) whilst the phenomenologist Merleau-Ponty (2004) said:" …rather than a mind and a body man is a mind with a body, a being who can only get to the truth of things because its body is, as it were, embedded in those things." (Merleau-Ponty, 2004, p. 43). This means that, it is not just our minds but our bodies as well that help make meaning of and interpret our sensory impressions (Bird & Sinclair, 2019). For the purpose of this project I will refer to Munro (2018)'s definition that embodiment is "the deliberate and mindful simultaneous bodyminded engagement of the self with both the inner and outer environments"(Munro, 2018, p. 6).

Thus, embodiment and the body as such is gaining prominence as an important condition for any learning activity (Stolz, 2015). Embodied learning places the body in the foreground when it comes to meaning-making of new knowledge and recognizes the body/mind connection whilst simultaneously negating any mind/body hierarchy (Munro, 2018). Here, the person is viewed holistically as a "synthesized acting, feeling, thinking, being-in-the-world" (Stolz, 2015, p. 485). Furthermore, conceptualized as 'bodily-knowing', the body is viewed as a source of understanding

and meaning in itself (Forgasz and McDonough, 2017). Thus, the concept of 'understanding something' is a result of experiencing it and learning means constantly rediscovering the way things relate to each other and to ourselves and our bodies (Munro, 2018; Stolz, 2015). Again, Munro (2018)'s sums it up neatly: "Embodied learning (…) is defined as 'the deliberate use and recognition of multimodal bodymind activities and strategies to facilitate shifts in perspectives, perceptions, paradigms, behavior and actions.'"(Munro, 2018).

2.3 Alexander Technique

The AT has been around for about 100 years. It was developed by Frederick Matthias Alexander who worked as a professional reciter, as he tried to address his own loss of voice.

It is a practical method to re-train habitual responses and attitudes to stimuli such as stress or pain. It aims at giving the student a better understanding of the body and the self in order to become more efficient and aware in the use of it (Alexander, 1995). Thus, the technique is not only for people experiencing pain, stress or fatigue but for anyone who is interested in exploring the connection between body and mind (Leibowitz & Connington, 2011).

The technique is not an instructional code, or a series of programmed exercises but rather a means of accessing the core of any activity (Farkas, 2019; Leibowitz & Connington, 2011). It is an invitation to explore ourselves in movement and in thinking and brings the possibility to change through awareness and recognition of the way we act within ourselves (Farkas, 2019; Fertman, 2021).

An AT lesson is a one-on-one teacher-student experience and usually consists of two parts (this is how it has been taught in this project): floor work and table work. In the first part, the teacher guides the student through a series of simple movements. Usually, it results in sitting down on a chair and standing up again. The guidance can be either verbal or by touch (usually both). The point is that the movements are of a character that is known to the student and play an integrated part in the student's everyday life. The movements are simple enough that they do not require the student to learn a new set of co-ordinational skills. While performing such a movement in a mindful way, supported by the experienced eyes and hands of the teacher, there is room for the student to discover any habits and patterns of the body as well as of the mind. Hence, there is room to discover the rules of the paradigm that the student operates within and the connections, flows and behavioral patterns of the body/mind system becomes apparent. Again, this allows the student and the teacher

the opportunity to identify the root causes of an issue and see clearly the range of choices and opportunities to manage it.

The table work comprises more or less the same activities as the floor work. The difference being that the bodily movements are of a much subtler character as the student is lying down on the table.

Any experience, especially one that is unfamiliar to the listener, can be difficult to convey with words. The AT is a teaching where physical experience is joined to intellectual discovery. Thus, words might not bring to life the events that take place during a lesson. The learnings are of the kind that might feel like it slips through one's fingers. It cannot be weighed or measured in the ways we are used to and there is no body of information to retain. Instead there will be a discovery and loosening of habitual patterns and a falling away of long held boundaries (Farkas, 2019).

In the following section I will explain the methodology of AT in relation to that of ST. By doing this I hope to provide a somewhat clearer picture of the technique meanwhile also drawing the connections between the two.

2.4 Systems Thinking and Alexander Technique – connecting the methodologies

We now know that systems cannot be controlled, neither can they be predicted or fully visualized. What we can do, however, is to *dance* with them (Meadows, 2015). By listening to what the systems tells us it is possible to understand how the systems properties and our values can work together to make the world a better place. Learning the dance, however, requires us to stay fully present, pay close attention, participate whole-heartedly and respond to its feedback.

Meadows (2008) points out in her book *Thinking in Systems: A Primer* that discussing systems in a language limited to words has its own implications. Sentences are built up in a linear way, word after word, whilst the dynamics of systems happen all at once. Therefore, she argues, to further the understanding of a system it is necessary to find a language that shares some of the characteristics of the system itself. Meadows herself proposes pictures; looking at a picture you are able to see all the parts of the composition at once (Meadows, 2008). In this project the body is the system and its senses will be the language. While working with the body in a mindful way you can sense the workings of the system (the body) through your nervous system. Furthermore, in AT one has the possibility to reference the participants own proprioception (inner sense or awareness of the bodies movement or position) with a more experienced eye's (the teacher's).

In this section I will refer to Donella Meadow's (2015) article 'Dancing with systems' where she summarizes the most important methodical take-home lessons from her many years of modelling complex systems and working closely with other modelers.

Below, the methodology of Donella Meadows is compared with that of AT. Endorsed by the theories of EL outlined in section 2.2 this will provide a rationale for giving CC-professionals AT lessons.

1. **Get the beat**.

   Before getting started with any interventions to the system, one needs to see and listen to its behavior. Taking the time just to watch the system will keep your eyes on the facts and away from misconceptions and beliefs about how the system should work. By looking at the behavior of the system, the dynamic rather than a static analysis of it becomes the focus. Hence, a different set of questions is formed – not only does one ask "what's wrong?" but also "how did we get here?", "what are the possibilities within the system?" and "in which direction were/are we going?". Finally, this approach keeps you from the distracting tendency many of us have to stop asking questions about the system at the point where you identified the lack of your favorite solution (Meadows, 2015) (the problem is, we need to replace all petrol fuelled cars for electrical cars. The problem is, we have to stop eating meat. The problem is, we need to plant more trees.).

   In AT terms this way of targeting a problem is called 'inhibition'. The principle of 'Inhibition' refers to the deliberate inhibition of habitual responses to stimuli (Davis, 2004). Here you learn to create an awareness of the response process; which implicit beliefs and (mis)conceptions that usually form the highway from a certain stimulus to a certain response. In practicing conscious inhibition, becoming aware of these intentions and conceptions, the door opens to a wider perspective where one can see the implicit behavior of the bodily system more clear (Farkas, 2019). Thus, it is no longer necessary to respond in the habitual way.

2. **Listen to the wisdom of the system**

   The system is self-maintaining, and all structures, connections and flows are "designed" to let the system reproduce its own behavior. Instead of charging in with interventions to make the system better, pay attention to and respect the system's own self-maintenance capacities,

and recognize the value of what is already there, it might be there for a pretty good reason (Meadows, 2015).

There is no doubt in the mind of an Alexander technician that the body is a self-organizing, self-maintaining system that is perfectly "designed" to function in movement under gravitational force (Leibowitz & Connington, 2011). One of the most important learnings from the AT lessons is to respect the abilities of the bodily system to find ways, where the mind comes short, to for example alleviate pain or unnecessary tensions. Often our attempts to "fix" our bodies with the logics and assumptions of our minds create disturbances and unnecessary tensions in an already fully functional system (Alexander, 1995). Somewhere on the way we just stopped listening to the wisdom of the system.

3. **Expose your mental models, stay humble and learn.**

"Remember, always that everything you know, and everything everyone knows, is only a model"("Dancing with Systems," 2015, pp 2). See your assumptions for what they are, air them whenever possible and let others challenge them with their own assumptions. Instead of becoming a champion for any particular truth, collect truths as were they all plausible and be aware of how incomplete your mental models are. This way, you might stay away from the pitfall of clinging to (false) assumptions. Working with systems it makes no sense to "stay the course". Instead, when embarking on a path, do it in small steps, constantly monitoring and be ready to change course when you have learned more about where the path leads (Meadows, 2015).

One important role of an AT teacher is that of mirroring the students thought patterns and explanation models. Because of the mind body connection, many of our movement patterns can be derived from the way we think about and see ourselves, our bodies and the world around us(Alexander, 1995). Thus, creating a space where these assumptions can be aired safely and thereby be seen, understood and challenged by the student itself and the teacher, is crucial for the student to make any lasting changes to how they move and act in the world (Fertman, 2021).

4. **Locate responsibility in the system**

   Pay attention to how the system creates its own behavior. Sometimes outside sources trigger certain events within the system. The outside sources can sometimes be controlled - as in making a car free zone in a city to decrease air pollution and smog. Sometimes, however, they cannot and it is a common pitfall to put so much effort into trying to control the circumstances that the much easier task (although it might not seem like it in the beginning), to look for the intrinsic responsibility within the system, gets forgotten. Thus, instead of making car free zones or car free days one might ask oneself "what within the system keeps regenerating peoples need to take the car in to the city?"(Meadows, 2015).

   The AT version of this principle is connected to the point above about exposing mental models and the recognition that they play a crucial part in regenerating the bodily systems behavior – the mind body connection (Leibowitz & Connington, 2011). There are many different ways to work with the body in today's society, however, many of them put too much emphasis on the attempt to control outside sources; you have to sit in an ergonomic chair to prevent backache while working in front of a computer or you have to stop running because every time you run, your knee starts to hurt. Here, an AT teacher would ask "what within the mind-body system keeps regenerating a use of the body that makes your back hurt every time you sit in front of a computer?" or "what causes your legs to move in a way that hurts your knees every time you run?". Usually, the answers can be found somewhere in between people's conceptions or assumptions about how to run or how to work/sit in front of a computer and how these trigger a certain movement pattern within the body. As long as these connections are intact the system will most often find ways to regenerate the backache or the hurting knees in similar situations (Alexander, 1995).

5. **Pay attention to what is important not just what is quantifiable**

   In our culture there is an enormous emphasis on that which can be quantified. It kind of makes sense as it can be exactly that, quantified. Thus, we can talk about it in a generalizable way, picture it in numbers and graphs and feel that it is comprehensible and understandable to everyone involved in the conversation. Nevertheless, when you think about what actually gives you meaning and quality to your life it is usually the things that cannot be quantified such as justice, freedom, democracy, authenticity and love. Clearly, if

no one speaks up for them, protect systems that produces them and point to their absence or existence, they will disappear (Meadows, 2015).

The point Donella Meadows makes here is one, that I believe, gets strengthened as you get deeper in to the AT work. It often becomes clear to the student that there is so much more to the functioning of the body than what can be measured in blood samples and physical examinations. We all know the experience of e.g. calm, ease, strength, stress, tightness or heaviness in the body. There is no way to quantify any of them, nevertheless, it means the world of a difference whether you are experiencing one or the other. These qualitative experiences are all symptoms of the functioning of the system and are pointed to by the AT teacher (Farkas, 2019; Leibowitz & Connington, 2011).

6. **Stay focused on the whole system perspective and expand the time horizon**

It is easy to get blinded by the problem you are trying to solve. It is important instead to focus on enhancing the qualities of the whole system such as creativity, stability, diversity, resilience and sustainability. Any small part of the system cannot survive without the whole and the solution to any systemic issue might lie far away upstream in the systemic flow. Furthermore, changes that have advantages in the long run might seem disadvantageous for some parts of the system in a short-term perspective (Meadows, 2015). For example, the long-term health of our economy requires the long-term health of the environment and its ecosystems, although nature preservation might cost considerable amounts to begin with.

The AT work focuses on optimizing the use of the whole self. Meaning that, for example, a shoulder issue is never just a shoulder issue. The student learns to consider the qualities of the whole bodily system in movement instead of e.g. doing isolated shoulder exercises. Here the use of the legs and hips can have an enormous impact on the health of the shoulders (Leibowitz & Connington, 2011). The work builds from the ground and focuses on strengthening qualities of the bodily system such as stability, resilience, motility and sustainability.

3 Methods

In this section the project design is outlined (3.1). Furthermore, an overview of the data collection and processing (3.2- 3.4), and the methodical considerations (3.5) are presented.

3.1 Project design

Five CC-professionals (defined as people working with climate related issues and/or sustainability on a daily basis) had five, one-to-one, lessons in AT during five weeks of September 2020. The data collection consisted of a questionnaire filled out by the participants prior to the lessons and subsequent to the lessons all participants were interviewed for approximately one hour. Furthermore, all lessons were filmed.

3.2 Participant selection process

Invitations to participate in the project were sent to a major green think tank and a smaller, private owned, sustainability consultancy in Copenhagen. The first four people that answered to my invitation were chosen to participate. Three of them were working at the green consultancy and one at the think tank. The fifth participant was handpicked by me as I knew this person was studying the MSc in Climate Change, and simultaneously working in the very same green think tank as the fourth person of the study. Furthermore, this participant had been informed about the investigative aims of the project and was chosen as she might contribute with deeper nuances and reflections to her participation. Thus, the participants of the project were selected both by convenience sampling (Bryman, 2012, p. 201) and in an information-oriented manner (Brinkmann, 2014, p. 82).

3.3 Data collection

All participants completed a questionnaire prior to the practical elements of the study. The questionnaire was supposed to give information about the participants professional background, current position and personal motivation for their participation in the study. Furthermore, to give some insight into the cognitive paradigm of the participants in regards to climate change, sustainability and solution models. I referred back to the questionnaire in the interviews in order to have the participants reflect on whether some of the views expressed in the questionnaires, had evolved or changed during their participation in this project. Furthermore, the answers to the questionnaire were used to add nuances to the rest of the analysis. The specific questions, their rationale and the answers are presented in greater detail in the analysis (4.1-4.2). The questionnaire can be found in Appendix 1.

All lessons were filmed in order for me to be able to "participate" and see the lessons without interfering with my presence.

After the five participants had gone through five lessons each, approximately one-hour long interviews with each of the participants were conducted. The participants were given the choice to be interviewed in their homes or at the AT study. Four of them opted for the 'at home' interview and one of them chose to be interviewed at the study. The participants were offered to be interviewed in their homes to be in a setting they felt comfortable in. Furthermore, it gave me an opportunity to get a more nuanced picture of the person I was interviewing to see their homes and experience them in their own personal space. The interviews were conducted in a semi-structured manner. Meaning (in this particular case) that a few, relatively broad, interview questions were prepared beforehand. Furthermore, the semi-structured interview gave room to follow up on any topic (not necessarily related to the interview questions) that came up during the interviews that seemed to be of importance to the participant or the project itself (Brinkmann, 2014, p. 38; Brinkmann & Tanggaard, 2020, pp. 42–47). The interview questions were framed in an open manner to not affect the participants interpretation of the experience too much. Furthermore, the questions were inteded to give an idea of the participants' thought process during and in between the lessons as well as whether or not the AT lessons had affected their approach to/work with sustainability, CC or problem solving in general. The interview guide can be found in Appendix 2.

3.4 Data processing

The interviews were transcribed and then coded line-by-line in an inductive manner in order to deduce any themes that were common for several or all of the participants (Brinkmann, 2014, p. 87; Brinkmann & Tanggaard, 2020, pp. 55–56) After the transcription and coding processes were done, several themes or topics had emerged from the data. Here, two topics were chosen because they seemed be of importance to all five participants and thus to the understanding of their experience and the project itself.

The overarching analytical method of the study is phenomenological (Brinkmann & Tanggaard, 2020, pp. 294–298). Thus, the focus has been on the participants' self-reported experience of the AT lessons, whether or not they experienced any type of change throughout the study and if they connected the potential learnings to their work with CC. One of the topics that emerged (Skepticism, section 4.4) however, had elements to it that called for a more interpretive approach.

In the analysis section the participants are assigned pseudonym names with interchanged sex in order to protect the participants' anonymity. This was necessary because there was only one male participant in the project and justified as no significant gender differences in the empirical data was found.

3.5 Methodical considerations

Initially, the intention was to send invitations to a wide range of green consultancies, think tanks and/or organizations focusing on sustainability and climate mitigation in order to find enough participants. There was a high level of interest already when the first two companies had been contacted, however, and the scope of the project only had room for five study participants. I therefore chose to limit my outreach to the think tank and the consultancy in order not to spend, more than necessary, time on the selection process. I decided that this was justified as the study by no means was supposed to be generalizable (Bryman, 2012, pp. 201–205) and it was important to get the practical part of the study started timely to have time to gather the data. Furthermore, it seemed like an interesting combination to have a few participants from a consultancy operating in a costumer driven competitive market and a few participants from a think tank that operates independently from political and commercial interests as they might view CC and potential solution models differently.

The precise number of five participants was decided upon considering a few things; five participants were enough to get a little bit of width in the data; it made it possible to give every participant five AT lessons instead of only one or two; it was important for the exploratory aim of the project to be able to investigate a few participants' thoughts and experiences with AT in depth rather than merely scratching the surface (Brinkmann, 2014, p. 83); the project were supposed to be carried out within the time frame and scope of a master's thesis at the MSc in Climate Change.

The fact that the participants in this study voluntarily chose to participate is definitely a point worthy of reflection. These were the people that found the invitation interesting enough to take the time to answer it, invest their time, presence, and curiosity in going to five AT lessons each during five weeks, answering a questionnaire, agreeing to be filmed, and interviewed for one hour each. One can probably conclude that these participants already had a prerequisite interest for the topic and could see the potential for personal gains through their participation. Therefore, a project where climate professionals were randomly picked (by for example their leader) to participate would have

produced different results. In general, considering that the group of participants was so small, any other mixture of people would probably have a radical effect on the results of this study.

The specific AT teacher of the study was chosen for several reasons but first and foremost because I knew his teachings very well before hand as I had been taking lessons from him through several years. Furthermore, this teacher had the time, was willing to conduct the lessons, and agreed to be filmed. The teacher was informed about the hypotheses of the project and some of my personal thoughts about it prior to the first lessons of the project. He was instructed, however, not to change anything in his teachings but to teach as he always does.

The fact that all lessons were conducted by this one teacher is also a point worthy of a few reflections. Just like any teacher, every AT teacher has their own way of teaching the method. So, although the principles of the technique remain more or less the same, the teaching methods can yield drastically different results for the student. In a project where the aim would have been to say something about the effect of AT on climate professionals that could be generalizable it would have made sense to choose a few different teachers to conduct the lessons and several more participants to go through the experiment (Brinkmann, 2014, p. 82). Again, this would have been practically impossible with the time and resources at hand. Therefore, the aim of this project is not to say something generalizable but to be able to say something about this particular set up that can be used to deduce a few points that would be worthy of an investigation in more general terms.

The decision to film the lessons instead of making use of participant observation (Brinkmann & Tanggaard, 2020, pp. 99–102; Bryman, 2012, p. 432) I made, for several reasons, after trying participant observation at the first lesson with the first participant: 1. both the AT teacher and I had a clear sense that my presence was interfering with the somewhat intimate space that arise when working with the body in such way, 2. I wanted the participants to have a neutral relationship to me when interviewing them afterwards, being able to tell me about the experience from their own point of view. This is also why I chose not watch the videos before conducting the interviews. This being said, the camera itself and the notion of *being filmed* might have interfered with how the participants acted and felt in the lesson situations. In the end, however, I chose not to include the video material in the analysis. The videos could have been used to nuance the participant's self-reported understanding of their experiences with a third person's view. The video material however, consisted of 15 hours film and to perform such an analysis in a meaningful way would require an

extensive amount of time. Furthermore, the main focus of the study was to investigate the participants experience from their own point of view.

4 Analysis and results

The first section (4.1) in this chapter is a brief presentation of those of the participants' answers to the questionnaire that are incorporated in the rest of the analyzes. The next three chapters (4.2, 4.3, and 4.4) represent three separate analyzes in which the empirical data will presented, analyzed and discussed.

To further the understanding of the overall research-aim of this thesis (presented in section 1.2) the analyzes will focus on the following three objectives:

1. To investigate whether AT (through embodiment) has a potential to further the understanding of ST as an approach towards dealing with CC and the sustainable transition.

2. To further the understanding towards how and in which way 1. did/did not happen.

3. To further the understanding of the particular research topic in general i.e. bring to surface topics or issues that seem to be of importance to the general understanding of the overarching topic.

The above was done by; the investigation of any progressive development in the participants cognitive framework of understanding the causes of the climate crisis, solution models and barriers towards the sustainable transition through the questionnaire and interview follow-up questions (4.2); tracing the path through which potential learnings went from bodily experiences during the AT-lessons towards cognitive concepts (potentially connected to CC) for the participants (4.3); the deduction of prominent themes from the interviews and the analysis of the implications these might have for a progression in the participants understanding (and implementation in work settings) of ST (4.3 and 4.4).

4.1 Questionnaire results

In this section those of the participants' answers to the questionnaire that are incorporated in the rest of the analyzes are presented.

Question 1.-8. on the questionnaire dealt with the participants' personal profile, their professional background and their current employment. These questions can be found in Appendix 1.

The participants' answers to question 9.-11. are presented in short. These questions provide background information that serve to add nuances to the rest of the analyzes in the following sections.

The answers to question 12.-15. are presented in greater detail, discussed and analyzed in section 4.2 as the answers to these questions constitute one of the methodical approaches for testing any progressive development in the participants cognitive framework of understanding the causes of the climate crisis, solution models and barriers towards the sustainable transition.

Below, the essence of the participants' answers to question 9.-11. on the questionnaire are presented.

Question 9. Explain briefly what motivates you to participate in the project?

All five participants were motivated by a general curiosity towards the project, and were drawn to it because of the possibility of trying AT. They were generally interested in new ways of approaching CC related issues and hoped to have professional as well as personal gains from joining the project. Furthermore, several of them said that they wanted to participate as an altruistic action, wanting to contribute to research in general but in particular climate and sustainability related research.

Question 10. What are you expecting to gain from your participation in the project?

The participants expectations were in general body related – several of them expected a better understanding of their own bodies as well as the body/mind connection. Furthermore, all of them expected to reach a higher level of bodily well-being. Some of them had specific issues that they wanted to work on and some of them just had a notion that their bodily wellbeing could be better. *Klara* mentioned a wish to become more confident speaking in public and *Malte* suggested *"that with a better posture and grounding one might be more convincing in persuading others about the necessity of a green transition". Michelle* said she had difficulties seeing the connection between CC and AT and the last two did not mention CC or their profession when asked about their expectations.

Question 11. What motivates you to work with climate-issues/sustainable transition?

All five participants answered that they were motivated to work with climate related issues and sustainability because of a sense of responsibility, duty, emergency or wish to contribute to make the world a better place. *Michelle* and *Klara* answered that they wanted to aid in emphasizing the role of behavioral and social science as opposed to the technical solutions that are the usual societal and political focus. *Klara* further pointed out that not only did her work with these issues bring knowledge about how bad the situation actually is, but it also gave her a sense of agency, that she *"actually does something".*

4.2 Questionnaire and interview follow-up

In this section the methodical rationale for this part of the analysis is outlined (4.2.1). Thereafter, the empirical data is presented and analyzed (4.2.2), followed by the main insights and reflections (4.2.3) of this analysis.

4.2.1 Methodical introduction

In the questionnaire I explicitly asked the participants to elaborate on their thoughts about the causes of the climate crisis as well as their thoughts about the sustainable transition and potential barriers towards said transition.

The questions were:

11. *In your opinion, which are the main causes of the climate crisis?*
12. *According to you, what does sustainability mean?*
13. *According to you, what does sustainable transition mean?*
14. *In your opinion, are there any barriers preventing a sustainable transition? If yes, briefly describe those that according to you, are of most importance:*

During the interviews I asked the participants to reflect on question 12. and 15. again and whether or not they had gained any new insights towards these topics from taking the lessons in AT. Question 13. and 14. served to give background information to what the participants were talking about – what *sustainability* and *sustainable transition* meant to them - when answering question 15. Again, all four questions further served to add background information and nuances to the rest of the analysis as well.

The participants' views on the causes of the climate crisis as well as their views on solution models and implementation barriers gave an insight to whether or not they had a systemic-approach towards their work with CC and sustainability to begin with. By asking the questions again during the interview it could be deduced whether or not there had been any change to the participants' approaches through the course of the project. Here, the questionnaire provided an explicit insight to their views on the causes of the climate crisis, solution models and barriers prior to their participation in the project and the interviews provided an explicit reflection on the same question subsequent to the project. To be able to trace each participant's (potential) progression the answers and statements are connected to the participants' (pseudonym) names for the rest of the analyzes.

4.2.2 Data and analysis – Questionnaire and interview follow-up

All five participants mentioned having some kind of insights to the causes of the climate crisis and about solution models and sustainable transition barriers - after having undergone the lessons.

Below I will present the empirical-data, analyze and discuss the results in detail.

Klara

Klara was the participant with the most prominent change in how she answered the questions. *"That we have lived in discrepancy with the Earth's resources for too many years"* was her answer to the causes of the climate crisis on the questionnaire. Her answer during the interview was somewhat twofold. She started by stating that she now *"instead of saying 'in discrepancy with' I would say 'with no sense of connection to (the Earth's resources)'"* and added that AT turned her focus *"to put emphasis on other things than speed and productivity, that there are other values that requires a different mindset (...) that maybe one does not have to do so many things but in turn do them better (...) that, I think, Alexander Technique can help get you in contact with".* So, *Klara* recognized that it was actually the lack of a sensed connection with whatever the 'resources' are extracted from, and the consequences from that lack, that causes us to live in discrepancy with the amount of said resources. Furthermore, that getting in contact with these other values would take a slowing down and a change in mindset that not only gives you this connection with the cause and effect of things but also makes you focus on doing less with higher quality rather than the opposite. Thus, *Klara* has the realization that it takes a change in mindset to shift the mechanisms that have caused the climate crisis. This is a clear shift towards a more systems-oriented approach as ST tells us that - as long as the rationale, or the mindset behind a certain behavior remains intact - the system will regenerate, revive and eternize its issues. Thus, failing to recognize this, one risks having to deal with the same kind of issues over and over again (Meadows, 2008).

Klara, furthermore, has the realization during her AT work that doing things *slower* in a bodily context allows her to do them *better*, which in turn works in favor of the functioning of her whole bodily system. This *Klara* specifically connects to her work with sustainability. A change of focus from 'many tasks and speed' to 'fewer tasks and taking the time' could potentially allow her to achieve long-term goals at work not only *better* but in the long run actually *faster* as well, she says. Here *Klara* had insights about the mechanisms of some of the systems she operates within – her body and her work with sustainability - realizing that changes that might seem disadvantageous for

some parts of the system in a short-term perspective can be advantageous in the long run. This again, goes hand in hand with a more systems-oriented approach (see point 6. in section 2.4)(Meadows, 2008, 2015). Ambiguously, however, she points to the difficulties of anchoring that particular mode of thinking at a work place such as hers. "*It is difficult",* she says, because her profession "*requires so much speed*".

As towards barriers, *Klara* mentioned *"habitual thinking*" as the main barrier on the questionnaire and that this is a barrier that is difficult to break as *"it lays within human nature to save resources doing what we always did".* When asked again during the interview, however, she said about the lessons in AT that *"it has definitely loosened my bodily habits, made me able to relate differently to the same type of movements and notice other things in them."* She is here again referring to bodily habits and habits in general as barriers. She states that the methodology of AT has made it possible for her to discover new details to her bodily habits as well as relating to them differently. Thus, she has gained tools from the lessons in AT to reach a clearer understanding of causes and effects within her bodily system and to see clearer the mechanisms of her bodily habits which arguably is the first step towards breaking them. From a ST perspective it is argued to be a crucial step towards understanding or breaking the behavior patterns of any system (see point 1. and 3. in section 2.4)(Meadows, 2015).

Again, however, she points to the difficulties transferring and implementing these insights to *"being more innovative or think across sectors in big organizations and municipalities".* Thus, it seems, that *Klara* had some insights during the project about the causes of the climate crisis and barriers towards the sustainable transition, and mentioned AT as a method that made it possible to approach her habits form a different angle. This, however, happened primarily in a bodily context, and she had difficulties seeing how to implement these insights to her work with sustainability.

Malte

Malte answered to the questionnaire that the main barriers towards sustainable transition were politicians being afraid of making uncomfortable decisions, businesses not being ready to transition to circular economy and individuals being stuck in "*black habits".* During the interview he emphasized that he still held this answer true, but wanted to add *"Carsten (the AT teacher) emphasizes that it is not 'stretch and bend', it is not 'tense and relax'. It made me think about 'fees and financial incentives', many people think that there is nothing else in the world, but there is! There are totally different mechanisms and totally different modes of functioning, and I guess this is*

where you'll have to break those barriers from a whole systems perspective". Here *Malte* refers to the AT-teacher's insisting on expanding the conceptual frame within which *Malte* was operating when working with his body. It seems that *Malte* experienced during the lessons that he was using preset analogies (*tension/relaxation* or *stretch/bend)* to verify his solution models towards his bodily issues and that this kept him within a certain set of solution possibilities that could be found in the frame of what he already knew, or within the concepts and mechanisms of the already existing system. This way, he saw the use of these preset analogies representing a barrier when it came to finding solutions by 'thinking outside the box'. This, in turn, made him think of the same kind of barriers in society towards sustainable transition. Furthermore, he realized that in order to break those barriers the system as a whole had to be considered. It seems here, that his work with AT confirmed the importance of, and provided a cognitive framework for some societal mechanisms and barriers that *Malte* had already thought about in his work with sustainability and CC. Thus, from a ST perspective (Glaser, Krause, Ratter, et al., 2012; Meadows, 2008), *Malte* could pin point some of the fundamental mechanisms that, in his opinion, keep regenerating the Danish societal systems behavior when it comes to the sustainable transition – namely that of verifying new ideas from the point of view of the economic rules of the already existing system. Furthermore, he realized that the rules of the game have to change in order for a profound systemic change to happen.

Malte put the industrialization as the primary cause of a non-sustainable use of energy and resources on the questionnaire. This in turn, he wrote, has led to not only CC but over exploitation of the environment. When during the interview asked about having developed any new thoughts about the issue, *Malte* simply answered *"no, it's the same".*

Johanne

Johanne stated in the questionnaire that the main barriers preventing a sustainable transition was many peoples' lack of willingness and ability to change their unsustainable lifestyles. Furthermore, she argued that the political climate is infiltrated by multinational companies and that there is a general belief that profit and economic growth is fundamental for the wellbeing of the human race. When asked about barriers during the interview, however, she said she did not like to think too much about barriers in general - not towards sustainable transition, and neither towards her AT work during the lessons. Therefore, she had not given this question much thought during the course of the project, she said. When asked about causes of the climate crisis during the interview,

however, she said *"I can really see parallels in relation to staying open towards and accepting uncertainty (…) and still be able to find an anchor or peace, because it is of no use if all this uncertainty just makes you incapable of doing anything or makes you apathetic (…) there is so much uncertainty in relation to the whole world and which part I have to play (…) so when I do my work, I'm a tiny brick and it is not even sure that what I'm doing is the right thing, does it even have an effect? (…) here I can clearly see the parallels between that uncertainty and that now my understanding of my own body is suddenly totally, I don't even know how to bend the backside of my legs".* This statement, deals with a barrier towards working with climate related issues rather than the actual causes of the climate crisis. *Johanne* reflects that it can be difficult to feel at ease, and remain hopeful and constructive around all the uncertainty that is connected to the climate crisis. She, experienced reluctance towards going to one of the AT lessons because of the challenging nature of being in the kind of uncertainty that redefining the understanding of her body created. This experience she connected to her work with CC and the fact that the climate issue is so big that there can be no certainty as towards the results of mitigative or adaptive actions. The uncertainties she talks about, range from whether or not her individual (private and work-related) actions matter in the bigger picture, to whether or not the solution models implemented on a global scale makes a difference for the climate. She adds later during the interview that the work with AT and her body *"illuminates that there is a need for a lot of openness in relation to working with climate related issues for example, or working towards solutions in times with very much uncertainty, there you just have to remain totally open and scrap your old assumptions… just swallow your pride somehow"*. Not only does it take openness, she says, but it takes a redefinition of one's previous assumptions which in turn takes the swallowing of one's pride to work with climate related issues constructively. This makes great sense from a ST perspective. ST argues that working with complex systems such as the climate, society, or the sustainable transition constructively, requires the ability of the practitioner to acknowledge the incompleteness of her mental models and assumptions, being able to stay open to new understandings, and to change direction accordingly. Furthermore, that not clinging to the certainty of already tested methods and 'staying the course' is crucial to the systemic approach (Meadows, 2015).

Johanne's realizations here, are similar to *Malte's* realizations about preset analogies – both *Johanne* and *Malte* talks about the barrier-effect of the use of pre-set assumptions to find new solutions. *Johanne* just frames it a bit differently by pin pointing the 'reluctance to stay with the

sense of uncertainty' that this redefinition of ones pre-set assumptions would create as the actual barrier.

Andrea

Andrea wrote *"willingness (...) to give up the life style we've been used to being able to have"* as the main barrier towards a sustainable transition on the questionnaire. She related both the life style and the unwillingness to let go of it to the strong influence of cultural and social norms. When asked again during the interview she said about some of her experience of having AT lessons *"I have my assumptions about the working of things and how my body functions and if I suddenly get contradicting information (...) it would be easiest just to shove it away again (...) and it's kind of the same with climate change, the easiest would be to say 'no my behavior makes no difference' and then I don' experience cognitive dissonance, I can just continue as I'm used to because I decided that it makes no difference to the climate".* Here, *Andrea* drew connections between her own cognitive dissonance towards AT and the same dissonance that can be seen in some parts of the population and society towards human induced CC. She further talks about the reluctance (*"it would be easiest to just shove it away")* to step out of 'what you already know' and embrace something that is so far away from what can be explained or verified from the present cognitive paradigm that it seems untrue. Here again, connections can be drawn to both *Malte* and *Johannes* insights about the barrier-effect of needing to step out of what seems certain in order to embrace either uncertainty itself, or a new understanding of the world and solution models towards CC and how these open the door towards a more systemic approach. *Andrea* realized that she experienced cognitive dissonance towards some of the information she got during the AT lessons, as this contradicted her initial understanding about the functioning of her body.

Michelle

When asked about both barriers towards sustainable transition and the underlying causes of the climate crisis during the interview, *Michelle* drew parallels between her lessons in AT and what she had answered on the questionnaire. On the questionnaire, she answered that one of the main causes of the climate crisis was people's sense of separateness from nature, and that one of the main barriers towards sustainable transition in her opinion was that of redefining our relationship to nature. This was also what she referred back to when asked during the interviews. She said that she could see how AT somehow works to break the dichotomy between the body and its surroundings, which in turn could help change some of the fundamental understandings of ourselves as organisms

in the world. Here, it seems that *Michelle* saw a point in taking AT lessons to target some of the causes and barriers she already assumed existed towards CC and the sustainable transition. However, she did not mention any *new* realizations regarding causes of the climate crisis and barriers towards a sustainable transition per se when asked explicitly in this manner. Furthermore, she pointed out that these parallels were drawn in an attempt to understand the theoretical rationale of the project itself.

4.2.3 Main insights and reflections – Questionnaire and interview follow-up

Klara had insights through the lessons in AT, about the mechanisms of her bodily system that she explicitly translated to her work with sustainability. These included, that it takes a change in mindset to shift the mechanisms that caused the climate crisis - and that doing things *slower* might seem disadvantageous for some parts of the system (body or work) in a short-term perspective, but can be advantageous in the long run. Furthermore, she gained tools from the lessons in AT to reach a clearer understanding of the mechanisms of her bodily habits which she, in turn, refer to as barriers towards change or transition in general. Referring to ST theories it seems that *Klara* had insights that can be seen as a development towards a more systems-oriented approach through the course of the project. She does, however, emphasize the difficulties she sees in implementing these insights in a work-related setting.

Both *Malte, Johanne* and *Andrea* emphasized the barrier-effect due to the difficulty of stepping out of what seems certain to embrace either uncertainty itself or a new understanding of the world and solution models, in general, and towards CC and the sustainable transition in particular. *Malte, Johanne* and *Andrea's* insights about these barrier-effects show that they gained some nuances towards their understanding of systems through the course of the project. Including, what it takes, according to ST, to work with systems such as the climate and the societal sustainable transition in a meaningful way (Glaser, Krause, Ratter, et al., 2012; Meadows, 2008, 2015). Here, all three of them pointed to the difficulties and necessity of exposing, as well as letting go of, pre-set cognitive models and assumptions in order to become wiser about the mechanisms of the systems that are dealt with.

In general, it would be a stretch to say, based on the data, that the participants self-reported any truly *new* realizations when asked explicitly in this manner. Most of their answers connected to something they had either written on the questionnaire or to their already internalized understanding

of these topics it seemed. Furthermore, *Michelle* explicitly mentioned that the parallels she referred to, had been drawn in an attempt to understand the theoretical rationale of the project itself. It cannot be excluded that this applies to some of the other participants insights as well. It can be said though, that the lessons in AT did add nuances to (at least) four of the participants pre-set understanding of the causes of the climate crisis and barriers towards the sustainable transition.

One point that should be mentioned here is the potential methodical bias from comparing written answers on a questionnaire with answers that are given in the conversational setting of an interview. During the interview, the participants were able to elaborate freely and I was able to ask clarifying questions as well as follow up on things I did not understand to begin with. In contrast, the participants' answers to the questionnaire were restricted to what could be written on half a page or so. Furthermore, my understanding of the answers was restricted to what I could deduce from reading the answers. Although I put my attention towards clarifying whether or not this was the case, it cannot be ruled out that some of the answers during the interview simply surfaced at this point as a result of the participants having the possibility of elaborating in a conversational setting. On the other hand, a written statement gives the writer the possibility of editing the statement until the most accurate form remains. Either way, the two ways of answering a question is very different and this might have affected the results.

4.3 The Path of Learning and A New Perspective

This analysis is primarily based on the participants' statements during the interviews and nuanced by the participants answers to the questionnaire.

First, to provide context, the path of learning from bodily experience towards cognitive concepts that the participants seemed to follow in this project is traced and analyzed (4.3.1). This was in order to better understand the connection between the bodily experiences and the cognitive meaning-making and if one made any difference to the other. This was necessary, as the fundamental presumption of the project is that one actually does make a difference to the other.

Thereafter, the most prominent theme that came up during the interviews – namely that of AT challenging the participants view on their bodies and themselves in relation to the world which, in turn, opened a door towards a more holistic cognitive paradigm for the participants, is analyzed (4.3.2).

At the end of this section, the main findings and reflections from this part of the analysis are outlined (4.3.3).

4.3.1 The Path of Learning

"but this is where the bodily experiences help to make sense of it. Because, when I can sense that what he's (the AT teacher) saying is right, then it makes sense and I believe it" Andrea said during the interview explicitly expressing that the bodily experiences she had during the AT lessons laid the foundation for the cognitive learning outputs in this project. This way of gaining insights 'from bodily experiences to cognitive understanding' seemed to be common for all five participants when accounting for the way they generally talk about their learnings during the interviews. Here they constantly referred back to an actual *experience* that led to the cognitive realization. The participants lacked a cognitive framework for explaining some of the bodily experiences they had, and which they in several cases referred to as having profound effects. These were often referred to as *"hocus pocus"* or *"spiritual"* and I will return to these in section 4.4. It means, however, that the understanding of the learnings happened on two levels – through the body alone and through the participants' cognitive analysis of the embodied experience. Referencing to embodied learning theories, this makes sense, as these describe 'bodily knowing' (a bodily experience which leads to an intuitive bodily *knowing* of something) as a source of understanding and meaning in itself (Forgasz and McDonough, 2017). Furthermore, the body can act as the first site of learning whereafter the cognitive mind follows with a "meaning-making" analysis of the bodily experience (Bird & Sinclair, 2019).

Below is a figure (figure 2.) that visualizes the categories of embodied experiences that the participants emphasized during the interviews, as well as the different categories in which the participants categorized and made sense of the bodily experiences cognitively. Furthermore, the figure shows the progressive path from bodily experience towards cognitive sense-making that the participants in general followed.

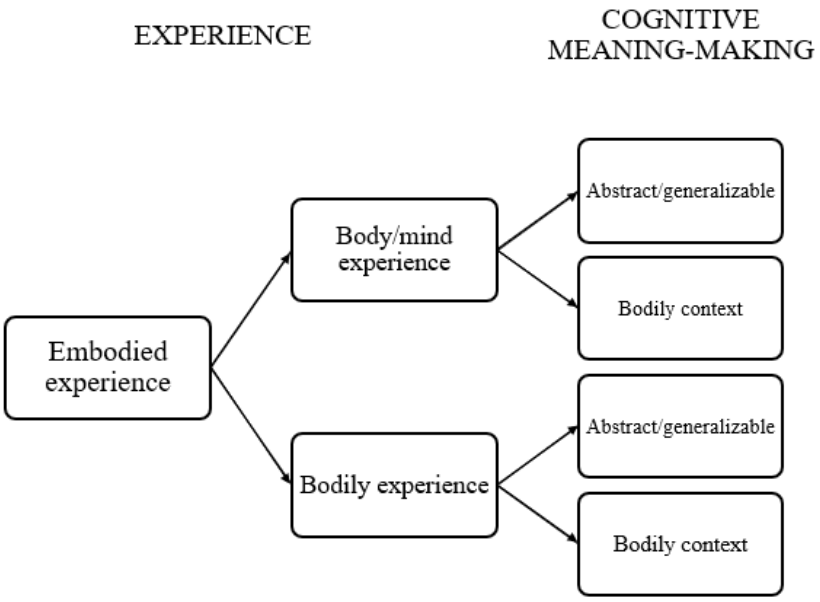

Figure 2. The path of learning from embodied experience towards cognitive meaning-making

The embodied experiences that the participants emphasized I have categorized (figure 2.) into two categories:

1. (Purely) Bodily experiences – These are experiences that can be conceptualized and talked about within a purely bodily context e.g. this experience that *Malte* talked about here *"now I can stand up and sit down without any pain in my knees, and without any squeaking or creaking"* or this one that *Andrea* mentioned *"the interesting thing was that after I did that exercise (…) I could sense that my bodily posture felt very pleasant, it was different from that physiotherapy (posture) with the shoulders pressed back, it still felt upright somehow although my shoulders weren't pressed back, like, relaxed in the neck."*
2. Body/mind experiences – These are experiences that cannot be conceptualized within a bodily context alone but where there is an element of thought or cognitive perspective that defines the experience. An example of this kind of experience is the one that *Michelle* had *"I think it was exciting to experience that he (the AT teacher) said 'try to sense the connection to the ground with your feet', and then when he pushes you, you're really strong, like a rock, and when you don't sense the connection to the ground you lose your balance at the slightest touch".* Here the bodily experience is connected to a

change in focus or view on the connection to the ground. Hence, it is the *way* in which *Michelle feels* the connection to the ground that makes the difference not *that* she has a connection to the ground.

*(important to note here is that I do not argue that the first category (purely bodily) of experiences is in any way separated from the mind. This paper builds on the fundamental notion that the body and mind are connected in all experience of a human person (Macedonia, 2019; Munro, 2018; Stolz, 2015). For the purpose of this analysis, however, I make the distinction between an experience that can be *conceptualized* within a bodily context alone and one in which there is an "element of mind" involved).

The participants' cognitive analysis that builds on these two categories of experiences I have, again, categorized into two different categories (or levels) (figure 2.):

1. The first being where the participants' cognitive analysis and meaning-making model of the experience refer back to the functioning of their bodies alone e.g *"it is connected to (…) viewing the body holistically, it's not just a set of legs and a set of arms that are attached to a corpus, but it is all connected and influences each other in different ways. If you have pain in your neck, it's probably because you stand, walk or do something somewhere else in your body that isn't very functional".* Here *Michelle* talks about a new holistic understanding of her body, but she does not transfer any concepts or realizations to any general level of understanding or the way she views the world.
2. The second level is where the participants thoughts and cognitive reasoning about the embodied experience is raised to a more abstract and generalized level*." I think the Alexander Technique has given me the realization that 'this is one brick' (points to specific part of his body), but it's the whole... by influencing that brick I, on the one hand, change that particular movement, but that, in turn, influences my whole body positively. But, that has to be transferred to the general way we're thinking, to a more holistic way of thinking" Malte* for example said. On this level of reasoning the participants cognitively connected their bodily experience not only to their view on causality in general (essentially their worldview), but specifically to society and/or their work with CC and sustainability.

Although many interesting results most certainly can be deduced from an analysis on the level of the participants bodily experiences or 'knowing' alone, I will from now on focus the following analysis on the experiences that led to a cognitive realization. I will further narrow my

focus down to the categories in which the participants raised their reasoning to an abstract and generalized level as this was where they, themselves, connected their learnings to any broader concepts such as CC and society.

4.3.2. A New Perspective

When transcribing, coding, and listening to the interviews - it became clear that all participants put a lot of emphasis on how the AT teachings, in one way or another, had challenged their thinking about themselves, their bodies, the world and its relations - as well as their own relation to the world through their bodies. In general, this expanded perspective had something to do with thinking in more holistic terms. This was the most prominent theme that came up during the interviews and it was touched upon by all five participants. All five participants explicitly connected this emphasis to their work with CC and sustainability, and/or the society in general. Therefore, I will analyze and discuss this theme from a ST perspective in this section.

There were two directions (that differed slightly) to the participants experiences and their cognitive sense-making of them within this specific theme, whereof the second was the most prominent.

1. A generalized holistic mode of thinking
2. Holistic thinking in terms of a new sense of bodily connection or interconnectedness to the surroundings

A generalized holistic mode of thinking

"*it (AT) might open up for a holistic perspective* (…) *having a holistic perspective towards Climate related issues" Andrea* stated during the interview. *Malte* further emphasized that for him AT had pointed to the importance of *"making interventions to the system that changes peoples' behavior for the better in the whole society"* whereafter he continued by saying that *"there is no doubt that this process has made me focus on daring to think radically different, bigger".* Here both *Andrea* and *Malte* talks about a more generalized holistic mode of thinking that the lessons in AT had opened up for or pointed to the importance of. *Malte* talks about making interventions *"to the system"* and *"daring to think radically different"* which are statements that on the one hand points towards a more system-oriented approach towards society and on the other hand, towards the necessity of daring to step away from the current general cognitive paradigm as *Malte* sees it.

Michelle further emphasized a connection between her learnings from AT and that "*the green transition has to be transformative in the sense that it should point inwards towards how we see our bodies in relation to nature, the self and our organism. We have to change the more fundamental stuff because there is something cultural in the way we see ourselves and the world that we have to change in order to change the climate crisis. The solution is not to invent some random devise to save us"*. Thus, *Michelle* also recognizes a connection between her bodily experiences through the lessons in AT and the necessity of a shift in the way we, in general, see ourselves and think about ourselves in relation to the world and issues such as the climate crisis. The statement is also an emphasis of a more holistic and systemic approach towards the climate issue in general as she incorporates both *"our (…) relation to nature"* and the cultural aspect in her reasoning about the climate crisis (Meadows, 2008). Here *Michelle*, however, emphasized the difficulties of implementing such a holistic approach in a general practical sense. Furthermore, that her statement was something she had purely thought about and nothing that she necessarily had come to practice through the project.

Connecting to the surroundings

All five participants had experiences during the lessons that in their cognitive analysis of it, challenged their view on their own relation to their bodies, on how they relate to the world through their bodies, and the body/mind connection (Munro, 2018). All five participants connected these experiences in some way or another to their work with and view on CC. The most prominent experiences in this category had something to do with sensing a new way of connecting through the body – either to the ground or the surroundings in general.

"that experience of leaning against the wall and sense the difference, how tensed I was when I just leaned against it and how that tension disappeared when I connected to it (the wall). That was a good indicator of how my body reacts if I don't connect to the floor when I'm just walking from A to B in contrast to if I'm present in the process" Here *Klara* talks about one of her experiences during the lessons in AT and it exemplifies a realization that several of the participants had through the course of the project. Including, how a change in focus or mindset (e.g. a new sense of connection to the wall) made a difference for the functioning of the bodily system (e.g. feeling tensed or not). These experiences, again, made several of the participants draw connections to the significance of the seemingly small and subtle things and the impact they can have in general. *Michelle* for

example said about a similar experience"*(…) That's just one of those experiences that confirm that those small, subtle things that you might not value or attribute any emphasis to in your daily life, are just incredibly important". Johanne* further stated after having a similar bodily experience that *"if such small changes feel so profoundly different then it has to have some kind of profound effect".* Contextualizing this within a ST frame it can be argued that the participants through the lessons in AT have exposed some of their mental models (e.g. *small, subtle things that you might not value or attribute any emphasis to in your daily life, are just incredibly important)*, have located responsibility within the bodily system for certain behaviors (sense of connection to the floor that lead to tension or not) and have had realizations about the importance of subtle and in some cases non-quantifiable things *("if such small changes feel so profoundly different then it has to have some kind of profound effect")* (see point 3,4 and 5 in section 2.4)(Meadows, 2015). They had these experiences in a bodily context and it can be argued that interpreting their cognitive realizations directly as ST learnings is a bit of a stretch. It can be said (and was said by the participants themselves) though, that it contributed with some new nuances to their previous worldview.

In general, the participants insights that are presented here should be viewed more as an expansion of their current cognitive paradigm than a total shift towards something entirely different. The participants related their insights through the project to concepts or understandings they brought from before and it can be extracted from their answers to the questionnaire that their cognitive paradigm encompassed a somewhat holistic and systemic view on causality already before joining the project. However, typical statements about the experiences that the participants had during the lessons in AT such as "*It was an eye opener", "it was a totally different way of viewing the body than I have experienced before, it was very touching"* or *"the world is not as simple as I imagined"* further indicate that the participants' cognitive paradigms were in fact expanded through the project.

"*It is that very concrete sense of the relationship - that it's not just me doing stuff, which is what many people think in the Anthropocene, but that there is a relationship between me and everything that surrounds me that I can use actively in my everyday life so that I feel interconnected (...) It is not only about me; it is about a wholeness that we need to become better at considering. Everything we do is so focused on the individual and that is what created that overconsumption - you always think about the next better thing…. But if one can slow down and sense that connection and relationship, then I think one also has the urge to take care of one's surroundings"* This statement from *Klara* also exemplifies a notion that four of the participants mentioned during the interviews*:*

that this newly discovered sense of interconnection with the surroundings, or ”grounding” (as several of the participants called it) had a loosening effect on the experienced boundaries between the self, the surroundings, and nature. And that this, in turn, could be related to being less focused on the individual and more in contact with a wish to protect and preserve - rather than exploit and consume their surroundings. The loosening of the boundaries between the self and the surroundings is just another dimension of holistic thinking in which not only the body and the self is seen as a whole organism but in which the surroundings are included as an integrated part as well. This sense of interconnectedness was also mentioned by some of the participants to inspire a sense of importance towards protecting the earth, nature, and relations - while giving less significance to economic growth and material wealth. This makes sense, as research suggests that the more people perceive themselves in interconnectedness with nature, the more likely they are to hold pro-nature believes. Furthermore, environmental management outcomes might be more available if focus were put on increasing individuals' sense of interconnectedness with nature (Fehnker et al., 2022; Okpoko, 2022). Several of the participants developed a deeper sense of interconnectedness and cognitively recognized that it had a significance to their values and choices.

Andrea, Klara, Johanne and *Michelle* all emphasized that this sense of grounding and connection could be used as a tool to become more present and centered, in work related settings as in life in general. It was mentioned by several that being in a bodily connection to the floor gave a different bodily feeling e.g.*”sense of ease and lightness”* which *Andrea* contrasted by a *”wrinkled forehead and stiffness in the body”* which in turn made a difference to the way they went about their work (and life in general). Here it was mentioned that sensing this connection to the surroundings resulted in being less goal oriented, doing things better instead of faster and that it gave a general sense of clarity. This show that these participants became aware of a level of details to their bodily systems that they had been, if not unaware of, so at least had not paid as much attention to previously. This can be viewed in the light of Meadows 2015's point about learning to pay attention to what is important and not only what is quantifiable (referred to as well in section 2.4) when learning to work with systems (Meadows, 2015). Here again, the participants experienced and expressed the importance of how it *feels* to be in the body and cognitively reasoned about the difference it makes not only for the mechanical functioning of the body, but for their cognitive decision making - the mind - as well. This can, again, be interpreted as a door opening towards the availability of a more system oriented cognitive paradigm (Randle & Stroink, 2018).

4.3.3. Main insights – The Path of learning and A New Perspective

It seems that the participants' insights from the project in general, were drawn from, and strengthened by the bodily experiences that the participants had during the lessons in AT. Here, the participants generally referred back to bodily experiences and how these had challenged their pre-set assumptions, which in turn led to new cognitive realizations.

The way the participants talked about a new or extended perspective through the lessons in AT - whether it was on CC, themselves, their bodies, or the relations and connections between it all - went in a few different directions. In general, however, it had something to do with thinking in more holistic terms.

Some of the bodily experiences that the participants had during the lessons in AT led to cognitive realizations of a more generalized or abstract character. Here, they connected their learnings to broader concepts such as CC and society in general. All participants emphasized how their experience with AT had pointed to the necessity of a more holistic and systems-oriented approach towards sustainability and climate related issues. Furthermore, four of the participants experienced gaining a new sense of connection to their surroundings through the lessons in AT which, again, they connected to a more holistic and systems-oriented approach in general and within the context of CC and sustainability in particular. A strengthened sense of interconnectedness with one's surroundings and nature has, interestingly, been shown to coincide with pro-nature believes and behavior (Fehnker et al., 2022; Okpoko, 2022)

The fact that the participants actually connected their bodily experiences to a new, more holistic, mode of thinking, is a very exciting finding. Although - it cannot be said based on the data that the participants have taken a leap from their current cognitive paradigm to a new - the fact that they all mentioned the glimpsing of a new or extended holistic perspective on themselves, the world, and their work with CC and sustainability, can be interpreted as a development of their current paradigm towards a more systems-oriented one. Thus, the lessons in AT seemed to have opened a door towards the cognitive paradigm of ST as defined by Randle and Stroink (2018) and a more holistic and systems-oriented approach towards CC and sustainability in general (Meadows, 2008, 2015; Randle & Stroink, 2018).

4.4 Skepticism

This analysis is primarily based on the participants' statements during the interviews and nuanced by the participants answers to the questionnaire.

Through the analyzes so far, the difficulties of transferring and implementing the insights and learnings the participants had to any practical settings in general and to their work with CC and sustainability in particular have been mentioned several times. The transition from cognitive concept to practical doing is of course an interesting aspect of any learning activity. Therefore, this aspect of the results is discussed and analyzed in the following section (4.4). The main insights and reflections of this analysis is presented in section 4.4.1.

All five participants referred to themselves as possessing more than the usual person's openness towards new learnings, methods or perspectives in general. All five participants, however, also referred to some aspects of AT or their experiences during the lessons as *"hocus pocus", "spiritual", "magic"* or *"wacky"* which suggests that the participants experienced some sort of ambivalence towards either AT itself, their experiences during the lessons or their learnings from it. A typical comment about AT was for example what *Michelle* said *"I don't know if it is hocus pocus but that's how it feels when you're not used to it"* or *"it can seem a bit alternative, like hocus pocus"* which *Andrea* commented. The overall wording can be interpreted as a kind of skepticism.

For the purpose of this analysis the word 'skepticism' is used as defined by Mohr et al. (1998): as a contextual cognitive reaction which entertains doubts or disbeliefs in what other people do or say, and that depends on the occasion, the content of the communication and can change accordingly. Thus, the person displaying skepticism can be convinced otherwise if proof is shown (Mohr et al., 1998).

It can be deduced from what was said during the interviews that the participants' skepticism took a few different shapes: 1. the participants' self-reported skepticism towards the credibility of some of the methods of AT, 2. the participants' perceptions that other people would display skepticism or reluctance towards having lessons in AT, and 3. the participants' perceptions that other people would display skepticism if they were to transfer/implement their insights from the AT lessons to their work with CC and sustainability.

The perceived skepticism from other people represented a concern for four of the participants and therefore acted as a barrier for these participants towards implementing and transferring some of their insights to their work.

Skepticism addressed in the open

There was a rather prominent difference between how the participants dealt with their skepticism. In particular, there was a difference between how *Malte* dealt with it and how the rest of the participants dealt with it. *Malte* talked openly about his skepticism throughout the whole project starting already when answering to the invitation to participate (which he reminded me about during the interview): "*I have to admit that when you wrote to me, I thought… and this I think I asked you very frankly 'what on earth have you imagined?'"*. Most importantly, however, *Malte* had no hesitations towards addressing his skepticism with the AT teacher during the lessons. By addressing

his skepticism in open dialogue, *Malte* allowed for the AT-teacher to present arguments or explanations to address said skepticism. Which, in turn allowed for the skepticism to develop i.e. being strengthened or weakened. Furthermore, this meant that the underlying assumptions or cognitive models could be addressed and challenged by those of the AT teacher in open dialogue. Thus, instead of either of them clinging to one particular truth or worldview here, the possibility arose to expand that which was already known to them both. According to Meadows (2015) this way of addressing one's mental models is crucial to expanding one's cognitive framework, the understanding of systems in general and the adopting of ST (see point 3 in section 2.4)(Meadows, 2015).

"It has been magical to be at Carsten's (...) and what he does with those magical hands I don't know, but it sure works" Malte further concluded during the interview. Here, although expressing not having a cognitive framework to explain how, *Malte* concludes that *"it sure works"*. *Malte,* thus, has an accepting attitude towards those experiences that he can *sense* has an effect and he does not bother to much about not being able to explain how and why. Further, this can be understood as a manifestation of 'bodily knowing' as described in EL theory i.e the body as such acts as the source of understanding and meaning-making here (see section 2.2).

This was in contrast to several of the other participants, to which these particular experiences (to which they were not able to provide a cognitive explanation) in some cases gave rise to even more skepticism and doubt. It can be argued here as well, that there might be a connection between the way that *Malte* exposed his skepticism during the lessons, as this might have weakened it, and the fact that he seemed more receptive to this 'bodily knowing' than the rest of the participants.

Michelle, Andrea, Johanne and *Klara* were also more hesitant to share their skepticism during the lessons. *Michelle* and *Andrea* mentioned a skepticism towards the credibility of some of the methods of AT during the interview. Both of them, however, had chosen not to mention this skepticism during the AT lessons as they had the notion that to maintain an open mind and the ability to learn the method one should not display skepticism or, as *Michelle* put it, *"put question marks around the fundamental methodology (of AT)"* during the lessons. This can seem contradictory as both *Michelle* and *Andrea* were in fact skeptical, and by choosing not to mention it, they were deprived of the opportunity to have their assumptions challenged and thus, in contrast to *Malte,* deprived of the opportunity to widen their perspective in this particular respect as well.

The perceived norms of 'other people'

Michelle, Andrea, Klara and Johanne, all emphasized a conviction that 'other people' might not be as open towards either participating in a project such as this, or towards applying a more holistic approach towards CC and sustainability as they were. Furthermore, they expressed a concern about this notion that seemed to act as a barrier towards transferring their learnings to their work.

"In reality, I think that maybe that skepticism would be even more prominent for all of those that haven't chosen to participate" Andrea said and *Johanne* further stated *"but then one could hope that it would be possible to get in touch with some super narrow-minded people, and teach them to stay openminded towards their bodies… But I think it constitutes a bias that you have to possess a certain degree of openness from the beginning"*. These statements from *Andrea* and *Johanne* exemplify a general notion among these four participants that the openness that can be assigned to people choosing to participate in such project (as this) they believe to represent a potential bias for the results. Meaning that, people that are "less open" would either not choose to participate or, if participating, they would be more skeptical towards the method and the learnings the teacher tries to convey than these participants were. Furthermore, all five participants expressed that this openness or open-mindedness was something that they did not consider the general public being in possession of.

The concern about deviating from what they perceive as the general norm seemed to represent a barrier towards transferring some of their learnings to work-related settings for *Johanne, Michelle, Andrea* and *Klara. Andrea* for example said *"It's easier to talk to people within the already established discourse than having people understand a different way of talking about things, it can easily be viewed as a bit 'hocus pocus' (…) it can be a bit difficult to implement those holistic perspectives as they accommodate everything. Then it's easier to talk about CO2-equivalents, it's tangible and makes sense, and therefore less 'hocus pocus'".* Additionally, *Klara* stated about one of her insights (about solving work tasks with a different mindset and focus presented in section 4.2.2)*" It's difficult to anchor at my workplace (…) it requires so much speed, I think most jobs do nowadays, there is so much to do and so many things to keep track of at once (…) when there is no one watching how fast you complete a task, then I think that many tasks can be done not only better but faster as well, if no one interrupts and you're allowed to do it on your own premises"*.

Drawing from the above it can be said, that *Andrea, Johanne, Klara* and *Michelle* seem to perceive both themselves in terms of openness, AT as such, their learnings from the project and the thereof

potentially transferred approaches towards CC and sustainability, to deviate from what they perceive to be the general norm. This, in turn, gave rise to a concern about what 'other people' might think, which represented a barrier towards transferring their learnings from the project to their work with CC and sustainability. This circumstance can probably be explained by the fact that people in general have a tendency to wish to conform to what they perceive to be the general norm (Schultz et al., 2007).

Malte expressed the same notion about others not being as openminded. He for example said *"so you just have to be persistent and dare to be annoying and say 'it' even when it's inappropriate"*. Here *Malte* recognized that others might view him as *"annoying"* and *"inappropriate"* if he were to insist on a more holistic approach to his work with CC. Thus, it can be argued that *Malte* also saw himself and his insights from the AT lessons as deviating from the general norm. *Malte*, however, did not seem to perceive it as a barrier towards implementing his insights to his work.

Drawing from the above, it seems that either did *Andrea, Johanne, Klara* and *Michelle* assign the general person's norm (as they perceive it) a greater emphasis than *Malte* did, or *Malte* perceived his learnings and AT to be closer to the norm than the other four participants did. If the second was the case, it might be explained by the fact that *Malte* addressed his skepticism in open dialogue with the AT teacher and, thus, had the opportunity to have the source of his skepticism normalized and his skepticism towards it weakened.

Either way, *Andrea, Johanne, Klara* and *Michelle's* self-reported openness towards new approaches to their work with CC and sustainability in general, and towards a more holistic approach in particular did not, in the contrary to what one might think, necessarily have a positive effect on whether they implemented said approaches in this particular project. In fact, their perception of themselves as being deviating from the norm seemed to, in itself, have a negative effect on their readiness to implement these approaches. *Malte's* expressed skepticism in this project did not, in turn, seem to have a negative influence on his readiness to implement or transfer his learnings to his work with CC and sustainability.

4.4.1 Main insights and reflections – Skepticism

Four participants, *Michelle, Andrea, Klara* and *Johanne,* expressed having difficulties transferring their insights and realizations from the lessons in AT to their professional lives and work with CC and sustainability. This was despite all four of them expressing having meaningful insights about a more holistic mode of thinking that felt useful to them in a bodily/general life/CC and sustainability context during the course of the project. The fifth participant, *Malte*, expressed no such difficulties rather he felt inspired and empowered by the lessons to insist on bringing a more holistic perspective wherever he could professionally.

This discrepancy correlated with: 1. If the participants' addressed their skepticism in the open during the lessons and 2. If deviating from what the participants perceived to be other people's (and colleagues) norms was a point of concern to the participants or not.

This is an interesting finding as skepticism in general is viewed to be a barrier towards adopting pro-environmental behavior (Chatterjee & Dey, 2015; Moutinho et al., 2011). Whereas, in this specific project it seemed, that it was not skepticism as such that acted as the barrier towards the participants' readiness to transfer their insights to their work. Rather, the barrier-effect of said skepticism depended on whether or not it was addressed in the open.

Further, the above is salient as all four (in fact all five) participants stated on the questionnaire that they perceived the general people's norms i.e. habits, worldviews and practices to represent not only one of the main causes of the climate crisis, but one of the main barriers for a sustainable transition to happen. Still, four of them seemed to be held back from transferring their insights from the project to their work because of a concern about deviating from what they perceived to be general persons norm.

Here, of course, it must be said that just because four of the participants experienced this barrier towards transferring to practice the particular insights from this particular project, any general conclusions cannot be drawn. The barrier-effect might as well just have something to do with the nature of this particular project, the specific insights from it and the participants' view on AT as such. The fact, however, that they expressed that many of their insights and learnings felt meaningful, useful and made sense to them, speaks against the barrier-effect being isolated to them having a notion about the project itself as being just too *"wacky".*

5 Analyzes conclusions

The analyzes show that the participants through the five lessons in AT, had insights and realizations that can be seen to have furthered their understanding about ST in general and as an approach towards their work with CC and sustainability in particular.

The participants insights from the project were both drawn from and strengthened by the bodily experiences that the participants had during the lessons in AT. This can be explained by existing embodied learning theory.

The participants readiness to implement their insights to their work with CC and sustainability correlated with: 1. If they addressed their skepticism in the open during the lessons or not and 2. If deviating from what the participants perceived to be other people's (and colleagues) norms was a point of concern to the participants or not. The one participant that addressed his skepticism in the open, and who did not perceive other people's thoughts as a point of concern was more prone to transfer his insights to a work-related setting.

6 Perspectivation

"The bad news, or the good news, depending on your need to control the world and your willingness to be delighted by its surprises, is that even if you do understand all these system characteristics, you may be surprised less often, but you will still be surprised."(Meadows, 2008, p. 87)

First of all, this study is an exploratory, in-depth investigation in to five people's very subjective experience. Thus, the aim is not to draw any final, generalizable or reproduceable conclusions. The investigation did, however, produce a few interesting insights. These are outlined below.

One really interesting aspect of the results from this project, and I would say, *the main take home message* is that although the selection process was biased towards an "openminded" and systems-oriented group of people, they all had embodied experiences that opened up their minds towards an even more holistic perspective, which they in turn connected to their work with CC and sustainability. It means that, even though the starting point was a rather holistic cognitive paradigm, there was still room for development here. It also means that, involving the body so explicitly as one does during the AT lessons, did make a difference to the development of the participants cognitive paradigm.

Another salient aspect of the results is that all five participants stated that they perceived the general person's worldview to be a cause of the climate crisis, and that a departure from business as usual is necessary for a sustainable transition to happen. Still, four of them seemed to be held back from transferring their insights from the project to their work because of their perception of the general person's norm and lack of acceptance or understanding for an expanded holistic view. Here, it can be suggested that the project might have had different results if it was implemented on a (small) community basis. For example, if everyone at the same work place was offered lessons in AT, combined with the opportunity to share and discuss their insights and learnings with each other. Then, the effect of community support might overcome some of the barrier-effect of not wanting to deviate from the norm. Either way, this result points towards the importance of norms, acceptance and community support when it comes to change, which represent a difficult paradox to deal with when it comes to CC and sustainability.

The lessons in AT induced and increased sense of interconnectedness to the surroundings for four of the participants. Referring to existing research and literature, the disconnect from nature is commonly seen as a primary catalyst of the global environmental crisis (Okpoko, 2022). Furthermore, a strong sense of interconnectedness can be understood to correlate with pro-environmental behavior and pro-nature believes (Fehnker et al., 2022; Okpoko, 2022). Hence, having lessons in AT may address the sustainable transition by stimulating pro-environmental behavior. Further research is, however, needed to clarify if this is the case.

In this project it seemed that skepticism as such did not act as a barrier towards the participants' readiness to transfer their insights to their work. Rather, the barrier-effect of said skepticism depended on whether or not it was addressed in the open. This is an interesting finding that might nuance the widely accepted view of skepticism representing a barrier towards adopting pro-environmental behavior (Chatterjee & Dey, 2015; Moutinho et al., 2011). Again, further research is, however, needed to illuminate the topic.

A point that should be surfaced, is the fact that the project is based on not only one but a series of hypotheses: that CC and sustainability can (and should) be understood from an ST-perspective that in turn can be better understood through AT as an EL approach. I do my best to argue for these hypotheses in the theory section. It is, however, possible that the connections that the participants made between their insights from AT and their work with CC only occurred because I put the participants in a context where the two were already hypothesized to be connected – this project. It is however important to note that the participants were not informed about which kind of insights I expected or about the ST-part in the hypotheses-series. The results from this study can therefore be interpreted to strengthen the very same series of hypotheses.

It can be discussed whether or not it represents a viable option to give all CC-professionals lessons in AT in terms of time, money and general practicality. The short answer is that it probably does not. The aim here is rather to argue for the involvement of the body in the transformative work that lays ahead when it comes to dealing with CC and the sustainable transition. In fact, existing research about embodiment and the body/mind connection tells us that the body already is involved, we just fail to recognize it sometimes. Thus, this project is an investigation in to what can happen when involving the body so explicitly as one does in the AT work and a comment that serve to nuance our otherwise so mind-focused culture.

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9 Appendices

Appendix 1: Questionnaire (attached)
Appendix 2: Interview guide (attached)